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Proposed Surface Water Drainage Report

FNC0011 Site Infrastructure

Full Sutton 2

664015-1275-PEV-FNC0011-ZZ-RP-C-0504
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S3 – Suitable for Review and Comment
08/07/2021

Ministry of JUSTICE

Security Classification:
OFFICIAL

Document History

Issue	Date	Comment	Author	Chk'd
P01	08/07/2021	First issue. RMA submission.	PCA	MHA

PICK EVERARD

Contents

1.0 Introduction

This surface water drainage report has been produced to support the reserved matters application and discharge of conditions application associated with the proposed development of a new Category C Adult Male prison on land adjacent to HMP Full Sutton.

The proposals have been produced in accordance with the DEFRA Guide, Non-Statutory Technical Standards for Sustainable Drainage Systems and the requirements of the National Planning Policy Framework (NPPF). In addition, discussions have been held with the Lead Local Flood Authority at East Riding of Yorkshire Council, and their responses have informed the surface water drainage proposals for this site.

Hydraulic modelling calculations are included as an appendix to this report.

2.0 Site Description

2.1 Existing Site

The proposed site is located to the west of the existing HMP Full Sutton site, and is around twice as long in the north to south dimension than the east to west dimension.

The site is bounded to the north and west by public highway (Moor Lane) with open fields beyond, and to the east by the existing HMP Full Sutton site. To the south lies open fields. The village of Full Sutton lies to the north east of the proposed development site. An open surface water ditch runs east to west, roughly dividing the site in half. A small surface water pond lies within an area of trees between the development site and the existing HMP Full Sutton.

A review of the topographical survey indicates minimal level change across the site, with a maximum of 500mm level difference across either the north-south or east-west axis.

2.2 Proposed Site

The site is to be developed to provide a new Category C Re-Settlement prison. Accommodation will be provided in 6 houseblocks, with a number of additional support buildings providing all necessary facilities. While there will be a requirement for site roads, and areas of hardstanding, there will also be areas allocated to planting and green spaces. The proposed site layout plan has been used to develop the proposed surface water drainage design, and is shown on the drawings in the Appendices.

For clarity and reference in the text below, the site has been split into two areas;

- Car Park and Access Road – located to the north of the main site, with a bus stop, cycle parking, and entrance route for all vehicles to the main site access point.
- Main Site – located to the south of the car park, and housing the support buildings and 6 houseblocks.

The existing open surface water ditch, described in 2.1 above, runs within the Main Site area.

3.0 Surface Water Drainage Proposals

3.1 Existing Surface Water Drainage

The existing site is entirely greenfield land, and as such there is no known formal surface water drainage serving the site.

The existing surface water ditch that crosses the site is to be abandoned and backfilled as part of the development. A replacement open ditch is to be provided around the southern boundary of the site, to deliver biodiversity benefits while also providing a replacement route for surface water flows.

It is understood that the surface water drainage serving the adjacent existing HMP Full Sutton site drains to the small pond to the west of the existing site, and then onwards via the open surface water ditch.

Initial Greenfield run-off rates have been calculated for the Full Sutton 2 development site, and the QBar value has been determined. Following discussion with the LLFA, it has been confirmed that the flow rate from the new development should be limited to QBar.

Table 1 – Greenfield Run-off Calculations

Return Period (Years)	Greenfield Discharge Rate (l/s)
QBar	54.5

3.2 SuDS Introduction

The SuDS hierarchy requires that surface water run-off is controlled and preferably re-used wherever possible. In the event that it cannot be re-used it should be disposed of to a receptor in the order described in the Building Regulations Approved Document Part H and CIRIA C753 The SuDS Manual 2015:

- Via infiltration,
- To watercourse, and finally,
- To sewers.

3.3 SuDS Proposals

Surface water run-off should preferably be discharged via infiltration. The presence of sands and gravels, indicated by the initial ground investigation results, suggests that soakaways may have been a suitable solution at this site. However, further ground investigation works have determined that the presence of a very high water table (approx.1.5m below ground level) results in soakaways not being viable.

Therefore, the current surface water drainage proposals include for discharge to the newly constructed surface water ditch, which is to be constructed around the south of the new site development. Appropriate levels of attenuation are also to be provided, in the form of below ground attenuation storage. Attenuation

volumes have been determined using Microdrainage – calculation output is provided in the Appendices to this report.

CIRIA C753 requires that surface water run-off is treated to improve the quality of the discharge water so that it does not negatively impact on the quality of the receiving watercourse or groundwater. Appropriate levels of treatment have been provided as part of the design proposals, to meet the requirements of the Lead Local Flood Authority.

The table below discusses types of SuDS (taken from C753), and the selection process for their inclusion or exclusion as part of the surface water drainage for this site.

Table 2 – SuDS Site Suitability Assessment

SuDS Component	Site Suitability	Comments
Green roofs	X	Not suitable as building form does not permit.
Soakaways	X	Not suitable due to ground conditions / high water table.
Rainwater harvesting systems	X	Not suitable for development.
Filter strips	X	Not suitable due to ground conditions / high water table.
Filter trenches	✓	Used as part of road drainage, in conjunction with permeable pipe to collect flows.
Infiltration trenches	X	Not suitable due to ground conditions / high water table.
Swales	X	Not suitable due to ground conditions / high water table.
Bioretention	X	Not suitable due to ground conditions / high water table.
Pervious pavements	X	Not suitable due to ground conditions / high water table.
Geocellular systems	X	Suitable to be used for attenuation and discharge of surface water run-off.
Infiltration basins	X	Not suitable due to ground conditions / high water table.
Attenuation basins	X	Not suitable due to ground conditions / high water table.
Ponds	X	Not suitable due to ground conditions / high water table.
Stormwater wetlands	X	Not suitable due to ground conditions / high water table.

Proprietary Devices	X	Not preferred due to ongoing maintenance requirements but can provide suitable treatment if required.
Rain gardens	X	Not suitable due to site development purpose.

3.4 Surface Water Drainage Proposals

Proposed surface water drainage drawings are included in the appendices to this report.

The proposed site drainage has been split into two catchments;

- Catchment 1 – The Car Park
- Catchment 2 – The Main Site

The calculated QBar flow rates from each catchment are as follows;

- Car Park – 16.5l/s
- Main Site – 38l/s
- Total QBar = 54.5l/s

Due to the flat nature of the site, and the relative water level in the receiving ditch, it is necessary to provide a pumping station within each catchment, to discharge the flows. The inclusion of two pumping stations minimises the overall depth of the site drainage, as the distance across the site is considerable, and would otherwise lead to a very deep gravity drainage network.

Drawings showing initial details of both pumping stations are included in the appendices to this report, along with the Microdrainage calculation output for both catchments.

3.4.1 Catchment 1 – Car Park - Pumping Station 1

The first pumping station is located within the car park, in a suitable position to facilitate access for maintenance. The pumping station will be provided with Duty/Standby pumps, as the range of incoming flow rates is reasonably limited. The pumps will discharge via a single rising main, which will deliver flows to the Outfall Manhole 1 – see below for details.

Due to the location of this pumping station, an emergency overflow cannot be provided – the design of the car park will ensure that any flooding is confined to the car park area, and does not impact on the site buildings.

3.4.2 Catchment 2 – Main Site – Pumping Station 2

The second pumping station will be located at the western side of the main site, with access from the perimeter road to facilitate maintenance. Due to the requirements to provide a pumping arrangement to suit a wide variety of rainfall events, and therefore incoming flow rates, a four pump arrangement will be provided. Each pump will discharge via a dedicated rising main, which removes the requirement for a valve

chamber, and provides hydraulic performance improvements. All four rising mains will discharge into Outfall Manhole 2 – see below for details.

Due to the location of Pumping Station 2, adjacent to the proposed Outfall Manhole 2, an emergency overflow can be provided. The overflow will permit emergency discharge of surface water flows to Outfall Manhole 2 in the event of pumping station failure.

3.4.3 Outfall Manhole

Both Pumping Station 1 and Pumping Station 2 will discharge, via rising mains, into their respective Outfall Manholes, labelled 1 and 2. The locations of these chambers is shown on the surface water drainage drawings included in the appendices to this report. The overflow from Pumping Station 2 will feed to Outfall Manhole 2, and will be fitted with a flap valve to prevent reverse flow. From the Outfall Manholes, surface water flows will gravitate to the ditch via a single 300mm dia pipe in the case of Outfall Manhole 1, and twin 300mm dia pipes for Outfall Manhole 2.

New pre-cast concrete headwalls will be provided for both outfalls, recessed into the ditch bank, to enable construction of a concrete spillway with granite boulders. These structures will disperse the flow, and protect against scouring of the ditch bed.

Further rock armour is to be provided on the opposite banks, and also the beds of the ditch - this approach will provide further protection against scouring.

Drawings showing the details of the Outfall Manholes and Spillways are provided in the appendices to this report.

3.5 Drawings and Documents

The following drawings have been prepared to support the drainage proposals for the site, However, due to file size, only those drawings with an asterisk are included within this report. For all others, reference should be made to the Viewpoint file sharing platform. Details are provided below;

*664015-1275-PEV-FNC0011-ZZ-DR-C-0500 – Proposed Surface Water Drainage

*664015-1275-PEV-FNC0011-ZZ-DR-C-6505 – Drainage Details–SW Pumping Station-Car Park
*664015-1275-PEV-FNC0011-ZZ-DR-C-6506 – Drainage Details–SW Pumping Station-Main Site

*664015-1275-PEV-FNC0011-ZZ-DR-C-0103 – Impermeable Areas Plan

*664015-1275-PEV-FNC0011-ZZ-CA-C-0501_Proposed Surface Water Drainage-Calculations-Car Park
*664015-1275-PEV-FNC0011-ZZ-CA-C-0502_Proposed Surface Water Drainage-Calculations-Main Site

*664015-1275-PEV-FNC0011-ZZ-DR-C-6509_Drainage Details-SW Outfall 01
*664015-1275-PEV-FNC0011-ZZ-DR-C-6510_Drainage Details-SW Outfall 02

664015-1275-PEV-FNC0011-ZZ-DR-C-6507 – Drainage Details–Sheet 01
664015-1275-PEV-FNC0011-ZZ-DR-C-6508 – Drainage Details–Sheet 02

664015-1275-PEV-FNC0011-ZZ-DR-C-0501 – Proposed Surface Water Drainage-Sheet 01
664015-1275-PEV-FNC0011-ZZ-DR-C-0502 – Proposed Surface Water Drainage-Sheet 02
664015-1275-PEV-FNC0011-ZZ-DR-C-0503 – Proposed Surface Water Drainage-Sheet 03
664015-1275-PEV-FNC0011-ZZ-DR-C-0504 – Proposed Surface Water Drainage-Sheet 04
664015-1275-PEV-FNC0011-ZZ-DR-C-0505 – Proposed Surface Water Drainage-Sheet 05
664015-1275-PEV-FNC0011-ZZ-DR-C-0506 – Proposed Surface Water Drainage-Sheet 06
664015-1275-PEV-FNC0011-ZZ-DR-C-0507 – Proposed Surface Water Drainage-Sheet 07
664015-1275-PEV-FNC0011-ZZ-DR-C-0508 – Proposed Surface Water Drainage-Sheet 08
664015-1275-PEV-FNC0011-ZZ-DR-C-0509 – Proposed Surface Water Drainage-Sheet 09
664015-1275-PEV-FNC0011-ZZ-DR-C-0510 – Proposed Surface Water Drainage-Sheet 10
664015-1275-PEV-FNC0011-ZZ-DR-C-0512 – Proposed Surface Water Drainage-Sheet 11

664015-1275-PEV-FNC0011-ZZ-SH-C-0501 – Proposed Surface Water Drainage-Schedule 01
664015-1275-PEV-FNC0011-ZZ-SH-C-0502 – Proposed Surface Water Drainage-Schedule 02
664015-1275-PEV-FNC0011-ZZ-SH-C-0503 – Proposed Surface Water Drainage-Schedule 03
664015-1275-PEV-FNC0011-ZZ-SH-C-0504 – Proposed Surface Water Drainage-Schedule 04
664015-1275-PEV-FNC0011-ZZ-SH-C-0505 – Proposed Surface Water Drainage-Schedule 05
664015-1275-PEV-FNC0011-ZZ-SH-C-0506 – Proposed Surface Water Drainage-Schedule 06
664015-1275-PEV-FNC0011-ZZ-SH-C-0507 – Proposed Surface Water Drainage-Schedule 07
664015-1275-PEV-FNC0011-ZZ-SH-C-0508 – Proposed Surface Water Drainage-Schedule 08
664015-1275-PEV-FNC0011-ZZ-SH-C-0509 – Proposed Surface Water Drainage-Schedule 09
664015-1275-PEV-FNC0011-ZZ-SH-C-0510 – Proposed Surface Water Drainage-Schedule 10
664015-1275-PEV-FNC0011-ZZ-SH-C-0511 – Proposed Surface Water Drainage-Schedule 11

4.0 Surface Water Drainage Maintenance Plan

4.1 Overview

This maintenance plan has been prepared by Pick Everard to provide guidance for the general maintenance of the surface water drainage system serving the proposed site.

For all drainage systems a schedule of regular maintenance inspections should be established. Each item should be inspected after every significant storm to maintain optimum efficiency.

It should be noted that all inspections and maintenance should be carried out by suitably competent personnel using appropriate equipment and safety procedures. Most of the drainage assets are below ground and therefore confined spaces may be applicable with the associated safety hazards.

It is anticipated that most inspections can be carried out from ground level without the need for entry into confined spaces.

4.2 Surface Water Drainage Network

4.2.1 Gullies, rainwater downpipes, gutters, hoppers and channel drains.

Each item should be checked to make sure they are free from leaves and debris every three months and more often during the autumn months.

They should also be checked immediately after a significant storm event. Clean and unblock with a jet washer if it is deemed necessary.

4.2.2 Catchpits

The catchpits should be inspected regularly for the first year (at least every three months) until it can be established how frequently the sump fills with debris. It is particularly likely that loose soil matter from the soft landscaping adjacent to the carparks may enter the drainage system until the new grass becomes established.

After the first year catchpits should be emptied of debris at least every six months. They should also be checked immediately after a significant storm event; however, there is no need for maintenance staff to enter into the chamber.

The chamber should be cleaned and unblocked, removing all silt and debris. If debris and silt is allowed to build up it can carry over into the drainage system causing blockages.

4.2.3 Attenuation Tanks

During first year of operation, inspections should ideally be carried out after every significant storm event to ensure proper functionality. As a minimum, all tanks should be CCTV inspected periodically (suggested minimum bi-yearly) and any deposited sediment is flushed out with high-pressure jets.

4.2.4 Flow Control Chambers

Once every six months each cover should be lifted, and a visual inspection carried out. If any blockages are found and a rodding point is available this should be used to unblock the chamber, otherwise the blockages should be flushed out with high-pressure jets.

4.2.5 Filter Drains

Filter drains require no specific maintenance other than regular grass cutting to facilitate water ingress to the drainage feature below ground. Any debris such as leaf litter should be cleared after each major storm event.

4.2.6 Oil Separators

Oil separators are fitted with an alarm system which will be connected into the BMS system. Oil separator to be inspected every six months and oil reservoir to be emptied if required. Oil separators to be maintained by a specialist contractor.

4.2.7 Surface Water Pumping Stations

Both pumping stations are fitted with alarms which warn of any issues (pump failure, high water level etc), and the response to any issues raised by the alarms will be on demand rather than a planned maintenance event. The pumping station wet wells should be inspected on a yearly basis to check for any build-up of debris, which should be removed by jetting / tanker. The maintenance of the pump equipment is a specialist item which will be detailed by the pump provider / manufacturer.

4.2.8 Surface Water Outfall Manholes

The surface water outfall manholes are located to facilitate maintenance access, via the perimeter road. The chambers should be checked after each major storm event to ensure no blockages are present within the chamber and pipework, or as a minimum once every 6 months whichever is more frequent. Flap valves should be checked for proper operation.

4.2.9 Surface Water Headwalls / Spillways

The spillway and headwall should be checked for any build-up of debris, that may restrict flows, after each major storm event or every 6 months, whichever is more frequent. Any debris should be removed / cleared.

4.3 Health and Safety

All inspections and maintenance should be carried out by competent personnel using appropriate procedures and safety equipment. It is anticipated that most of the regular inspections can be carried out from ground level without the requirement to enter underground inspection chambers, manholes or other structures.

The following hazards have been identified (reference should be made to the Design Risk Register for comprehensive details);

- Below ground confined spaces (manhole chambers and pumping station wet wells etc.)
- Standing water in attenuation tanks and blocked manholes/catchpits, and pumping station wet wells.
- Moving vehicles in the vicinity of access covers located within car parking areas.
- Sudden inflow of water (Outfall Manholes and Headwalls / Spillways).
- Sudden operation of mechanical equipment in pumping stations.
- Watercourses adjacent Headwalls / Spillways – deep standing water.

5.0 Conclusions

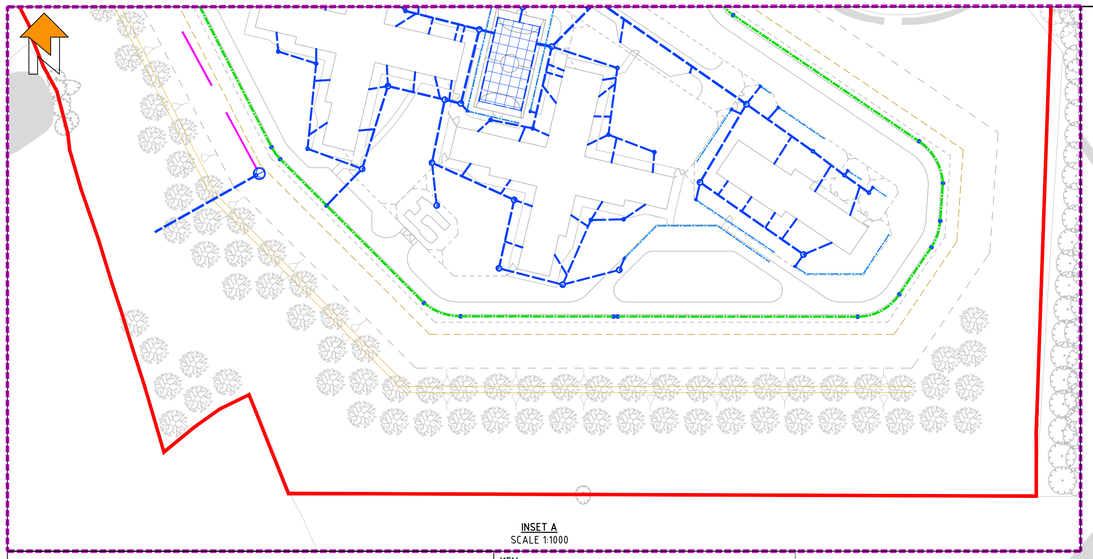
Surface water drainage proposals drawings have been prepared for this site. The details include two pumping stations with respective outfalls to the new surface water ditch to the south of the development site.

The proposals have been discussed with the Lead Local Flood Authority, and the proposed design fully includes the agreed principles.

A full Ordinary Watercourse Land Drainage Consent Application has been submitted for the surface water drainage, which covers the proposed construction of the outfall headwalls. Details have already been discussed with the Lead Local Flood Authority, and therefore consent is anticipated to be granted without issue.

Appendix A

664015-1275-PEV-FNC0011-ZZ-DR-C-0500 – Proposed Surface Water Drainage
664015-1275-PEV-FNC0011-ZZ-DR-C-0103 – Impermeable Areas Plan
664015-1275-PEV-FNC0011-ZZ-DR-C-6505 – Drainage Details–SW Pumping Station-Car Park
664015-1275-PEV-FNC0011-ZZ-DR-C-6506 – Drainage Details–SW Pumping Station-Main Site
664015-1275-PEV-FNC0011-ZZ-DR-C-6509 – Drainage Details-SW Outfall 01
664015-1275-PEV-FNC0011-ZZ-DR-C-6510 – Drainage Details-SW Outfall 02



INSET A
SCALE 1:1000

NOTES:

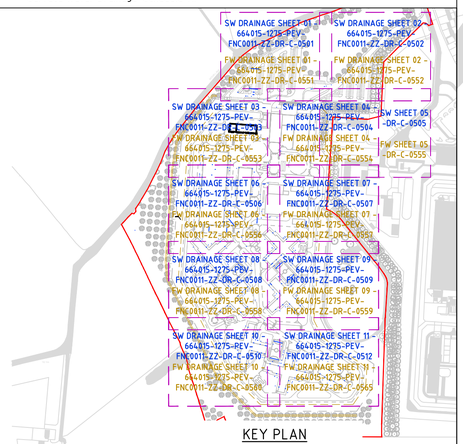
1. FOR DETAILS ABOUT SURFACE WATER DRAINAGE LAYOUT PLEASE REFER TO BELOW 11 AREAS HIGHLIGHTED IN THE KEY PLAN.
2. EACH SURFACE WATER AREA HAVE A MANHOLE SCHEDULE ASSIGNED THEREFORE FOR ANY LVL AND DETAILS PLEASE REFER TO THE 11 MANHOLE SCHEDULES.
3. FOR EASE OF REFERENCE PLEASE SEE BELOW:

- 664015-1275-PEV-FNC0011-ZZ-DR-C-0501_Proposed Surface Water Drainage-Sheet 01 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0501_Proposed Surface Water Drainage-Schedule 01.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0502_Proposed Surface Water Drainage-Sheet 02 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0502_Proposed Surface Water Drainage-Schedule 02.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0503_Proposed Surface Water Drainage-Sheet 03 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0503_Proposed Surface Water Drainage-Schedule 03.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0504_Proposed Surface Water Drainage-Sheet 04 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0504_Proposed Surface Water Drainage-Schedule 04.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0505_Proposed Surface Water Drainage-Sheet 05 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0505_Proposed Surface Water Drainage-Schedule 05.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0506_Proposed Surface Water Drainage-Sheet 06 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0506_Proposed Surface Water Drainage-Schedule 06.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0507_Proposed Surface Water Drainage-Sheet 07 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0507_Proposed Surface Water Drainage-Schedule 07.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0508_Proposed Surface Water Drainage-Sheet 08 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0508_Proposed Surface Water Drainage-Schedule 08.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0509_Proposed Surface Water Drainage-Sheet 09 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0509_Proposed Surface Water Drainage-Schedule 09.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0510_Proposed Surface Water Drainage-Sheet 10 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0510_Proposed Surface Water Drainage-Schedule 10.
- 664015-1275-PEV-FNC0011-ZZ-DR-C-0512_Proposed Surface Water Drainage-Sheet 11 HAS ASSIGNED 664015-1275-PEV-FNC0011-ZZ-SH-C-0511_Proposed Surface Water Drainage-Schedule 11.

KEY:

- PROPOSED SURFACE WATER SEWER.
- PROPOSED CHANNEL DRAIN.
- PROPOSED FILTER DRAIN.
- PROPOSED RISING MAIN.
- MoJ PROPERTY LINE.
- SW INSPECTION CHAMBER.
- SW ACCESS CHAMBER (MANHOLE).
- GULLY.
- CHANNEL DRAIN SUMP BOX.

OUTFALL POINT OF DISCHARGE AND DISCHARGE RATE TO BE CONFIRMED WITH LLFA.



KEY PLAN
SCALE 1:5000

REFER TO INSET A ABOVE FOR CONTINUATION

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

The above symbols can only be read when this drawing is in colour print

PRINT IN COLOUR

NOTES:

1. ALL DRAINAGE WORKS TO BE CONSTRUCTED TO DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SEWERS, BUILDING REGULATIONS PART H, MOJ TECHNICAL SPECIFICATION STD/X/SPEC/010 ISSUE 006 AND PICK EVERARD DRAINAGE SPECIFICATION.
4. ALL SEWERS AND DRAINS TO HAVE A CLASS Z BED AND SURROUND AT A DEPTH OF COVER TO PIPE SOFFIT OF LESS THAN 1.2m UNDER PAVED AREAS AND BUILDINGS AND 0.9m IN VERGE. IN ALL OTHER AREAS, ALL SEWERS AND DRAINS SHALL HAVE A CLASS S BED, UNLESS STATED OTHERWISE ON THE DRAWINGS.
5. ALL SEWERS TO BE BACKFILLED WITH TYPE 1 GRANULAR MATERIAL UNDER PAVED AREAS, ROADS AND HARDSTANDINGS OR AS-DUG MATERIAL IN VERGE AREAS.
6. MANHOLE COVERS AND FRAMES WITHIN VEHICULAR LOADED AREAS TO BE D400 RATED AND C250 IN ALL OTHER AREAS TO BS EN 124:1994. ALL COVERS TO BE DUCTILE IRON.
9. RWP LOCATIONS AND LATERALS ARE NOT SHOWN. TO BE CONFIRMED BY THE ARCHITECT AT DETAIL DESIGN STAGE.
10. DRAINAGE SYSTEM TO BE SUBJECTED TO INSPECTION INTERIM AND FINAL TESTS IN ACCORDANCE WITH MOJ TECHNICAL SPECIFICATION STD/X/SPEC/010 ISSUE 6 AND BS EN 75
15. ALL PIPEWORK:
    - PVC WITH FLEXIBLE MECHANICAL JOINTS TO BS EN 295-1 AND BS 65 UP TO 600mm DIAMETER
    - OVER 600mm - CONCRETE TO BS EN 1916 AND 1911
    - BELOW CONCRETE FLOOR SLABS - CAST IRON TO BS 437 OR DUCTILE IRON TO BS 598
16. FLOW CONTROL MANHOLES TO BE LOCATED IN MANHOLES DCE-50041, 50300, 50301, 50122, 50124, AND 50125 (TO BE HYDRO-BRAKE OR SIMILAR APPROVED).
17. BY-PASS OIL SEPARATOR TO BE CLASS I NSBE040 BY KLARGESTER OR SIMILAR APPROVED. FULL RETENTION TO BE CLASS I NSFA125 BY KLARGESTER OR SIMILAR APPROVED. BOTH WITH ALARMS REQUIRED.
18. DRAINAGE STRATEGY IS SUBJECT TO LEAD LOCAL FLOOD AUTHORITY (LLFA) APPROVAL AND MAY BE SUBJECT TO CHANGE.
19. PIPE DIAMETERS AND GRADIENTS TO BE CONFIRMED ONCE THE HYDRAULIC MODELLING IS CARRIED OUT AND DISCHARGE RATE APPROVED BY LLFA.
20. ATTENUATION VOLUME ESTIMATE HAS BEEN CARRIED OUT IN SOURCE CONTROL AND IS AS FOLLOWS:
    - 20.1. ATTENUATION VOLUME FOR 1:100 YEAR STORM (PLUS 30% CC) 1048m^3 IN THE CAR PARK AND 3920m^3 WITHIN THE MAIN SITE.
    - 20.2. BELOW GROUND ATTENUATION TANKS TO BE POLYSTORM DEEP BY POLYPIPE OR SIMILAR APPROVED.
21. REFER TO 664015-1275-FNC001-ZZ-RP-C-0503-PROPOSED SURFACE WATER STRATEGY REPORT FOR FURTHER DETAILS.

Rev	Date	Description
P02	2021.06.02	Site Plan updated
P01	2021.03.16	FIRST ISSUE FOR RIBA STAGE 3 APPROVAL.

Project Status
RIBA Stage 3

Client
Ministry of Justice

Project
New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Full Sutton 2

Project Address
Land at Moor Lane
Full Sutton
York, YO41 1PS

Building Type
Site Infrastructure

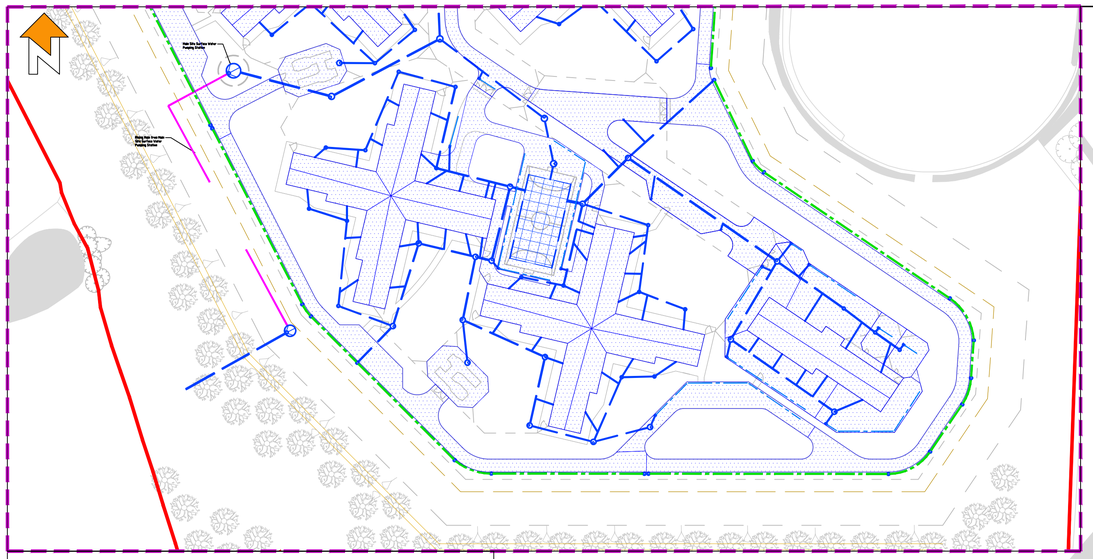
Drawing Title
Proposed Surface Water Drainage

Originator Logo
PICK EVERARD

Drawn By	MHA	Date	16.03.21
Checked By	PCA	Date	16.03.21
Approved By	PCA	Date	16.03.21

Drawing Number: 664015-1275-PEV-FNC0011-ZZ-DR-C-0500
Delref: D0100
Sheet No.: 01 of 01
Scale: 1 : 1000 Orig. Sheet Size @ A1
Rev.: P02
Data Security Classification: OFFICIAL
Suitability: S3

Drawing No. PEV



This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

The above symbols can only be read when this drawing is in colour print

Red Line Boundary
Area=21ha
Impermeable Area
Car Park= 1.74ha
Main Site = 5.87ha
Contributing Permeable Area
Car Park = 0.95ha

NOTE
1. REFER TO 664015-1275-FNC001-ZZ-RP-C-0503-PROPOSED SURFACE WATER STRATEGY REPORT FOR FURTHER DETAILS.

Rev	Date	Description
P02	2021.06.11	CONTRIBUTING AREAS UPDATED DUE TO SITE PLAN UPDATE.
P01	2021.03.16	FIRST ISSUE FOR RIBA STAGE 3 APPROVAL.

Project Status
RIBA Stage 3

Client
Ministry of Justice

Project
New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Full Sutton 2

Project Address
Land at Moor Lane
Full Sutton
York, YO41 1PS

Building Type
Site Infrastructure

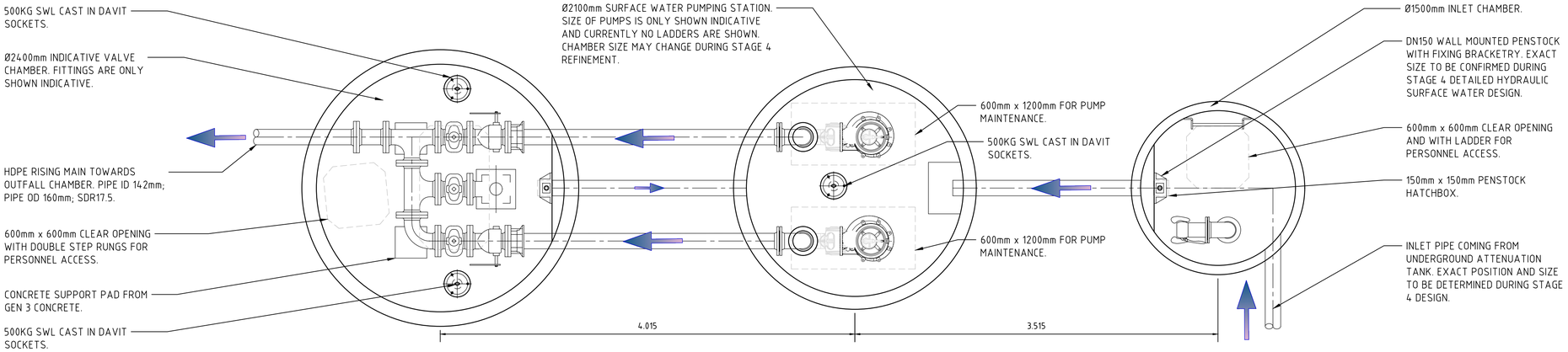
Drawing Title
Impermeable Areas Plan

Originator Logo
PICK EVERARD

Drawn By	VSP	Date	16.03.21
Checked By	PCA	Date	16.03.21
Approved By	PCA	Date	16.03.21

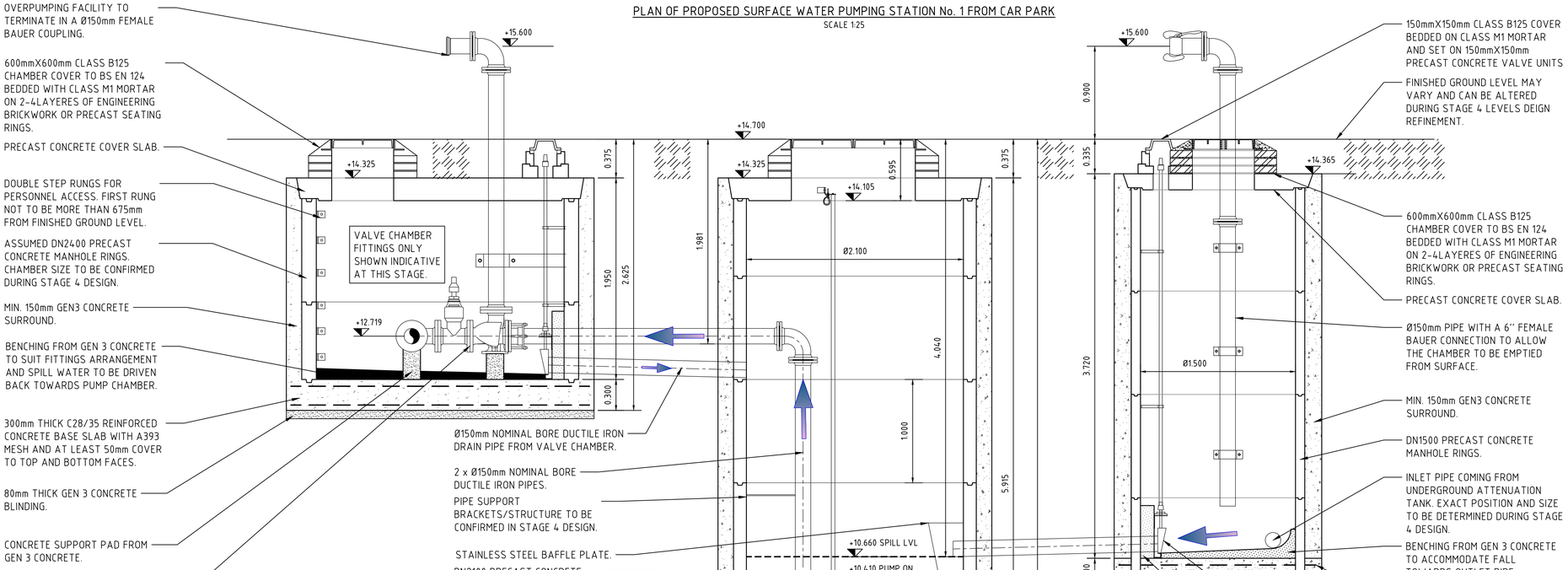
Drawing Number: 664015-1275-PEV-FNC0011-ZZ-DR-C-0103
Delref: D0100
Sheet No.: 01 of 01
Scale: 1 : 1000
Orig. Sheet Size: @ A1
Rev.: P02
Data Security Classification: OFFICIAL
Suitability: S3

Drawing Rev. P01



PLAN OF PROPOSED SURFACE WATER PUMPING STATION No. 1 FROM CAR PARK

SCALE 1:25



SECTION PROPOSED SURFACE WATER PUMPING STATION No. 1 FROM CAR PARK

SCALE 1:25

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

The above symbols can only be read when this drawing is in colour print

NOTES:

1. ALL DETAILS, DIMENSIONS, ARRANGEMENTS AND SPECIFICATIONS ARE INDICATIVE CONCEPT DESIGN ONLY - ALL DETAILS TO BE CONFIRMED FOLLOWING DESIGN DEVELOPMENT.
2. ALL DRAINAGE WORKS TO BE CONSTRUCTED TO DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SEWERS, BUILDING REGULATIONS PART H, MOJ TECHNICAL SPECIFICATION STD/X/SPEC/010 ISSUE 006 AND PICK EVERARD DRAINAGE SPECIFICATION.
3. DIMENSIONS IN METRES, LEVELS IN METRES ABOVE ORDNANCE DATUM.
4. ALL SEWERS AND DRAINS TO HAVE A CLASS Z BED AND SURROUND AT A DEPTH OF COVER TO PIPE SOFFIT OF LESS THAN 1.2m UNDER PAVED AREAS AND BUILDINGS AND 0.9m IN VERGE. IN ALL OTHER AREAS, ALL SEWERS AND DRAINS SHALL HAVE A CLASS S BED, UNLESS STATED OTHERWISE ON THE DRAWINGS.
5. ALL SEWERS TO BE BACKFILLED WITH TYPE 1 GRANULAR MATERIAL UNDER PAVED AREAS, ROADS AND HARDSTANDINGS OR AS-DUG MATERIAL IN VERGE AREAS.
6. MANHOLE COVERS AND FRAMES WITHIN VEHICULAR LOADED AREAS TO BE D400 RATED AND C250 IN ALL OTHER AREAS TO BS EN 124:1994. ALL COVERS TO BE DUCTILE IRON. ALL COVERS TO BE LOCKABLE AND PROVIDED WITH SAFETY GRILL.
9. DRAINAGE SYSTEM TO BE SUBJECTED TO INSPECTION INTERIM AND FINAL TESTS IN ACCORDANCE WITH MOJ TECHNICAL SPECIFICATION STD/X/SPEC/010 ISSUE 6 AND BS EN 75.

Rev	Date	Description
P01	2021.03.16	ISSUED FOR RIBA STAGE 3 APPROVAL.

Project Status: RIBA Stage 3

Client: Ministry of Justice

Project: New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site: New Prisons Programme, Full Sutton 2

Project Address: Land at Moor Lane, Full Sutton, York, YO41 1PS

Building Type: Site Infrastructure

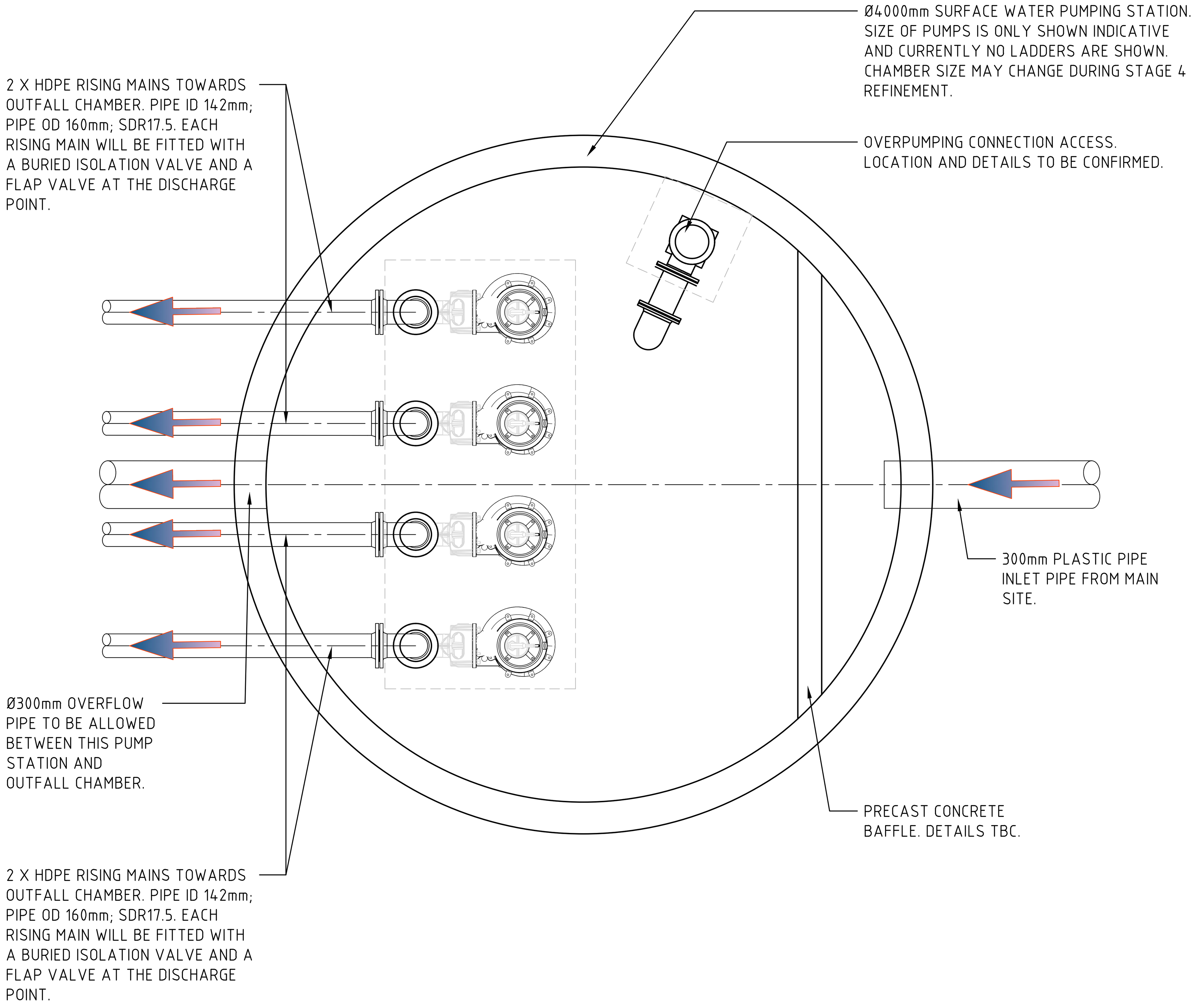
Drawing Title: Drainage Details-SW Pumping Station-Car Park

Originator Logo: PICK EVERARD

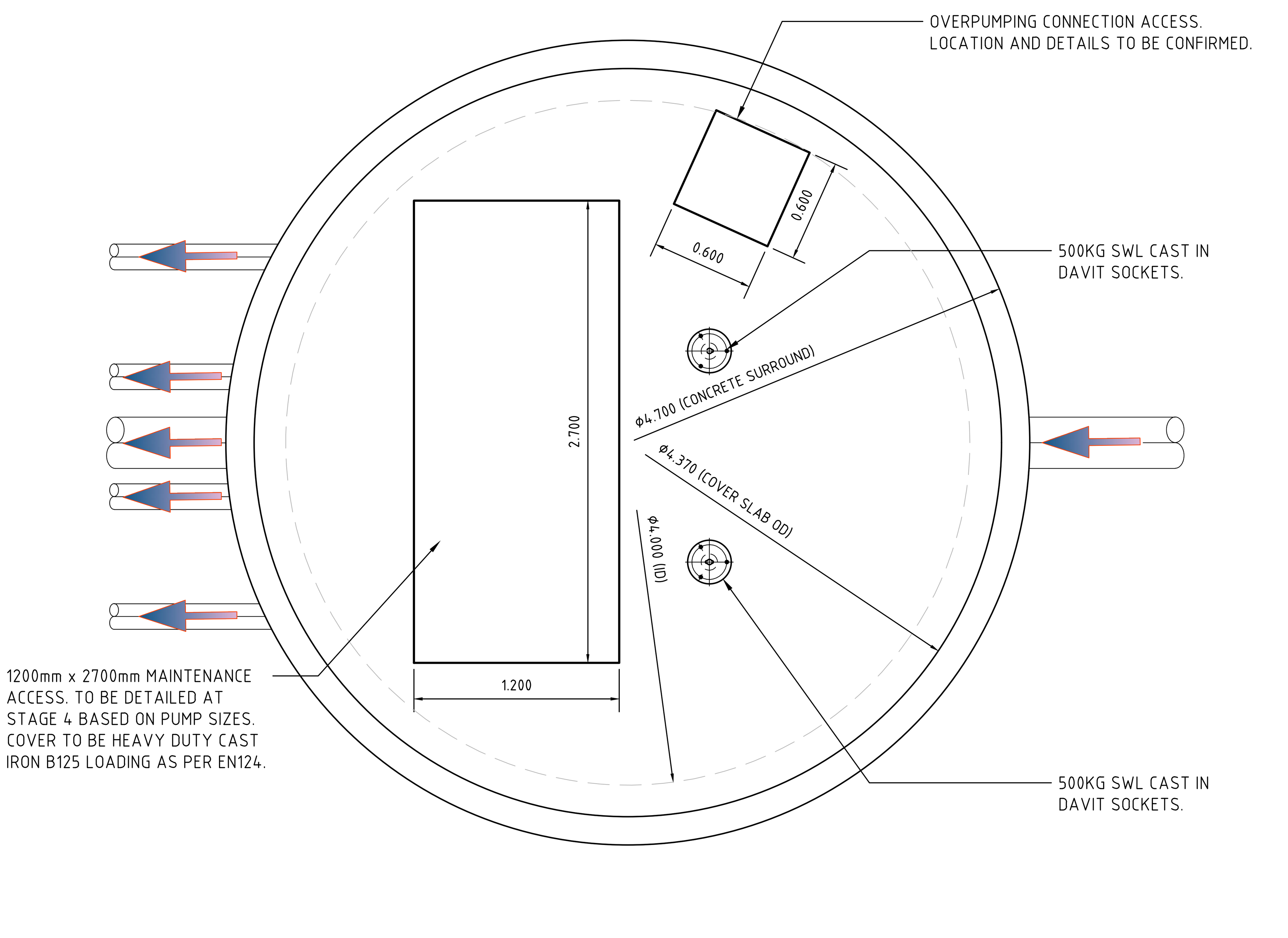
Drawn By	MHA	Date	16.03.2021
Checked By	JNH	Date	16.03.2021
Approved By	PCA	Date	16.03.2021

Drawing Number	664015-1275-PEV-FNC0011-ZZ-DR-C-6505
Delref	D0100
Sheet No.	01 of 01
Scale	1 : 25
Orig. Sheet Size	@ A1
Rev.	P01
Data Security Classification	OFFICIAL
Suitability	S4(3)

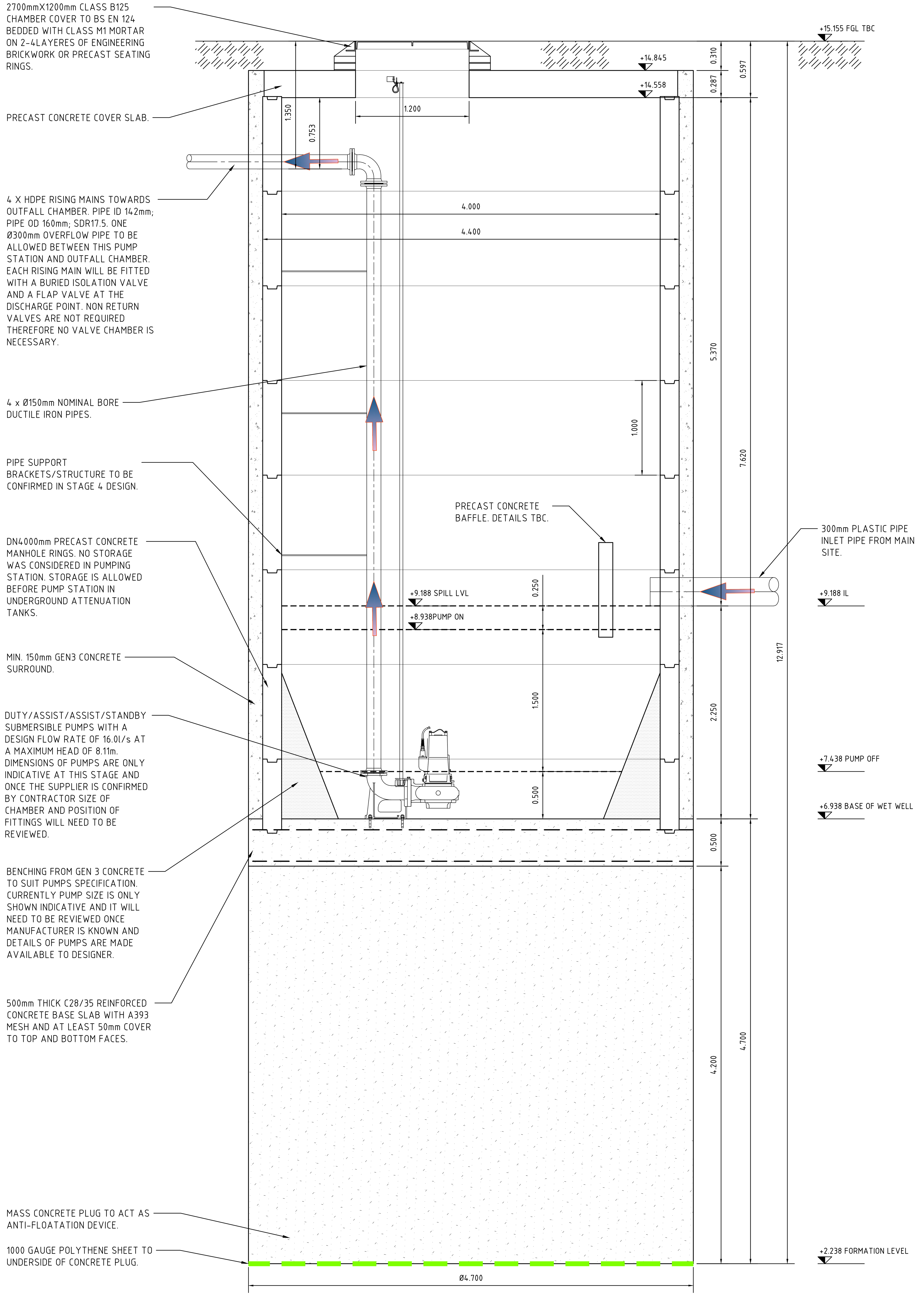
Drawing Rev. P01



PLAN OF PROPOSED SURFACE WATER PUMPING STATION No. 2 FROM MAIN SITE
SCALE 1:25



COVER PLAN OF PROPOSED SURFACE WATER PUMPING STATION No. 2 FROM MAIN SITE
SCALE 1:25



SECTION OF PROPOSED SURFACE WATER PUMPING STATION No. 2 FROM MAIN SITE
SCALE 1:25

Do not scale from drawings. Verify all dimensions on site prior to construction. This drawing is to be read in conjunction with all relevant documents and drawings. Report all discrepancies to MoJ immediately.

No unauthorised use, disclosure, storage or copying.

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

The above symbols can only be read when this drawing is in colour print

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3. DIMENSIONS IN METRES, LEVELS IN METRES ABOVE ORDNANCE DATUM.
4. ALL SEWERS AND DRAINS TO HAVE A CLASS Z BED AND SURROUND AT A DEPTH OF COVER TO PIPE SOFFIT OF LESS THAN 1.2m UNDER PAVED AREAS AND BUILDINGS AND 0.9m IN VERGE. IN ALL OTHER AREAS, ALL SEWERS AND DRAINS SHALL HAVE A CLASS S BED, UNLESS STATED OTHERWISE ON THE DRAWINGS.
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Rev	Date	Description
P01	2021.03.16	ISSUED FOR RIBA STAGE 3 APPROVAL.

Project Status
RIBA Stage 3

Client: Ministry of Justice
Project: New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Full Sutton 2

Project Address
Land at Moor Lane
Full Sutton
York, YO41 1PS

Building Type
Site Infrastructure

Drawing Title
Drainage Details-SW Pumping Station-Main Site

Originator Logo: PICK EVERARD

Drawn By	MHA	Date	16.03.2021
Checked By	JNH	Date	16.03.2021
Approved By	PCA	Date	16.03.2021

Drawing Number: 664015-1275-PEV-FNC0011-ZZ-DR-C-6506
Delref: D0100

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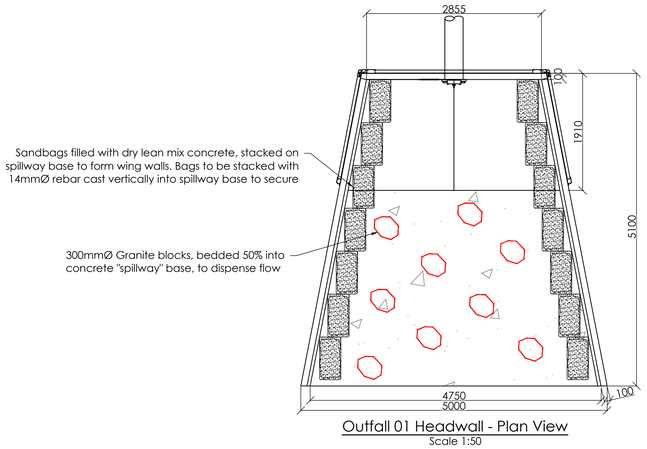
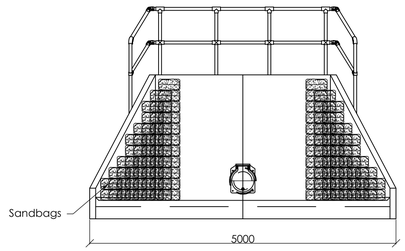
Scale: 1 : 25
Orig. Sheet Size: @ A1
Rev.: P01

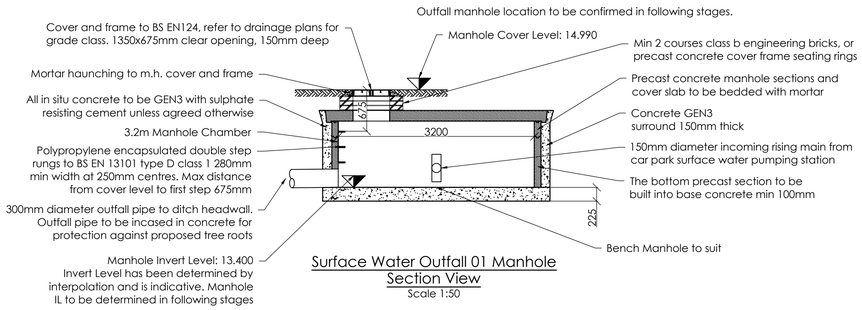
Data Security Classification: OFFICIAL
Suitability: S4(3)



Outfall 01 Headwall - Plan View
Scale 1:50

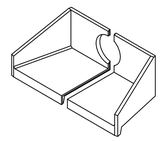


Outfall 01 Headwall - Front Elevation
Scale 1:50

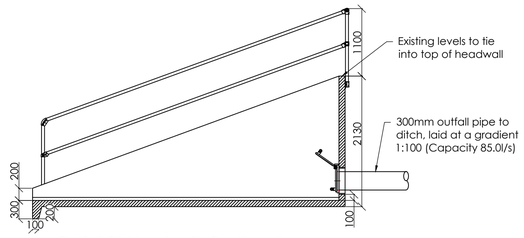


Surface Water Outfall 01 Manhole Section View
Scale 1:50

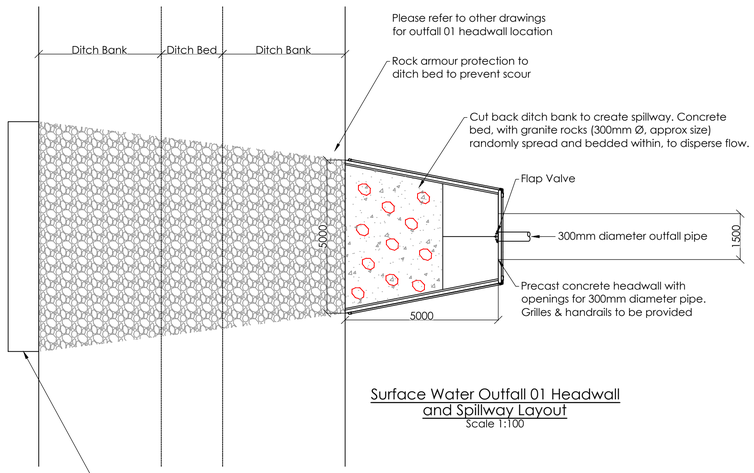
Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



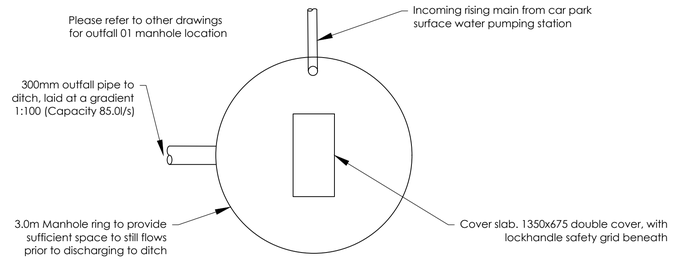
Outfall 01 Headwall 3D View
Scale 1:50



Outfall 01 Headwall - Section View
Scale 1:50



Surface Water Outfall 01 Headwall and Spillway Layout
Scale 1:100



Surface Water Outfall 01 Manhole Plan View
Scale 1:50

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

The above symbols can only be read when this drawing is in colour print

NOTES:

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Rev	Date	Description
P01	2021.06.16	FIRST ISSUE FOR RIBA STAGE 3 APPROVAL

This document references the following linked files

File Reference	Status	Revision
N/A	N/A	N/A

Project Status
RIBA Stage 3

Client
Ministry of Justice

Project
New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Full Sutton 2

Project Address
Moor Lane
Full Sutton
York, YO41 1PS

Building Type
Site Infrastructure

Drawing Title
Drainage Details-SW Outfall 01

Originator Logo
PICK EVERARD

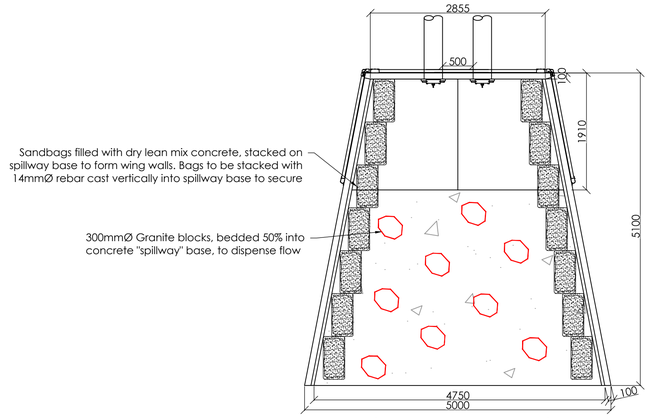
Drawn By	JAS	Date	14.06.21
Checked By	PCA	Date	15.06.21
Approved By	PCA	Date	15.06.21

Drawing Number: 664015-1275-PEV-FNC0011-ZZ-DR-C-6509
Delref: D0100

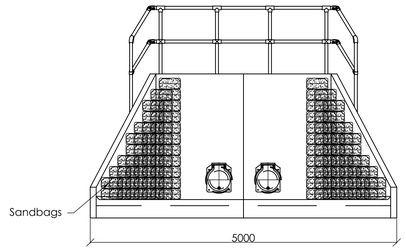
Sheet No.: 01 of 01
Scale: Varies
Orig. Sheet Size: @ A1
Rev.: P01

Data Security Classification: OFFICIAL
Suitability: S3

Software Rev. PR1

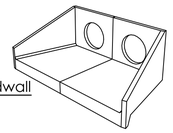


Outfall 02 Headwall - Plan View
Scale 1:50

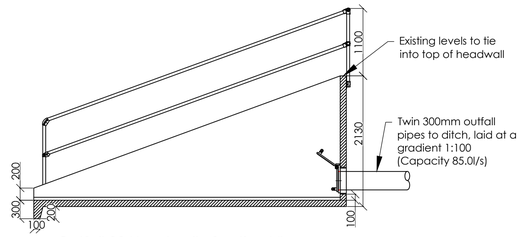


Outfall 02 Headwall - Front Elevation
Scale 1:50

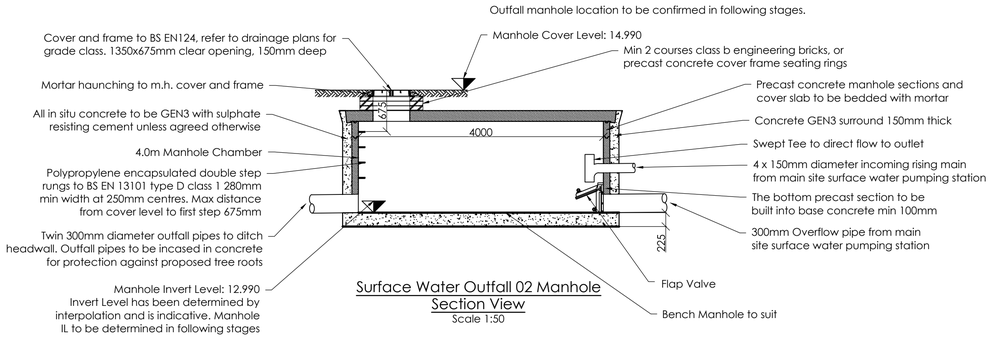
Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



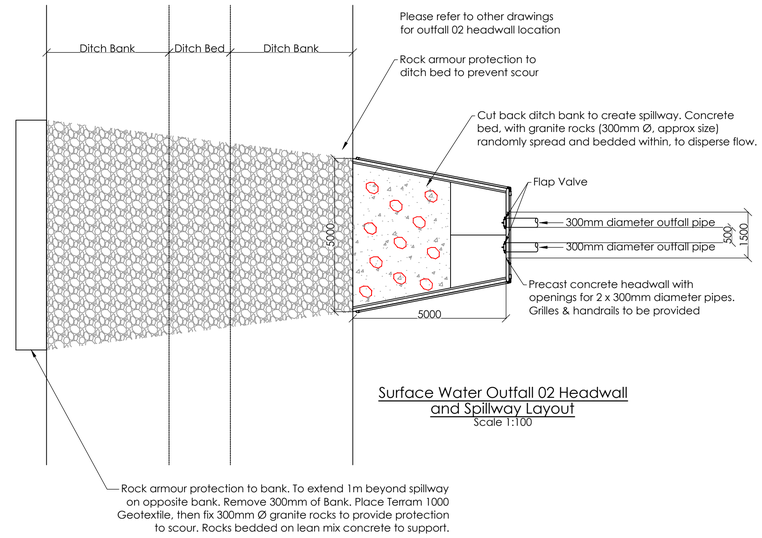
Outfall 02 Headwall
3D View
Scale 1:50



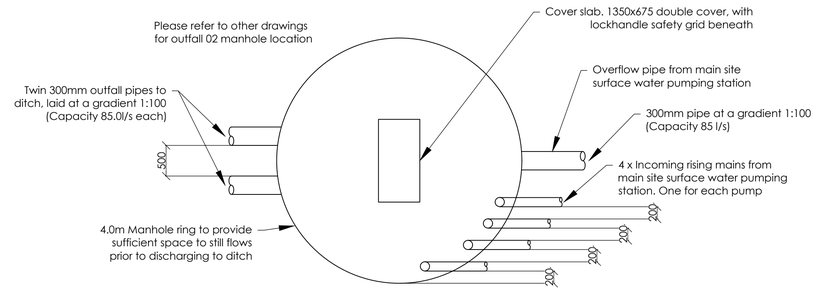
Outfall 02 Headwall - Section View
Scale 1:50



Surface Water Outfall 02 Manhole
Section View
Scale 1:50



Surface Water Outfall 02 Headwall
and Spillway Layout
Scale 1:100



Surface Water Outfall 02 Manhole
Plan View
Scale 1:50

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.

This drawing must be read in conjunction with the following project CDM documents:

664015-1275-PEV-FNC0011-XX-HS-C-0003_Design Risk Assessment-Stage 3

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.

This drawing must be read in conjunction with the following project Derogation documents:

N/A

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Rev	Date	Description
P01	2021.06.16	FIRST ISSUE FOR RIBA STAGE 3 APPROVAL

This document references the following linked files

File Reference	Status	Revision
N/A	N/A	N/A

Project Status
RIBA Stage 3

Client
Ministry of Justice

Project
New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Full Sutton 2

Project Address
Moor Lane
Full Sutton
York, YO41 1PS

Building Type
Site Infrastructure

Drawing Title
Drainage Details-SW Outfall 02

Originator Logo
PICK EVERARD

Drawn By	JAS	Date	14.06.21
Checked By	PCA	Date	15.06.21
Approved By	PCA	Date	15.06.21

Drawing Number
664015-1275-PEV-FNC0011-ZZ-DR-C-6510

Delref
D0100

Sheet No.
01 of 01

Scale
Varies

Orig. Sheet Size
@ A1

Rev.
P01

Data Security Classification
OFFICIAL

Suitability
S3

Template Rev: 001

Appendix B

664015-1275-PEV-FNC0011-ZZ-CA-C-0501_Proposed Surface Water Drainage-Calculations-Car Park
664015-1275-PEV-FNC0011-ZZ-CA-C-0502_Proposed Surface Water Drainage-Calculations-Main Site

PERFECT CIRCLE
Pick Everard | Gleeds | AECOM

Proposed Surface Water Drainage Calculations – 01– Car Park

FNC0011 Site Infrastructure

Full Sutton 2

664015-1275-PEV-FNC0011-ZZ-CA-C-0501
Issue Number P01
S3 – Review and Comment
16/06/2021

Ministry of JUSTICE

Security Classification:
OFFICIAL

Document History

Issue	Date	Comment	Author	Chk'd
P01	16/06/2021	First issue. S3 – Review and Comment	PCA	MHA

PICK EVERARD

Contents

1.0 Introduction

This document provides the surface water drainage calculations for the Full Sutton 2 development (Car Park), and should be read with the following;

664015-1275-PEV-FNC0011-ZZ-CA-C-0502 – Proposed Surface Water Drainage Calculations-02-Main Site

664015-1275-PEV-FNC0011-ZZ-DR-C-0500 – Proposed Surface Water Drainage

664015-1275-PEV-FNC0011-ZZ-DR-C-6505 – Drainage Details–SW Pumping Station-Car Park
664015-1275-PEV-FNC0011-ZZ-DR-C-6506 – Drainage Details–SW Pumping Main Site

664015-1275-PEV-FNC0011-ZZ-DR-C-0103 – Impermeable Areas Plan

664015-1275-PEV-FNC0011-ZZ-DR-C-6507 – Drainage Details–Sheet 01
664015-1275-PEV-FNC0011-ZZ-DR-C-6508 – Drainage Details–Sheet 02

664015-1275-PEV-FNC0011-ZZ-DR-C-0501 – Proposed Surface Water Drainage-Sheet 01
664015-1275-PEV-FNC0011-ZZ-DR-C-0502 – Proposed Surface Water Drainage-Sheet 02
664015-1275-PEV-FNC0011-ZZ-DR-C-0503 – Proposed Surface Water Drainage-Sheet 03
664015-1275-PEV-FNC0011-ZZ-DR-C-0504 – Proposed Surface Water Drainage-Sheet 04
664015-1275-PEV-FNC0011-ZZ-DR-C-0505 – Proposed Surface Water Drainage-Sheet 05
664015-1275-PEV-FNC0011-ZZ-DR-C-0506 – Proposed Surface Water Drainage-Sheet 06
664015-1275-PEV-FNC0011-ZZ-DR-C-0507 – Proposed Surface Water Drainage-Sheet 07
664015-1275-PEV-FNC0011-ZZ-DR-C-0508 – Proposed Surface Water Drainage-Sheet 08
664015-1275-PEV-FNC0011-ZZ-DR-C-0509 – Proposed Surface Water Drainage-Sheet 09
664015-1275-PEV-FNC0011-ZZ-DR-C-0510 – Proposed Surface Water Drainage-Sheet 10
664015-1275-PEV-FNC0011-ZZ-DR-C-0512 – Proposed Surface Water Drainage-Sheet 11

664015-1275-PEV-FNC0011-ZZ-SH-C-0501 – Proposed Surface Water Drainage-Schedule 01
664015-1275-PEV-FNC0011-ZZ-SH-C-0502 – Proposed Surface Water Drainage-Schedule 02
664015-1275-PEV-FNC0011-ZZ-SH-C-0503 – Proposed Surface Water Drainage-Schedule 03
664015-1275-PEV-FNC0011-ZZ-SH-C-0504 – Proposed Surface Water Drainage-Schedule 04
664015-1275-PEV-FNC0011-ZZ-SH-C-0505 – Proposed Surface Water Drainage-Schedule 05
664015-1275-PEV-FNC0011-ZZ-SH-C-0506 – Proposed Surface Water Drainage-Schedule 06
664015-1275-PEV-FNC0011-ZZ-SH-C-0507 – Proposed Surface Water Drainage-Schedule 07
664015-1275-PEV-FNC0011-ZZ-SH-C-0508 – Proposed Surface Water Drainage-Schedule 08
664015-1275-PEV-FNC0011-ZZ-SH-C-0509 – Proposed Surface Water Drainage-Schedule 09
664015-1275-PEV-FNC0011-ZZ-SH-C-0510 – Proposed Surface Water Drainage-Schedule 10
664015-1275-PEV-FNC0011-ZZ-SH-C-0511 – Proposed Surface Water Drainage-Schedule 11

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	150

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	45.155	0.301	150.0	0.021	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	11.210	0.782	14.3	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	68.749	0.458	150.0	0.039	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	56.128	0.561	100.0	0.061	5.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	6.911	0.074	93.4	0.063	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	25.804	0.256	100.8	0.112	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.71	13.910	0.021	0.0	0.0	0.0	1.07	42.4	3.8
2.000	50.00	5.07	14.466	0.000	0.0	0.0	0.0	2.67	47.3	0.0
1.001	50.00	6.60	13.534	0.060	0.0	0.0	0.0	1.28	90.6	10.9
3.000	50.00	5.72	13.848	0.061	0.0	0.0	0.0	1.31	52.0	11.0
3.001	50.00	5.80	13.287	0.124	0.0	0.0	0.0	1.35	53.8	22.3
1.002	50.00	6.81	12.988	0.297	0.0	0.0	0.0	2.03	322.1	53.5

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
4.000	31.726	0.317	100.1	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit	
4.001	6.618	0.616	10.7	0.058	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	25.035	0.250	100.0	0.008	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.000	22.141	0.221	100.2	0.019	5.00	0.0	0.600	o	150	Pipe/Conduit	
5.001	7.580	0.076	100.0	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit	
5.002	16.992	0.170	100.0	0.017	0.00	0.0	0.600	o	150	Pipe/Conduit	
5.003	5.581	0.797	7.0	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit	
6.000	12.279	2.201	5.6	0.120	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	37.343	0.373	100.0	0.070	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.000	23.764	3.021	7.9	0.057	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	37.922	0.379	100.0	0.097	0.00	0.0	0.600	o	450	Pipe/Conduit	
8.000	17.694	2.528	7.0	0.051	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.006	19.328	0.193	100.0	0.050	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
4.000	50.00	5.53	13.965	0.013	0.0	0.0	0.0	1.00	17.7	2.4
4.001	50.00	5.56	13.648	0.071	0.0	0.0	0.0	3.09	54.6	12.9
1.003	50.00	7.02	12.732	0.376	0.0	0.0	0.0	2.03	323.4	67.9
5.000	50.00	5.37	13.911	0.019	0.0	0.0	0.0	1.00	17.7	3.5
5.001	50.00	5.49	13.690	0.048	0.0	0.0	0.0	1.00	17.8	8.6
5.002	50.00	5.78	13.614	0.065	0.0	0.0	0.0	1.01	17.8	11.7
5.003	50.00	5.80	13.429	0.095	0.0	0.0	0.0	3.83	67.7	17.2
6.000	50.00	5.05	14.833	0.120	0.0	0.0	0.0	4.30	75.9	21.6
1.004	50.00	7.32	12.332	0.661	0.0	0.0	0.0	2.03	323.4	119.3
7.000	50.00	5.11	15.279	0.057	0.0	0.0	0.0	3.62	63.9	10.3
1.005	50.00	7.64	11.958	0.815	0.0	0.0	0.0	2.03	323.4	147.2
8.000	50.00	5.08	14.409	0.051	0.0	0.0	0.0	3.83	67.7	9.1
1.006	50.00	7.79	11.579	0.916	0.0	0.0	0.0	2.03	323.4	165.4

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
9.000	36.288	2.215	16.4	0.061	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.007	18.100	0.181	100.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
10.000	35.440	0.537	66.0	0.038	5.00	0.0	0.600	o	150	Pipe/Conduit	
11.000	6.428	1.249	5.1	0.052	5.00	0.0	0.600	o	150	Pipe/Conduit	
10.001	9.329	0.141	66.0	0.034	0.00	0.0	0.600	o	225	Pipe/Conduit	
10.002	14.933	0.226	66.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
10.003	19.937	1.424	14.0	0.023	0.00	0.0	0.600	o	225	Pipe/Conduit	
12.000	12.805	0.128	100.0	0.075	5.00	0.0	0.600	o	225	Pipe/Conduit	
12.001	18.728	0.187	100.0	0.059	0.00	0.0	0.600	o	225	Pipe/Conduit	
10.004	4.988	0.050	100.0	0.099	0.00	0.0	0.600	o	300	Pipe/Conduit	
10.005	24.607	0.246	100.0	0.052	0.00	0.0	0.600	o	300	Pipe/Conduit	
10.006	36.977	0.370	100.0	0.052	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.008	18.075	0.181	99.9	0.143	0.00	0.0	0.600	o	600	Pipe/Conduit	
13.000	67.488	0.450	150.0	0.028	5.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
9.000	50.00	5.19	13.826	0.061	0.0	0.0	0.0	3.25	129.2	11.0
1.007	50.00	7.94	11.386	0.977	0.0	0.0	0.0	2.03	323.4	176.5
10.000	50.00	5.48	14.464	0.038	0.0	0.0	0.0	1.24	21.9	6.8
11.000	50.00	5.02	15.176	0.052	0.0	0.0	0.0	4.47	79.0	9.4
10.001	50.00	5.57	13.851	0.124	0.0	0.0	0.0	1.61	64.1	22.5
10.002	50.00	5.73	13.710	0.124	0.0	0.0	0.0	1.61	64.1	22.5
10.003	50.00	5.82	13.484	0.147	0.0	0.0	0.0	3.52	139.8	26.6
12.000	50.00	5.16	12.411	0.075	0.0	0.0	0.0	1.31	52.0	13.5
12.001	50.00	5.40	12.283	0.134	0.0	0.0	0.0	1.31	52.0	24.1
10.004	50.00	5.87	12.021	0.380	0.0	0.0	0.0	1.57	111.1	68.5
10.005	50.00	6.14	11.971	0.432	0.0	0.0	0.0	1.57	111.1	77.9
10.006	50.00	6.44	11.575	0.484	0.0	0.0	0.0	2.03	323.4	87.4
1.008	50.00	8.07	11.055	1.604	0.0	0.0	0.0	2.44	689.1	289.6
13.000	50.00	6.06	14.319	0.028	0.0	0.0	0.0	1.07	42.4	5.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
13.001	13.503	2.648	5.1	0.112	0.00	0.0	0.600	o	225	Pipe/Conduit	
14.000	30.318	2.041	14.9	0.063	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.009	17.748	0.177	100.3	0.020	0.00	0.0	0.600	o	600	Pipe/Conduit	
15.000	17.449	0.298	58.6	0.069	5.00	0.0	0.600	o	150	Pipe/Conduit	
15.001	24.597	0.246	100.0	0.022	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.010	13.723	0.082	167.4	0.031	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.011	12.283	0.123	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.012	57.141	-3.056	-18.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.013	10.000	0.100	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
13.001	50.00	6.09	13.869	0.140	0.0	0.0	0.0	5.83	231.9	25.3
14.000	50.00	5.19	13.365	0.063	0.0	0.0	0.0	2.63	46.4	11.3
1.009	50.00	8.19	10.874	1.826	0.0	0.0	0.0	2.43	687.6	329.8
15.000	50.00	5.22	11.641	0.069	0.0	0.0	0.0	1.32	23.3	12.4
15.001	50.00	5.53	11.317	0.091	0.0	0.0	0.0	1.31	52.0	16.4
1.010	50.00	8.31	10.697	1.949	0.0	0.0	0.0	1.88	531.5	351.8
1.011	50.00	8.51	10.610	1.949	0.0	0.0	0.0	1.00	17.8«	351.8
1.012	50.00	18.79	10.487	1.949	0.0	0.0	0.0	0.09	1.6«	351.8
1.013	50.00	18.95	13.543	1.949	0.0	0.0	0.0	1.00	17.8«	351.8

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
DCE-10000	15.335	1.425	Open Manhole	1200	1.000	13.910	225				
DCE-10041	15.266	0.800	Open Manhole	600	2.000	14.466	150				
DCE-10001	15.101	1.567	Open Manhole	1200	1.001	13.534	300	1.000	13.609	225	
								2.000	13.684	150	
DCE-10011	15.273	1.425	Open Manhole	1200	3.000	13.848	225				
DCE-10012	15.629	2.342	Open Manhole	1200	3.001	13.287	225	3.000	13.287	225	
DCE-10002	15.808	2.820	Open Manhole	1350	1.002	12.988	450	1.001	13.076	300	
								3.001	13.213	225	
DCE-10013	15.315	1.350	Open Manhole	1200	4.000	13.965	150				
DCE-10014	15.497	1.849	Open Manhole	1200	4.001	13.648	150	4.000	13.648	150	
DCE-10003	15.521	2.789	Open Manhole	1350	1.003	12.732	450	1.002	12.732	450	
								4.001	13.032	150	
DCE-10015	15.261	1.350	Open Manhole	1200	5.000	13.911	150				
DCE-10016	15.344	1.654	Open Manhole	1200	5.001	13.690	150	5.000	13.690	150	
DCE-10017	15.506	1.892	Open Manhole	1200	5.002	13.614	150	5.001	13.614	150	
DCE-10018	15.305	1.876	Open Manhole	1200	5.003	13.429	150	5.002	13.444	150	15
DCE-10054	15.633	0.800	Open Manhole	600	6.000	14.833	150				
DCE-10004	15.346	3.014	Open Manhole	1350	1.004	12.332	450	1.003	12.482	450	150
								5.003	12.632	150	
								6.000	12.632	150	
DCE-10052	15.879	0.600	Open Manhole	600	7.000	15.279	150				
DCE-10005	15.750	3.792	Open Manhole	1500	1.005	11.958	450	1.004	11.959	450	1
								7.000	12.258	150	
DCE-10019	15.759	1.350	Open Manhole	1200	8.000	14.409	150				
DCE-10006	16.114	4.535	Open Manhole	1500	1.006	11.579	450	1.005	11.579	450	
								8.000	11.881	150	2
DCE-10029	15.251	1.425	Open Manhole	1200	9.000	13.826	225				
DCE-10007	15.637	4.251	Open Manhole	1500	1.007	11.386	450	1.006	11.386	450	
								9.000	11.611	225	
DCE-10020	15.814	1.350	Open Manhole	1200	10.000	14.464	150				
DCE-10053	15.776	0.600	Open Manhole	600	11.000	15.176	150				
DCE-10021	15.277	1.426	Open Manhole	1200	10.001	13.851	225	10.000	13.927	150	1
								11.000	13.927	150	1
DCE-10022	15.109	1.399	Open Manhole	1200	10.002	13.710	225	10.001	13.710	225	
DCE-10023	14.894	1.410	Open Manhole	1200	10.003	13.484	225	10.002	13.484	225	
DCE-10027	14.205	1.794	Open Manhole	1200	12.000	12.411	225				
DCE-10028	14.310	2.027	Open Manhole	1200	12.001	12.283	225	12.000	12.283	225	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
DCE-10024	14.594	2.573	Open Manhole	1200	10.004	12.021	300	10.003	12.060	225	
								12.001	12.096	225	
DCE-10025	14.616	2.645	Open Manhole	1200	10.005	11.971	300	10.004	11.971	300	
DCE-10026	14.926	3.351	Open Manhole	1350	10.006	11.575	450	10.005	11.725	300	
DCE-10008	15.524	4.469	Open Manhole	1500	1.008	11.055	600	1.007	11.205	450	
								10.006	11.205	450	
DCE-10044	15.444	1.125	Open Manhole	1200	13.000	14.319	225				
DCE-10031	15.409	1.540	Open Manhole	1200	13.001	13.869	225	13.000	13.869	225	
DCE-10030	14.715	1.350	Open Manhole	1200	14.000	13.365	150				
DCE-10009	15.316	4.442	Open Manhole	1500	1.009	10.874	600	1.008	10.874	600	
								13.001	11.221	225	
								14.000	11.324	150	
DCE-10032	14.607	2.966	Open Manhole	1200	15.000	11.641	150				
DCE-10033	14.893	3.576	Open Manhole	1200	15.001	11.317	225	15.000	11.343	150	
DCE-10010	15.136	4.439	Open Manhole	1500	1.010	10.697	600	1.009	10.697	600	
								15.001	11.071	225	
TANK 1	14.531	3.921	Open Manhole	1500	1.011	10.610	150	1.010	10.615	600	455
13	14.627	4.140	Open Manhole	1200	1.012	10.487	150	1.011	10.487	150	
38	15.099	1.556	Open Manhole	1200	1.013	13.543	150	1.012	13.543	150	
	15.000	1.557	Open Manhole	0		OUTFALL		1.013	13.443	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-10000	474158.203	455247.788	474158.203	455247.788	Required	
DCE-10041	474115.037	455244.057	474115.037	455244.057	Required	
DCE-10001	474115.587	455232.861	474115.587	455232.861	Required	
DCE-10011	474067.741	455124.984	474067.741	455124.984	Required	
DCE-10012	474071.788	455180.967	474071.788	455180.967	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-10002	474066.201	455185.034	474066.201	455185.034	Required	
DCE-10013	474051.792	455130.468	474051.792	455130.468	Required	
DCE-10014	474053.955	455162.120	474053.955	455162.120	Required	
DCE-10003	474048.669	455166.100	474048.669	455166.100	Required	
DCE-10015	474054.820	455118.529	474054.820	455118.529	Required	
DCE-10016	474032.725	455119.950	474032.725	455119.950	Required	
DCE-10017	474033.281	455127.510	474033.281	455127.510	Required	
DCE-10018	474034.420	455144.463	474034.420	455144.463	Required	
DCE-10054	474026.181	455160.051	474026.181	455160.051	Required	
DCE-10004	474030.723	455148.644	474030.723	455148.644	Required	
DCE-10052	474007.099	455160.060	474007.099	455160.060	Required	
DCE-10005	473994.401	455139.973	473994.401	455139.973	Required	
DCE-10019	473971.513	455123.421	473971.513	455123.421	Required	
DCE-10006	473957.022	455133.575	473957.022	455133.575	Required	
DCE-10029	473940.299	455167.938	473940.299	455167.938	Required	
DCE-10007	473937.781	455131.738	473937.781	455131.738	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-10020	473959.138	455173.756	473959.138	455173.756	Required	
DCE-10053	473964.334	455203.621	473964.334	455203.621	Required	
DCE-10021	473961.046	455209.144	473961.046	455209.144	Required	
DCE-10022	473951.979	455211.337	473951.979	455211.337	Required	
DCE-10023	473939.050	455203.863	473939.050	455203.863	Required	
DCE-10027	473894.292	455178.461	473894.292	455178.461	Required	
DCE-10028	473905.258	455185.073	473905.258	455185.073	Required	
DCE-10024	473921.613	455194.198	473921.613	455194.198	Required	
DCE-10025	473924.403	455190.063	473924.403	455190.063	Required	
DCE-10026	473922.488	455165.530	473922.488	455165.530	Required	
DCE-10008	473919.948	455128.641	473919.948	455128.641	Required	
DCE-10044	473969.065	455101.770	473969.065	455101.770	Required	
DCE-10031	473902.149	455110.536	473902.149	455110.536	Required	
DCE-10030	473904.236	455154.302	473904.236	455154.302	Required	
DCE-10009	473902.469	455124.036	473902.469	455124.036	Required	
DCE-10032	473861.609	455144.028	473861.609	455144.028	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-10033	473860.207	455126.635	473860.207	455126.635	Required	
DCE-10010	473884.772	455125.387	473884.772	455125.387	Required	
TANK 1	473885.656	455139.082	473885.656	455139.082	Required	
13	473873.384	455139.598	473873.384	455139.598	Required	
38	473824.193	455110.523	473824.193	455110.523	Required	
	473834.193	455110.523			No Entry	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.021	0.021	0.021
2.000	-	-	50	0.000	0.000	0.000
1.001	User	-	100	0.039	0.039	0.039
3.000	User	-	100	0.061	0.061	0.061
3.001	User	-	100	0.063	0.063	0.063
1.002	User	-	100	0.112	0.112	0.112
4.000	User	-	100	0.013	0.013	0.013
4.001	User	-	100	0.058	0.058	0.058
1.003	User	-	100	0.008	0.008	0.008
5.000	User	-	100	0.019	0.019	0.019
5.001	User	-	100	0.029	0.029	0.029
5.002	User	-	100	0.017	0.017	0.017
5.003	User	-	100	0.030	0.030	0.030
6.000	User	-	50	0.240	0.120	0.120
1.004	User	-	100	0.059	0.059	0.059
	User	-	100	0.011	0.011	0.070
7.000	User	-	50	0.115	0.057	0.057
1.005	User	-	100	0.064	0.064	0.064
	User	-	100	0.033	0.033	0.097
8.000	User	-	100	0.051	0.051	0.051
1.006	User	-	100	0.050	0.050	0.050
9.000	User	-	100	0.061	0.061	0.061
1.007	-	-	100	0.000	0.000	0.000
10.000	User	-	100	0.038	0.038	0.038
11.000	User	-	50	0.104	0.052	0.052
10.001	User	-	100	0.034	0.034	0.034
10.002	-	-	100	0.000	0.000	0.000
10.003	User	-	100	0.023	0.023	0.023
12.000	User	-	100	0.055	0.055	0.055
	User	-	100	0.020	0.020	0.075
12.001	User	-	100	0.059	0.059	0.059
10.004	User	-	100	0.050	0.050	0.050
	User	-	100	0.049	0.049	0.099
10.005	User	-	100	0.052	0.052	0.052
10.006	User	-	100	0.003	0.003	0.003
	User	-	100	0.049	0.049	0.052
1.008	User	-	100	0.143	0.143	0.143
13.000	User	-	100	0.028	0.028	0.028
13.001	User	-	100	0.112	0.112	0.112
14.000	User	-	100	0.063	0.063	0.063
1.009	User	-	100	0.020	0.020	0.020
15.000	User	-	100	0.011	0.011	0.011
	User	-	100	0.058	0.058	0.069
15.001	User	-	100	0.022	0.022	0.022
1.010	User	-	100	0.031	0.031	0.031
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				2.178	1.949	1.949

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.013		15.000	13.443	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	5
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	1	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.400		

Online Controls for Storm

Pump Manhole: 13, DS/PN: 1.012, Volume (m³): 4.9

Invert Level (m) 10.487

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	16.5000	4.000	16.5000

Storage Structures for Storm

Filter Drain Manhole: DCE-10041, DS/PN: 2.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	3
Porosity	0.30	Slope (1:X)	130.0
Invert Level (m)	14.466	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	114.9		

Filter Drain Manhole: DCE-10054, DS/PN: 6.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	2
Porosity	0.30	Slope (1:X)	75.0
Invert Level (m)	14.833	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	74.9		

Filter Drain Manhole: DCE-10052, DS/PN: 7.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	4
Porosity	0.30	Slope (1:X)	200.0
Invert Level (m)	15.279	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	69.2		

Filter Drain Manhole: DCE-10053, DS/PN: 11.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	95.0
Invert Level (m)	15.176	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	48.0		

Cellular Storage Manhole: TANK 1, DS/PN: 1.011

Invert Level (m)	10.610	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Cellular Storage Manhole: TANK 1, DS/PN: 1.011

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	445.5	0.0	2.000	445.5	0.0
0.400	445.5	0.0	2.400	445.5	0.0
0.800	445.5	0.0	2.800	445.5	0.0
1.200	445.5	0.0	2.801	0.0	0.0
1.600	445.5	0.0			

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	5
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	DCE-10000	15 Winter	1	+0%	100/15 Summer			
2.000	DCE-10041	60 Winter	1	+0%	100/15 Summer			
1.001	DCE-10001	15 Winter	1	+0%	100/15 Summer	100/15 Winter		
3.000	DCE-10011	15 Winter	1	+0%	100/15 Summer	100/15 Summer		
3.001	DCE-10012	15 Winter	1	+0%	30/15 Summer			
1.002	DCE-10002	15 Winter	1	+0%	100/15 Summer			
4.000	DCE-10013	15 Winter	1	+0%	100/15 Summer			
4.001	DCE-10014	15 Winter	1	+0%	100/15 Summer			
1.003	DCE-10003	15 Winter	1	+0%	30/15 Winter			
5.000	DCE-10015	15 Winter	1	+0%	100/15 Summer	100/15 Winter		
5.001	DCE-10016	15 Winter	1	+0%	30/15 Summer			
5.002	DCE-10017	15 Winter	1	+0%	30/15 Summer			
5.003	DCE-10018	15 Winter	1	+0%	100/15 Summer			
6.000	DCE-10054	15 Winter	1	+0%	100/15 Summer			
1.004	DCE-10004	15 Winter	1	+0%	30/15 Summer			
7.000	DCE-10052	15 Winter	1	+0%				
1.005	DCE-10005	15 Winter	1	+0%	30/15 Summer			
8.000	DCE-10019	15 Winter	1	+0%				

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	DCE-10000	13.953	-0.182	0.000	0.08		3.4	OK	
2.000	DCE-10041	14.466	-0.150	0.000	0.00		0.0	OK	
1.001	DCE-10001	13.597	-0.237	0.000	0.10		8.5	OK	1
3.000	DCE-10011	13.915	-0.158	0.000	0.19		9.3	OK	2
3.001	DCE-10012	13.395	-0.117	0.000	0.46		17.6	OK	
1.002	DCE-10002	13.104	-0.334	0.000	0.15		40.8	OK	
4.000	DCE-10013	14.000	-0.115	0.000	0.12		2.1	OK	
4.001	DCE-10014	13.695	-0.103	0.000	0.21		9.7	OK	
1.003	DCE-10003	12.864	-0.318	0.000	0.19		51.5	OK	
5.000	DCE-10015	13.954	-0.107	0.000	0.18		3.0	OK	1
5.001	DCE-10016	13.760	-0.080	0.000	0.44		6.8	OK	
5.002	DCE-10017	13.694	-0.070	0.000	0.55		9.1	OK	
5.003	DCE-10018	13.478	-0.101	0.000	0.23		13.0	OK	
6.000	DCE-10054	14.886	-0.097	0.000	0.27		18.9	OK	
1.004	DCE-10004	12.507	-0.275	0.000	0.32		91.5	OK	
7.000	DCE-10052	15.318	-0.111	0.000	0.15		9.0	OK	
1.005	DCE-10005	12.154	-0.254	0.000	0.39		111.3	OK	
8.000	DCE-10019	14.444	-0.115	0.000	0.13		7.9	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.006	DCE-10006	15 Winter	1	+0%	30/15 Summer			
9.000	DCE-10029	15 Winter	1	+0%				
1.007	DCE-10007	15 Winter	1	+0%	30/15 Summer			
10.000	DCE-10020	15 Winter	1	+0%	100/15 Summer			
11.000	DCE-10053	15 Winter	1	+0%	100/15 Summer			
10.001	DCE-10021	15 Winter	1	+0%	100/15 Summer			
10.002	DCE-10022	15 Winter	1	+0%	100/15 Summer			
10.003	DCE-10023	15 Winter	1	+0%	100/15 Summer			
12.000	DCE-10027	15 Winter	1	+0%	30/15 Summer	100/15 Summer		
12.001	DCE-10028	15 Winter	1	+0%	30/15 Summer			
10.004	DCE-10024	15 Winter	1	+0%	2/15 Summer			
10.005	DCE-10025	15 Winter	1	+0%	30/15 Summer			
10.006	DCE-10026	15 Winter	1	+0%	30/15 Summer			
1.008	DCE-10008	15 Winter	1	+0%	30/15 Summer			
13.000	DCE-10044	15 Winter	1	+0%				
13.001	DCE-10031	15 Winter	1	+0%				
14.000	DCE-10030	15 Winter	1	+0%	100/15 Summer			
1.009	DCE-10009	15 Winter	1	+0%	30/15 Summer			
15.000	DCE-10032	15 Winter	1	+0%	30/15 Summer			
15.001	DCE-10033	15 Winter	1	+0%	30/15 Summer			
1.010	DCE-10010	120 Winter	1	+0%	30/15 Summer			
1.011	TANK 1	120 Winter	1	+0%	1/15 Summer			
1.012	13	120 Winter	1	+0%	1/15 Summer			
1.013	38	15 Winter	1	+0%	1/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.006	DCE-10006	11.807	-0.222	0.000	0.51		125.2	OK	
9.000	DCE-10029	13.868	-0.183	0.000	0.08		9.6	OK	
1.007	DCE-10007	11.628	-0.208	0.000	0.56		134.4	OK	
10.000	DCE-10020	14.518	-0.096	0.000	0.28		5.8	OK	
11.000	DCE-10053	15.211	-0.115	0.000	0.12		8.2	OK	
10.001	DCE-10021	13.944	-0.132	0.000	0.35		18.5	OK	
10.002	DCE-10022	13.800	-0.135	0.000	0.33		18.6	OK	
10.003	DCE-10023	13.547	-0.162	0.000	0.17		21.7	OK	
12.000	DCE-10027	12.490	-0.146	0.000	0.26		11.8	OK	4
12.001	DCE-10028	12.385	-0.123	0.000	0.42		19.4	OK	
10.004	DCE-10024	12.242	-0.079	0.000	0.89		54.4	OK	
10.005	DCE-10025	12.141	-0.130	0.000	0.62		61.1	OK	
10.006	DCE-10026	11.723	-0.302	0.000	0.24		67.1	OK	
1.008	DCE-10008	11.362	-0.293	0.000	0.51		219.2	OK	
13.000	DCE-10044	14.368	-0.176	0.000	0.10		4.2	OK	
13.001	DCE-10031	13.916	-0.178	0.000	0.09		18.9	OK	
14.000	DCE-10030	13.413	-0.102	0.000	0.22		9.8	OK	

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.009	DCE-10009	11.206	-0.268	0.000	0.59		248.2	OK	
15.000	DCE-10032	11.716	-0.075	0.000	0.50		10.8	OK	
15.001	DCE-10033	11.399	-0.143	0.000	0.28		13.6	OK	
1.010	DCE-10010	11.090	-0.207	0.000	0.29		100.2	OK	
1.011	TANK 1	11.082	0.322	0.000	1.15		18.5	SURCHARGED	
1.012	13	10.953	0.316	0.000	3.08		16.5	SURCHARGED	
1.013	38	13.696	0.003	0.000	1.04		16.5	SURCHARGED	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	5
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	DCE-10000	15 Winter	2	+0%	100/15 Summer			
2.000	DCE-10041	60 Winter	2	+0%	100/15 Summer			
1.001	DCE-10001	15 Winter	2	+0%	100/15 Summer	100/15 Winter		
3.000	DCE-10011	15 Winter	2	+0%	100/15 Summer	100/15 Summer		
3.001	DCE-10012	15 Winter	2	+0%	30/15 Summer			
1.002	DCE-10002	15 Winter	2	+0%	100/15 Summer			
4.000	DCE-10013	15 Winter	2	+0%	100/15 Summer			
4.001	DCE-10014	15 Winter	2	+0%	100/15 Summer			
1.003	DCE-10003	15 Winter	2	+0%	30/15 Winter			
5.000	DCE-10015	15 Winter	2	+0%	100/15 Summer	100/15 Winter		
5.001	DCE-10016	15 Winter	2	+0%	30/15 Summer			
5.002	DCE-10017	15 Winter	2	+0%	30/15 Summer			
5.003	DCE-10018	15 Winter	2	+0%	100/15 Summer			
6.000	DCE-10054	15 Winter	2	+0%	100/15 Summer			
1.004	DCE-10004	15 Winter	2	+0%	30/15 Summer			
7.000	DCE-10052	15 Winter	2	+0%				
1.005	DCE-10005	15 Winter	2	+0%	30/15 Summer			
8.000	DCE-10019	15 Winter	2	+0%				

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	DCE-10000	13.959	-0.176	0.000	0.11		4.3	OK	
2.000	DCE-10041	14.466	-0.150	0.000	0.00		0.0	OK	
1.001	DCE-10001	13.605	-0.229	0.000	0.12		10.7	OK	1
3.000	DCE-10011	13.924	-0.149	0.000	0.24		12.1	OK	2
3.001	DCE-10012	13.413	-0.099	0.000	0.60		22.8	OK	
1.002	DCE-10002	13.122	-0.316	0.000	0.19		52.5	OK	
4.000	DCE-10013	14.005	-0.110	0.000	0.16		2.7	OK	
4.001	DCE-10014	13.702	-0.096	0.000	0.27		12.6	OK	
1.003	DCE-10003	12.883	-0.299	0.000	0.25		66.4	OK	
5.000	DCE-10015	13.960	-0.101	0.000	0.23		3.8	OK	1
5.001	DCE-10016	13.772	-0.068	0.000	0.57		8.7	OK	
5.002	DCE-10017	13.708	-0.056	0.000	0.71		11.7	OK	
5.003	DCE-10018	13.485	-0.094	0.000	0.30		16.8	OK	
6.000	DCE-10054	14.895	-0.088	0.000	0.35		24.4	OK	
1.004	DCE-10004	12.534	-0.248	0.000	0.41		118.3	OK	
7.000	DCE-10052	15.324	-0.105	0.000	0.19		11.6	OK	
1.005	DCE-10005	12.186	-0.222	0.000	0.50		144.1	OK	
8.000	DCE-10019	14.450	-0.109	0.000	0.16		10.3	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.006	DCE-10006	15 Winter	2	+0%	30/15 Summer			
9.000	DCE-10029	15 Winter	2	+0%				
1.007	DCE-10007	15 Winter	2	+0%	30/15 Summer			
10.000	DCE-10020	15 Winter	2	+0%	100/15 Summer			
11.000	DCE-10053	15 Winter	2	+0%	100/15 Summer			
10.001	DCE-10021	15 Winter	2	+0%	100/15 Summer			
10.002	DCE-10022	15 Winter	2	+0%	100/15 Summer			
10.003	DCE-10023	15 Winter	2	+0%	100/15 Summer			
12.000	DCE-10027	15 Winter	2	+0%	30/15 Summer	100/15 Summer		
12.001	DCE-10028	15 Winter	2	+0%	30/15 Summer			
10.004	DCE-10024	15 Winter	2	+0%	2/15 Summer			
10.005	DCE-10025	15 Winter	2	+0%	30/15 Summer			
10.006	DCE-10026	15 Winter	2	+0%	30/15 Summer			
1.008	DCE-10008	15 Winter	2	+0%	30/15 Summer			
13.000	DCE-10044	15 Winter	2	+0%				
13.001	DCE-10031	15 Winter	2	+0%				
14.000	DCE-10030	15 Winter	2	+0%	100/15 Summer			
1.009	DCE-10009	120 Winter	2	+0%	30/15 Summer			
15.000	DCE-10032	15 Winter	2	+0%	30/15 Summer			
15.001	DCE-10033	15 Winter	2	+0%	30/15 Summer			
1.010	DCE-10010	120 Winter	2	+0%	30/15 Summer			
1.011	TANK 1	120 Winter	2	+0%	1/15 Summer			
1.012	13	120 Winter	2	+0%	1/15 Summer			
1.013	38	30 Winter	2	+0%	1/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.006	DCE-10006	11.847	-0.182	0.000	0.65		161.9	OK	
9.000	DCE-10029	13.874	-0.177	0.000	0.10		12.4	OK	
1.007	DCE-10007	11.673	-0.163	0.000	0.72		173.8	OK	
10.000	DCE-10020	14.527	-0.087	0.000	0.36		7.5	OK	
11.000	DCE-10053	15.216	-0.110	0.000	0.16		10.6	OK	
10.001	DCE-10021	13.958	-0.118	0.000	0.45		23.8	OK	
10.002	DCE-10022	13.814	-0.121	0.000	0.43		24.0	OK	
10.003	DCE-10023	13.556	-0.153	0.000	0.22		28.0	OK	
12.000	DCE-10027	12.502	-0.134	0.000	0.34		15.2	OK	4
12.001	DCE-10028	12.404	-0.104	0.000	0.54		25.1	OK	
10.004	DCE-10024	12.351	0.030	0.000	1.15		70.8	SURCHARGED	
10.005	DCE-10025	12.173	-0.098	0.000	0.79		78.2	OK	
10.006	DCE-10026	11.747	-0.278	0.000	0.30		86.2	OK	
1.008	DCE-10008	11.415	-0.240	0.000	0.67		283.7	OK	
13.000	DCE-10044	14.375	-0.169	0.000	0.13		5.5	OK	
13.001	DCE-10031	13.921	-0.173	0.000	0.12		24.4	OK	
14.000	DCE-10030	13.420	-0.095	0.000	0.29		12.7	OK	

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.009	DCE-10009	11.326	-0.148	0.000	0.28		118.2	OK	
15.000	DCE-10032	11.729	-0.062	0.000	0.64		14.0	OK	
15.001	DCE-10033	11.412	-0.130	0.000	0.37		17.5	OK	
1.010	DCE-10010	11.297	0.000	0.000	0.36		124.1	OK	
1.011	TANK 1	11.231	0.471	0.000	1.15		18.6	SURCHARGED	
1.012	13	11.102	0.465	0.000	3.08		16.5	SURCHARGED	
1.013	38	13.695	0.002	0.000	1.04		16.5	SURCHARGED	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	5
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	DCE-10000	15 Winter	30	+0%	100/15 Summer			
2.000	DCE-10041	60 Winter	30	+0%	100/15 Summer			
1.001	DCE-10001	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
3.000	DCE-10011	15 Winter	30	+0%	100/15 Summer	100/15 Summer		
3.001	DCE-10012	15 Winter	30	+0%	30/15 Summer			
1.002	DCE-10002	15 Winter	30	+0%	100/15 Summer			
4.000	DCE-10013	15 Winter	30	+0%	100/15 Summer			
4.001	DCE-10014	15 Winter	30	+0%	100/15 Summer			
1.003	DCE-10003	15 Winter	30	+0%	30/15 Winter			
5.000	DCE-10015	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
5.001	DCE-10016	15 Winter	30	+0%	30/15 Summer			
5.002	DCE-10017	15 Winter	30	+0%	30/15 Summer			
5.003	DCE-10018	15 Winter	30	+0%	100/15 Summer			
6.000	DCE-10054	15 Winter	30	+0%	100/15 Summer			
1.004	DCE-10004	15 Winter	30	+0%	30/15 Summer			
7.000	DCE-10052	15 Winter	30	+0%				
1.005	DCE-10005	15 Winter	30	+0%	30/15 Summer			
8.000	DCE-10019	15 Winter	30	+0%				

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	DCE-10000	13.979	-0.156	0.000	0.20		8.0	OK	
2.000	DCE-10041	14.466	-0.150	0.000	0.00		0.0	OK	
1.001	DCE-10001	13.641	-0.193	0.000	0.26		22.7	OK	1
3.000	DCE-10011	13.957	-0.116	0.000	0.46		22.9	OK	2
3.001	DCE-10012	13.548	0.036	0.000	1.23		47.2	SURCHARGED	
1.002	DCE-10002	13.272	-0.166	0.000	0.41		112.4	OK	
4.000	DCE-10013	14.022	-0.093	0.000	0.30		5.1	OK	
4.001	DCE-10014	13.734	-0.064	0.000	0.62		28.8	OK	
1.003	DCE-10003	13.206	0.024	0.000	0.52		141.3	SURCHARGED	
5.000	DCE-10015	14.036	-0.025	0.000	0.42		7.0	OK	1
5.001	DCE-10016	13.999	0.159	0.000	1.08		16.6	SURCHARGED	
5.002	DCE-10017	13.907	0.143	0.000	1.36		22.5	SURCHARGED	
5.003	DCE-10018	13.515	-0.064	0.000	0.60		33.3	OK	
6.000	DCE-10054	14.924	-0.059	0.000	0.67		46.2	OK	
1.004	DCE-10004	13.076	0.294	0.000	0.79		226.2	SURCHARGED	
7.000	DCE-10052	15.342	-0.087	0.000	0.36		22.1	OK	
1.005	DCE-10005	12.907	0.499	0.000	0.85		242.7	SURCHARGED	
8.000	DCE-10019	14.466	-0.093	0.000	0.31		19.5	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.006	DCE-10006	15 Winter	30	+0%	30/15 Summer			
9.000	DCE-10029	15 Winter	30	+0%				
1.007	DCE-10007	15 Winter	30	+0%	30/15 Summer			
10.000	DCE-10020	15 Winter	30	+0%	100/15 Summer			
11.000	DCE-10053	15 Winter	30	+0%	100/15 Summer			
10.001	DCE-10021	15 Winter	30	+0%	100/15 Summer			
10.002	DCE-10022	15 Winter	30	+0%	100/15 Summer			
10.003	DCE-10023	15 Winter	30	+0%	100/15 Summer			
12.000	DCE-10027	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
12.001	DCE-10028	15 Winter	30	+0%	30/15 Summer			
10.004	DCE-10024	15 Winter	30	+0%	2/15 Summer			
10.005	DCE-10025	15 Winter	30	+0%	30/15 Summer			
10.006	DCE-10026	15 Winter	30	+0%	30/15 Summer			
1.008	DCE-10008	240 Winter	30	+0%	30/15 Summer			
13.000	DCE-10044	15 Winter	30	+0%				
13.001	DCE-10031	15 Winter	30	+0%				
14.000	DCE-10030	15 Winter	30	+0%	100/15 Summer			
1.009	DCE-10009	240 Winter	30	+0%	30/15 Summer			
15.000	DCE-10032	15 Winter	30	+0%	30/15 Summer			
15.001	DCE-10033	240 Winter	30	+0%	30/15 Summer			
1.010	DCE-10010	240 Winter	30	+0%	30/15 Summer			
1.011	TANK 1	240 Winter	30	+0%	1/15 Summer			
1.012	13	240 Winter	30	+0%	1/15 Summer			
1.013	38	60 Winter	30	+0%	1/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.006	DCE-10006	12.647	0.618	0.000	1.09		269.7	SURCHARGED	
9.000	DCE-10029	13.893	-0.158	0.000	0.19		23.6	OK	
1.007	DCE-10007	12.406	0.570	0.000	1.22		291.8	SURCHARGED	
10.000	DCE-10020	14.556	-0.058	0.000	0.67		14.2	OK	
11.000	DCE-10053	15.233	-0.093	0.000	0.30		20.1	OK	
10.001	DCE-10021	14.022	-0.054	0.000	0.91		48.0	OK	
10.002	DCE-10022	13.873	-0.062	0.000	0.84		47.6	OK	
10.003	DCE-10023	13.591	-0.118	0.000	0.45		56.3	OK	
12.000	DCE-10027	13.361	0.725	0.000	0.58		26.2	SURCHARGED	4
12.001	DCE-10028	13.283	0.775	0.000	0.95		44.5	SURCHARGED	
10.004	DCE-10024	13.118	0.797	0.000	2.16		132.3	SURCHARGED	
10.005	DCE-10025	12.852	0.581	0.000	1.50		148.9	SURCHARGED	
10.006	DCE-10026	12.311	0.286	0.000	0.57		161.7	SURCHARGED	
1.008	DCE-10008	12.151	0.496	0.000	0.27		114.5	SURCHARGED	
13.000	DCE-10044	14.398	-0.146	0.000	0.25		10.4	OK	
13.001	DCE-10031	13.950	-0.144	0.000	0.28		55.7	OK	
14.000	DCE-10030	13.444	-0.071	0.000	0.54		24.2	OK	

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.009	DCE-10009	12.049	0.575	0.000	0.31		129.7	SURCHARGED	
15.000	DCE-10032	12.034	0.243	0.000	1.13		24.6	SURCHARGED	
15.001	DCE-10033	11.973	0.431	0.000	0.14		6.7	SURCHARGED	
1.010	DCE-10010	11.972	0.675	0.000	0.40		137.6	SURCHARGED	
1.011	TANK 1	11.969	1.209	0.000	1.11		17.9	SURCHARGED	
1.012	13	11.840	1.203	0.000	3.08		16.5	SURCHARGED	
1.013	38	13.695	0.002	0.000	1.04		16.5	SURCHARGED	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	5
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	DCE-10000	15 Winter	100	+30%	100/15 Summer			
2.000	DCE-10041	15 Winter	100	+30%	100/15 Summer			
1.001	DCE-10001	15 Winter	100	+30%	100/15 Summer	100/15 Winter		
3.000	DCE-10011	15 Winter	100	+30%	100/15 Summer	100/15 Summer		
3.001	DCE-10012	15 Winter	100	+30%	30/15 Summer			
1.002	DCE-10002	15 Winter	100	+30%	100/15 Summer			
4.000	DCE-10013	15 Winter	100	+30%	100/15 Summer			
4.001	DCE-10014	15 Winter	100	+30%	100/15 Summer			
1.003	DCE-10003	15 Winter	100	+30%	30/15 Winter			
5.000	DCE-10015	15 Winter	100	+30%	100/15 Summer	100/15 Winter		
5.001	DCE-10016	15 Winter	100	+30%	30/15 Summer			
5.002	DCE-10017	15 Winter	100	+30%	30/15 Summer			
5.003	DCE-10018	15 Winter	100	+30%	100/15 Summer			
6.000	DCE-10054	15 Winter	100	+30%	100/15 Summer			
1.004	DCE-10004	15 Winter	100	+30%	30/15 Summer			
7.000	DCE-10052	15 Winter	100	+30%				
1.005	DCE-10005	15 Winter	100	+30%	30/15 Summer			
8.000	DCE-10019	15 Winter	100	+30%				

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	DCE-10000	15.148	1.013	0.000	0.30		12.0	FLOOD RISK	
2.000	DCE-10041	14.914	0.298	0.000	0.63		26.6	SURCHARGED	
1.001	DCE-10001	15.101	1.267	0.238	0.54		46.9	FLOOD	1
3.000	DCE-10011	15.275	1.202	1.864	0.76		38.1	FLOOD	2
3.001	DCE-10012	15.297	1.785	0.000	1.51		57.7	SURCHARGED	
1.002	DCE-10002	15.152	1.714	0.000	0.48		130.4	SURCHARGED	
4.000	DCE-10013	15.246	1.131	0.000	0.65		11.2	FLOOD RISK	
4.001	DCE-10014	15.221	1.423	0.000	0.82		37.8	FLOOD RISK	
1.003	DCE-10003	15.000	1.818	0.000	0.58		156.7	SURCHARGED	
5.000	DCE-10015	15.262	1.201	0.940	0.94		15.8	FLOOD	1
5.001	DCE-10016	15.285	1.445	0.000	1.53		23.4	FLOOD RISK	
5.002	DCE-10017	15.248	1.484	0.000	1.79		29.7	FLOOD RISK	
5.003	DCE-10018	15.044	1.465	0.000	0.73		41.0	FLOOD RISK	
6.000	DCE-10054	15.621	0.638	0.000	0.86		59.0	FLOOD RISK	
1.004	DCE-10004	14.838	2.056	0.000	0.93		264.5	SURCHARGED	
7.000	DCE-10052	15.378	-0.051	0.000	0.61		37.1	OK	
1.005	DCE-10005	14.561	2.153	0.000	1.13		324.4	SURCHARGED	
8.000	DCE-10019	14.540	-0.019	0.000	0.52		32.8	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.006	DCE-10006	15 Winter	100	+30%	30/15 Summer			
9.000	DCE-10029	15 Winter	100	+30%				
1.007	DCE-10007	15 Winter	100	+30%	30/15 Summer			
10.000	DCE-10020	15 Winter	100	+30%	100/15 Summer			
11.000	DCE-10053	15 Winter	100	+30%	100/15 Summer			
10.001	DCE-10021	15 Winter	100	+30%	100/15 Summer			
10.002	DCE-10022	15 Winter	100	+30%	100/15 Summer			
10.003	DCE-10023	15 Winter	100	+30%	100/15 Summer			
12.000	DCE-10027	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
12.001	DCE-10028	15 Summer	100	+30%	30/15 Summer			
10.004	DCE-10024	15 Winter	100	+30%	2/15 Summer			
10.005	DCE-10025	15 Winter	100	+30%	30/15 Summer			
10.006	DCE-10026	240 Winter	100	+30%	30/15 Summer			
1.008	DCE-10008	240 Winter	100	+30%	30/15 Summer			
13.000	DCE-10044	15 Winter	100	+30%				
13.001	DCE-10031	15 Winter	100	+30%				
14.000	DCE-10030	15 Winter	100	+30%	100/15 Summer			
1.009	DCE-10009	240 Winter	100	+30%	30/15 Summer			
15.000	DCE-10032	15 Winter	100	+30%	30/15 Summer			
15.001	DCE-10033	360 Winter	100	+30%	30/15 Summer			
1.010	DCE-10010	360 Winter	100	+30%	30/15 Summer			
1.011	TANK 1	360 Winter	100	+30%	1/15 Summer			
1.012	13	360 Winter	100	+30%	1/15 Summer			
1.013	38	60 Summer	100	+30%	1/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.006	DCE-10006	14.065	2.036	0.000	1.52		377.9	SURCHARGED	
9.000	DCE-10029	13.915	-0.136	0.000	0.33		39.8	OK	
1.007	DCE-10007	13.608	1.772	0.000	1.72		413.6	SURCHARGED	
10.000	DCE-10020	15.650	1.036	0.000	0.93		19.7	FLOOD RISK	
11.000	DCE-10053	15.393	0.067	0.000	0.50		33.0	SURCHARGED	
10.001	DCE-10021	15.201	1.125	0.000	1.21		63.7	FLOOD RISK	
10.002	DCE-10022	15.003	1.068	0.000	1.18		66.7	FLOOD RISK	
10.003	DCE-10023	14.744	1.035	0.000	0.61		76.9	FLOOD RISK	
12.000	DCE-10027	14.217	1.581	11.724	1.52		68.1	FLOOD	4
12.001	DCE-10028	14.309	1.801	0.000	1.56		73.1	FLOOD RISK	
10.004	DCE-10024	14.293	1.972	0.000	2.46		151.0	SURCHARGED	
10.005	DCE-10025	13.972	1.701	0.000	1.82		179.9	SURCHARGED	
10.006	DCE-10026	13.317	1.292	0.000	0.20		57.1	SURCHARGED	
1.008	DCE-10008	13.312	1.657	0.000	0.44		186.7	SURCHARGED	
13.000	DCE-10044	14.425	-0.119	0.000	0.43		17.5	OK	
13.001	DCE-10031	13.978	-0.116	0.000	0.47		93.7	OK	
14.000	DCE-10030	13.957	0.442	0.000	0.81		36.1	SURCHARGED	

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.009	DCE-10009	13.278	1.804	0.000	0.51		213.9	SURCHARGED	
15.000	DCE-10032	13.297	1.506	0.000	1.84		40.0	SURCHARGED	
15.001	DCE-10033	13.216	1.674	0.000	0.16		7.4	SURCHARGED	
1.010	DCE-10010	13.215	1.918	0.000	0.47		162.2	SURCHARGED	
1.011	TANK 1	13.212	2.452	0.000	1.09		17.5	SURCHARGED	
1.012	13	13.083	2.446	0.000	3.08		16.5	SURCHARGED	
1.013	38	13.696	0.003	0.000	1.04		16.5	SURCHARGED	

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Proposed Surface Water Drainage Calculations – 02– Main Site

FNC0011 Site Infrastructure

Full Sutton 2

664015-1275-PEV-FNC0011-ZZ-CA-C-0502
Issue Number P01
S3 – Review and Comment
16/06/2021

Ministry of JUSTICE

Security Classification:
OFFICIAL

Document History

Issue	Date	Comment	Author	Chk'd
P01	16/06/2021	First issue. S3 – Review and Comment	PCA	MHA

PICK EVERARD

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This document provides the surface water drainage calculations for the Full Sutton 2 development (Main Site), and should be read with the following;

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664015-1275-PEV-FNC0011-ZZ-DR-C-6505 – Drainage Details–SW Pumping Station-Car Park
664015-1275-PEV-FNC0011-ZZ-DR-C-6506 – Drainage Details–SW Pumping Main Site

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664015-1275-PEV-FNC0011-ZZ-SH-C-0506 – Proposed Surface Water Drainage-Schedule 06
664015-1275-PEV-FNC0011-ZZ-SH-C-0507 – Proposed Surface Water Drainage-Schedule 07
664015-1275-PEV-FNC0011-ZZ-SH-C-0508 – Proposed Surface Water Drainage-Schedule 08
664015-1275-PEV-FNC0011-ZZ-SH-C-0509 – Proposed Surface Water Drainage-Schedule 09
664015-1275-PEV-FNC0011-ZZ-SH-C-0510 – Proposed Surface Water Drainage-Schedule 10
664015-1275-PEV-FNC0011-ZZ-SH-C-0511 – Proposed Surface Water Drainage-Schedule 11

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

- Indicates pipe length does not match coordinates
« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
2.000	52.265	0.348	150.0	0.129	4.00	0.0	0.600	o	225	Pipe/Conduit	
3.000	14.836	0.739	20.1	0.096	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	38.458	0.192	200.0	0.019	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.000	32.134	0.723	44.4	0.185	4.00	0.0	0.600	o	225	Pipe/Conduit	
2.002	18.104	0.090	201.2	0.036	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.000	50.00	4.82	13.957	0.129	0.0	0.0	0.0	1.07	42.4	23.2
3.000	50.00	5.11	14.399	0.096	0.0	0.0	0.0	2.26	39.9	17.3
2.001	49.12	5.69	13.534	0.244	0.0	0.0	0.0	1.11	78.3	43.2
4.000	50.00	4.27	14.075	0.185	0.0	0.0	0.0	1.97	78.2	33.5
2.002	48.29	5.90	13.191	0.465	0.0	0.0	0.0	1.43	227.4	81.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
5.000	34.637	0.231	150.0	0.029	4.00	0.0	0.600	o	150	Pipe/Conduit	
6.000	19.776	0.668	29.6	0.081	4.00	0.0	0.600	o	150	Pipe/Conduit	
5.001	20.281	0.135	150.0	0.038	0.00	0.0	0.600	o	225	Pipe/Conduit	
7.000	35.939	0.397	90.5	0.082	4.00	0.0	0.600	o	150	Pipe/Conduit	
5.002	17.452	0.087	200.0	0.015	0.00	0.0	0.600	o	300	Pipe/Conduit	
8.000	37.644	0.334	112.7	0.105	4.00	0.0	0.600	o	225	Pipe/Conduit	
5.003	19.564	0.190	103.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.003	33.599	0.338	99.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
9.000	24.266	0.348	69.7	0.039	4.00	0.0	0.600	o	150	Pipe/Conduit	
9.001	31.174	0.208	150.0	0.070	0.00	0.0	0.600	o	225	Pipe/Conduit	
9.002	15.998	0.107	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
10.000	14.943	0.738	20.2	0.027	4.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
5.000	50.00	4.71	14.044	0.029	0.0	0.0	0.0	0.82	14.5	5.2
6.000	50.00	4.18	14.481	0.081	0.0	0.0	0.0	1.86	32.8	14.7
5.001	50.00	5.02	13.738	0.148	0.0	0.0	0.0	1.07	42.4	26.8
7.000	50.00	4.57	14.075	0.082	0.0	0.0	0.0	1.06	18.7	14.8
5.002	50.00	5.29	13.528	0.245	0.0	0.0	0.0	1.11	78.3	44.3
8.000	50.00	4.51	13.775	0.105	0.0	0.0	0.0	1.23	48.9	19.0
5.003	50.00	5.45	13.291	0.350	0.0	0.0	0.0	2.00	318.6	63.2
2.003	47.27	6.17	13.101	0.815	0.0	0.0	0.0	2.04	324.3	139.1
9.000	50.00	4.34	14.000	0.039	0.0	0.0	0.0	1.21	21.3	7.0
9.001	50.00	4.82	13.577	0.108	0.0	0.0	0.0	1.07	42.4	19.6
9.002	50.00	5.07	13.369	0.108	0.0	0.0	0.0	1.07	42.4	19.6
10.000	50.00	4.11	14.000	0.027	0.0	0.0	0.0	2.25	39.7	5.0

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
9.003	54.804	0.274	200.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.004	37.884	0.379	100.0	0.128	0.00	0.0	0.600	o	450	Pipe/Conduit	
11.000	34.585	1.416	24.4	0.055	4.00	0.0	0.600	o	250	Pipe/Conduit	
2.005	39.503	0.395	100.0	0.081	0.00	0.0	0.600	o	450	Pipe/Conduit	
12.000	22.766	0.455	50.0	0.119	4.00	0.0	0.600	o	200	Pipe/Conduit	
12.001	47.619	1.256	37.9	0.113	0.00	0.0	0.600	o	300	Pipe/Conduit	
13.000	7.467	0.050	150.0	0.081	4.00	0.0	0.600	o	225	Pipe/Conduit	
13.001	16.971	0.113	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
13.002	85.175	0.426	200.0	0.286	0.00	0.0	0.600	o	300	Pipe/Conduit	
14.000	30.886	1.244	24.8	0.076	4.00	0.0	0.600	o	150	Pipe/Conduit	
13.003	10.262	0.068	150.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
15.000	55.918	0.630	88.8	0.091	4.00	0.0	0.600	o	225	Pipe/Conduit	
13.004	29.613	0.197	150.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
9.003	48.30	5.90	13.187	0.136	0.0	0.0	0.0	1.11	78.3	23.7
2.004	46.17	6.48	12.763	1.079	0.0	0.0	0.0	2.03	323.4	179.9
11.000	50.00	4.20	14.000	0.055	0.0	0.0	0.0	2.84	139.6	10.0
2.005	45.08	6.81	12.384	1.215	0.0	0.0	0.0	2.03	323.4	197.8
12.000	50.00	4.22	13.950	0.119	0.0	0.0	0.0	1.72	54.0	21.4
12.001	50.00	4.53	13.395	0.231	0.0	0.0	0.0	2.56	181.1	41.8
13.000	50.00	4.12	13.875	0.081	0.0	0.0	0.0	1.07	42.4	14.5
13.001	50.00	4.38	13.825	0.081	0.0	0.0	0.0	1.07	42.4	14.5
13.002	49.21	5.66	13.712	0.367	0.0	0.0	0.0	1.11	78.3	65.2
14.000	50.00	4.25	14.098	0.076	0.0	0.0	0.0	2.03	35.9	13.6
13.003	48.81	5.77	13.136	0.442	0.0	0.0	0.0	1.66	263.6	78.0
15.000	50.00	4.67	13.923	0.091	0.0	0.0	0.0	1.39	55.2	16.5
13.004	47.67	6.06	13.068	0.534	0.0	0.0	0.0	1.66	263.6	91.9

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
16.000	7.834	0.056	140.4	0.040	4.00	0.0	0.600	o	150	Pipe/Conduit	
16.001	52.830	0.669	79.0	0.059	0.00	0.0	0.600	o	225	Pipe/Conduit	
13.005	24.753	0.882	28.1	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.006	2.792#	0.014	200.0	0.021	0.00	0.0	0.600	o	600	Pipe/Conduit	
2.007	5.975	0.030	200.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
2.008	29.809	0.149	200.0	0.013	0.00	0.0	0.600	o	225	Pipe/Conduit	
17.000	27.037	0.271	99.8	0.329	4.00	0.0	0.600	o	300	Pipe/Conduit	
17.001	18.333	0.183	100.2	0.035	0.00	0.0	0.600	o	300	Pipe/Conduit	
17.002	39.002	0.390	100.0	0.064	0.00	0.0	0.600	o	300	Pipe/Conduit	
17.003	24.908	0.249	99.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
17.004	23.471	0.156	150.0	0.175	0.00	0.0	0.600	o	450	Pipe/Conduit	
17.005	12.896	0.059	218.6	0.078	0.00	0.0	0.600	o	450	Pipe/Conduit	
17.006	3.647#	0.024	150.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
17.007	6.568	0.039	168.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
17.008	8.563	0.679	12.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
18.000	17.457	0.839	20.8	0.127	4.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
16.000	50.00	4.15	13.892	0.040	0.0	0.0	0.0	0.85	15.0	7.3
16.001	50.00	4.75	13.765	0.099	0.0	0.0	0.0	1.47	58.6	17.9
13.005	47.28	6.17	12.871	0.633	0.0	0.0	0.0	3.85	612.2	108.0
2.006	44.99	6.83	11.839	2.101	0.0	0.0	0.0	1.72	485.8	341.4
2.007	44.81	6.89	10.425	2.101	0.0	0.0	0.0	1.72	485.8	341.4
2.008	43.14	7.43	10.395	2.114	0.0	0.0	0.0	0.92	36.6«	341.4
17.000	50.00	4.29	13.820	0.329	0.0	0.0	0.0	1.57	111.3	59.5
17.001	50.00	4.48	13.549	0.365	0.0	0.0	0.0	1.57	111.0	65.9
17.002	50.00	4.89	13.366	0.429	0.0	0.0	0.0	1.57	111.1	77.4
17.003	50.00	5.16	12.976	0.429	0.0	0.0	0.0	1.57	111.2	77.4
17.004	50.00	5.39	12.577	0.603	0.0	0.0	0.0	1.66	263.6	108.9
17.005	49.67	5.55	12.421	0.681	0.0	0.0	0.0	1.37	218.1	122.1
17.006	49.54	5.58	12.172	0.681	0.0	0.0	0.0	1.99	561.6	122.1
17.007	49.26	5.65	11.039	0.681	0.0	0.0	0.0	1.56	248.7	122.1
17.008	49.06	5.70	11.000	0.681	0.0	0.0	0.0	2.85	50.4«	122.1
18.000	50.00	4.10	14.000	0.127	0.0	0.0	0.0	2.88	114.6	22.9

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
19.000	44.988	0.300	150.0	0.085	4.00	0.0	0.600	o	225	Pipe/Conduit	
19.001	75.473	0.503	150.0	0.199	0.00	0.0	0.600	o	300	Pipe/Conduit	
18.001	17.118	0.114	150.0	0.077	0.00	0.0	0.600	o	450	Pipe/Conduit	
18.002	4.017#	0.020	200.0	0.071	0.00	0.0	0.600	o	450	Pipe/Conduit	
18.003	5.157	0.052	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
18.004	14.738	0.983	15.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.009	51.036	0.255	200.0	0.027	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.010	30.408	0.152	200.0	0.046	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.000	14.904	0.099	150.5	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
20.001	25.739	0.171	150.5	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	
20.002	19.328	0.129	149.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
20.003	24.077	0.161	149.5	0.018	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.004	28.188	0.188	149.9	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.005	18.924	0.126	150.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.006	25.326	0.169	149.9	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.007	26.079	0.458	57.0	0.062	0.00	0.0	0.600	o	225	Pipe/Conduit	
21.000	25.674	0.676	38.0	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
21.001	26.218	0.690	38.0	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
19.000	50.00	4.70	13.964	0.085	0.0	0.0	0.0	1.07	42.4	15.4
19.001	49.13	5.69	13.589	0.284	0.0	0.0	0.0	1.28	90.6	50.4
18.001	48.45	5.86	12.936	0.488	0.0	0.0	0.0	1.66	263.6	85.4
18.002	48.27	5.90	12.822	0.559	0.0	0.0	0.0	1.43	228.1	97.4
18.003	48.02	5.97	12.232	0.559	0.0	0.0	0.0	1.31	52.0«	97.4
18.004	47.67	6.06	12.180	0.559	0.0	0.0	0.0	2.61	46.2«	97.4
2.009	40.60	8.36	10.246	3.381	0.0	0.0	0.0	0.92	36.6«	495.7
2.010	39.24	8.91	9.991	3.427	0.0	0.0	0.0	0.92	36.6«	495.7
20.000	50.00	4.30	14.150	0.020	0.0	0.0	0.0	0.82	14.4	3.7
20.001	50.00	4.83	14.051	0.039	0.0	0.0	0.0	0.82	14.4	7.1
20.002	50.00	5.22	13.880	0.039	0.0	0.0	0.0	0.82	14.5	7.1
20.003	49.47	5.60	13.676	0.057	0.0	0.0	0.0	1.07	42.4	10.3
20.004	47.76	6.04	13.515	0.078	0.0	0.0	0.0	1.07	42.4	13.4
20.005	46.69	6.34	13.327	0.078	0.0	0.0	0.0	1.06	42.3	13.4
20.006	45.33	6.73	13.201	0.097	0.0	0.0	0.0	1.07	42.4	15.9
20.007	44.52	6.98	13.032	0.159	0.0	0.0	0.0	1.74	69.0	25.6
21.000	50.00	4.26	14.162	0.020	0.0	0.0	0.0	1.64	29.0	3.5
21.001	50.00	4.53	13.486	0.039	0.0	0.0	0.0	1.64	28.9	7.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
22.000	16.490	0.110	149.9	0.018	4.00	0.0	0.600	o	150	Pipe/Conduit	
22.001	29.604	0.197	150.3	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
23.000	34.288	0.245	140.0	0.106	4.00	0.0	0.600	o	225	Pipe/Conduit	
22.002	14.555	0.097	150.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
22.003	6.807	0.972	7.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
24.000	16.274	0.108	150.7	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
24.001	28.677	0.192	149.4	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
25.000	11.610	0.200	58.1	0.025	4.00	0.0	0.600	o	150	Pipe/Conduit	
24.002	16.964	0.113	150.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
24.003	28.516	0.190	150.1	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
24.004	23.867	0.159	150.1	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
24.005	20.100	0.134	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
24.006	26.414	0.176	150.1	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
24.007	25.617	0.171	149.8	0.071	0.00	0.0	0.600	o	225	Pipe/Conduit	
21.002	23.877	0.159	150.0	0.083	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
22.000	50.00	4.34	14.137	0.018	0.0	0.0	0.0	0.82	14.5	3.3
22.001	50.00	4.94	14.027	0.039	0.0	0.0	0.0	0.82	14.4	7.0
23.000	50.00	4.52	14.400	0.106	0.0	0.0	0.0	1.10	43.9	19.1
22.002	50.00	5.17	13.755	0.144	0.0	0.0	0.0	1.07	42.3	26.1
22.003	50.00	5.19	13.658	0.144	0.0	0.0	0.0	4.98	197.9	26.1
24.000	50.00	4.33	14.050	0.019	0.0	0.0	0.0	0.82	14.4	3.4
24.001	50.00	4.92	13.942	0.039	0.0	0.0	0.0	0.82	14.5	7.1
25.000	50.00	4.15	13.950	0.025	0.0	0.0	0.0	1.32	23.4	4.5
24.002	50.00	5.26	13.750	0.064	0.0	0.0	0.0	0.82	14.5	11.6
24.003	49.04	5.71	13.562	0.084	0.0	0.0	0.0	1.06	42.3	14.8
24.004	47.61	6.08	13.372	0.104	0.0	0.0	0.0	1.06	42.3	17.8
24.005	46.48	6.40	13.213	0.104	0.0	0.0	0.0	1.07	42.4	17.8
24.006	45.08	6.81	13.079	0.123	0.0	0.0	0.0	1.06	42.3	20.1
24.007	43.81	7.21	12.903	0.195	0.0	0.0	0.0	1.07	42.4	30.8
21.002	43.09	7.45	12.507	0.461	0.0	0.0	0.0	1.66	263.6	71.8

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
20.008	4.762#	0.032	148.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
20.009	16.140	0.108	150.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
20.010	17.240	1.623	10.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
26.000	17.991	0.120	150.0	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
26.001	25.151	0.168	150.1	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
26.002	20.630	0.138	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
26.003	27.145	0.181	150.0	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
26.004	32.178	0.565	57.0	0.058	0.00	0.0	0.600	o	225	Pipe/Conduit	
27.000	16.803	0.112	150.0	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
27.001	24.571	0.164	150.0	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	
27.002	21.223	0.141	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
27.003	23.965	0.160	150.0	0.018	0.00	0.0	0.600	o	150	Pipe/Conduit	
27.004	27.269	0.290	94.0	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
28.000	11.282	0.664	17.0	0.027	4.00	0.0	0.600	o	150	Pipe/Conduit	
29.000	36.721	0.772	47.6	0.043	5.00	0.0	0.600	o	225	Pipe/Conduit	
29.001	46.287	0.309	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
29.002	14.687	0.098	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
20.008	42.95	7.50	12.348	0.621	0.0	0.0	0.0	1.66	264.7	96.3
20.009	42.35	7.71	11.699	0.621	0.0	0.0	0.0	1.28	90.6«	96.3
20.010	42.09	7.80	11.537	0.621	0.0	0.0	0.0	3.11	54.9«	96.3
26.000	50.00	4.37	14.333	0.020	0.0	0.0	0.0	0.82	14.5	3.5
26.001	50.00	4.88	14.213	0.039	0.0	0.0	0.0	0.82	14.5	7.1
26.002	50.00	5.30	14.046	0.039	0.0	0.0	0.0	0.82	14.5	7.1
26.003	48.97	5.72	13.833	0.059	0.0	0.0	0.0	1.07	42.4	10.4
26.004	47.79	6.03	13.652	0.117	0.0	0.0	0.0	1.74	69.0	20.2
27.000	50.00	4.34	14.339	0.020	0.0	0.0	0.0	0.82	14.5	3.7
27.001	50.00	4.84	14.227	0.039	0.0	0.0	0.0	0.82	14.5	7.1
27.002	50.00	5.28	14.063	0.039	0.0	0.0	0.0	0.82	14.5	7.1
27.003	48.82	5.76	13.922	0.057	0.0	0.0	0.0	0.82	14.5	10.1
27.004	47.54	6.10	13.687	0.078	0.0	0.0	0.0	1.35	53.6	13.4
28.000	50.00	4.08	14.150	0.027	0.0	0.0	0.0	2.46	43.4	4.9
29.000	50.00	5.32	14.575	0.043	0.0	0.0	0.0	1.90	75.6	7.8
29.001	47.74	6.05	13.803	0.043	0.0	0.0	0.0	1.07	42.4	7.8
29.002	46.90	6.28	13.494	0.043	0.0	0.0	0.0	1.07	42.4	7.8

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
27.005	18.824	0.227	83.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
30.000	17.777	0.119	149.4	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
30.001	25.002	0.167	150.0	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
30.002	19.540	0.130	150.0	0.027	0.00	0.0	0.600	o	150	Pipe/Conduit	
30.003	27.019	0.180	150.0	0.031	0.00	0.0	0.600	o	225	Pipe/Conduit	
30.004	26.476	0.427	62.0	0.070	0.00	0.0	0.600	o	225	Pipe/Conduit	
31.000	13.841	0.092	150.0	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
31.001	29.014	0.194	149.6	0.018	0.00	0.0	0.600	o	150	Pipe/Conduit	
31.002	15.911	0.106	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
31.003	30.960	0.207	149.9	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
31.004	29.158	0.194	150.0	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
32.000	4.738	1.149	4.1	0.094	4.00	0.0	0.600	o	225	Pipe/Conduit	
31.005	19.104	0.191	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
30.005	6.454	0.065	100.0	0.044	0.00	0.0	0.600	o	450	Pipe/Conduit	
26.005	8.000#	0.080	100.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
27.005	46.13	6.49	13.397	0.148	0.0	0.0	0.0	1.44	57.1	24.7
30.000	50.00	4.36	14.334	0.019	0.0	0.0	0.0	0.82	14.5	3.5
30.001	50.00	4.87	14.215	0.039	0.0	0.0	0.0	0.82	14.5	7.1
30.002	50.00	5.27	14.049	0.066	0.0	0.0	0.0	0.82	14.5	12.0
30.003	49.10	5.69	13.844	0.097	0.0	0.0	0.0	1.07	42.4	17.2
30.004	48.07	5.96	13.663	0.167	0.0	0.0	0.0	1.66	66.2	29.0
31.000	50.00	4.28	14.294	0.020	0.0	0.0	0.0	0.82	14.5	3.7
31.001	50.00	4.87	14.202	0.039	0.0	0.0	0.0	0.82	14.5	7.0
31.002	50.00	5.20	14.008	0.039	0.0	0.0	0.0	0.82	14.5	7.0
31.003	49.15	5.68	13.827	0.058	0.0	0.0	0.0	1.07	42.4	10.2
31.004	47.40	6.14	13.621	0.078	0.0	0.0	0.0	1.07	42.4	13.3
32.000	50.00	4.01	14.575	0.094	0.0	0.0	0.0	6.49	258.0	17.0
31.005	46.53	6.38	13.426	0.172	0.0	0.0	0.0	1.31	52.0	28.9
30.005	46.35	6.43	13.010	0.383	0.0	0.0	0.0	2.03	323.4	64.1
26.005	45.91	6.56	12.945	0.648	0.0	0.0	0.0	2.03	323.4	107.5

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
26.006	17.654	0.115	153.5	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
26.007	33.762	2.086	16.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.011	58.610	0.391	150.0	0.043	0.00	0.0	0.600	o	225	Pipe/Conduit	
33.000	12.935	0.086	150.0	0.018	4.00	0.0	0.600	o	150	Pipe/Conduit	
33.001	27.793	0.185	150.0	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
33.002	19.194	0.128	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
33.003	27.291	0.182	150.0	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
33.004	24.830	0.856	29.0	0.064	0.00	0.0	0.600	o	225	Pipe/Conduit	
34.000	12.982	0.087	150.0	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
34.001	27.917	0.279	100.0	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
34.002	18.969	0.190	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
35.000	17.373	0.991	17.5	0.106	4.00	0.0	0.600	o	225	Pipe/Conduit	
34.003	28.276	0.283	100.0	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
34.004	24.475	0.335	73.0	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
36.000	10.693	0.071	150.0	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
36.001	23.010	0.329	70.0	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
26.006	45.31	6.74	12.115	0.648	0.0	0.0	0.0	1.64	260.6	107.5
26.007	44.58	6.96	12.000	0.648	0.0	0.0	0.0	2.52	44.5«	107.5
2.011	37.19	9.82	9.839	4.739	0.0	0.0	0.0	1.07	42.4«	636.4
33.000	50.00	4.26	14.066	0.018	0.0	0.0	0.0	0.82	14.5	3.3
33.001	50.00	4.83	13.980	0.039	0.0	0.0	0.0	0.82	14.5	7.0
33.002	50.00	5.22	13.794	0.039	0.0	0.0	0.0	0.82	14.5	7.0
33.003	49.28	5.65	13.592	0.058	0.0	0.0	0.0	1.07	42.4	10.3
33.004	48.61	5.82	13.410	0.122	0.0	0.0	0.0	2.44	97.0	21.5
34.000	50.00	4.26	14.060	0.019	0.0	0.0	0.0	0.82	14.5	3.4
34.001	50.00	4.73	13.973	0.039	0.0	0.0	0.0	1.00	17.8	7.1
34.002	50.00	5.04	13.694	0.039	0.0	0.0	0.0	1.00	17.8	7.1
35.000	50.00	4.09	14.420	0.106	0.0	0.0	0.0	3.14	124.9	19.1
34.003	50.00	5.40	13.430	0.165	0.0	0.0	0.0	1.31	52.0	29.7
34.004	49.19	5.67	13.147	0.184	0.0	0.0	0.0	1.53	60.9	32.7
36.000	50.00	4.22	14.240	0.020	0.0	0.0	0.0	0.82	14.5	3.7
36.001	50.00	4.54	14.169	0.039	0.0	0.0	0.0	1.20	21.3	7.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
37.000	28.938	0.193	150.0	0.048	4.00	0.0	0.600	o	150	Pipe/Conduit	
36.002	21.469	0.215	99.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
36.003	22.852	0.229	100.0	0.018	0.00	0.0	0.600	o	225	Pipe/Conduit	
36.004	29.439	0.294	100.1	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
38.000	14.000	0.933	15.0	0.027	4.00	0.0	0.600	o	150	Pipe/Conduit	
36.005	21.553	0.216	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
34.005	24.877	0.249	100.0	0.064	0.00	0.0	0.600	o	300	Pipe/Conduit	
33.005	4.762#	0.051	93.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
39.000	16.041	0.107	150.0	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
39.001	21.981	0.220	100.0	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
39.002	22.481	0.358	62.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
40.000	14.021	0.093	150.8	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
40.001	27.413	0.531	51.6	0.089	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
37.000	50.00	4.59	14.032	0.048	0.0	0.0	0.0	0.82	14.5	8.6
36.002	50.00	4.95	13.840	0.087	0.0	0.0	0.0	1.01	17.8	15.7
36.003	50.00	5.24	13.550	0.105	0.0	0.0	0.0	1.31	52.0	19.0
36.004	49.42	5.61	13.321	0.126	0.0	0.0	0.0	1.31	51.9	22.4
38.000	50.00	4.09	14.050	0.027	0.0	0.0	0.0	2.61	46.2	4.9
36.005	48.34	5.89	13.027	0.152	0.0	0.0	0.0	1.31	52.0	26.6
34.005	47.35	6.15	12.736	0.401	0.0	0.0	0.0	1.57	111.1	68.5
33.005	47.22	6.19	12.328	0.523	0.0	0.0	0.0	2.10	334.7	89.2
39.000	50.00	4.33	14.222	0.019	0.0	0.0	0.0	0.82	14.5	3.5
39.001	50.00	4.69	14.115	0.039	0.0	0.0	0.0	1.00	17.8	7.1
39.002	50.00	4.99	13.895	0.039	0.0	0.0	0.0	1.27	22.5	7.1
40.000	50.00	4.29	14.161	0.019	0.0	0.0	0.0	0.82	14.4	3.5
40.001	50.00	4.54	13.993	0.108	0.0	0.0	0.0	1.82	72.5	19.5

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
41.000	41.181	0.275	150.0	0.066	4.00	0.0	0.600	o	225	Pipe/Conduit	
41.001	29.672	0.198	150.0	0.075	0.00	0.0	0.600	o	225	Pipe/Conduit	
42.000	9.834	0.066	150.0	0.026	4.00	0.0	0.600	o	225	Pipe/Conduit	
42.001	12.873	0.129	100.0	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit	
42.002	26.597	0.284	93.7	0.067	0.00	0.0	0.600	o	225	Pipe/Conduit	
41.002	59.273	0.296	200.0	0.055	0.00	0.0	0.600	o	300	Pipe/Conduit	
43.000	35.267	0.885	39.8	0.131	4.00	0.0	0.600	o	225	Pipe/Conduit	
41.003	21.077	0.141	150.0	0.050	0.00	0.0	0.600	o	300	Pipe/Conduit	
39.003	4.318#	0.194	22.3	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
33.006	10.675	0.035	305.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
33.007	15.073	0.101	149.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
33.008	42.856	1.991	21.5	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.012	40.096	0.200	200.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.013	33.001	0.165	200.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.014	86.869	-4.526	-19.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
41.000	50.00	4.64	14.371	0.066	0.0	0.0	0.0	1.07	42.4	11.8
41.001	50.00	5.11	14.096	0.141	0.0	0.0	0.0	1.07	42.4	25.4
42.000	50.00	4.15	14.378	0.026	0.0	0.0	0.0	1.07	42.4	4.7
42.001	50.00	4.32	14.312	0.040	0.0	0.0	0.0	1.31	52.0	7.2
42.002	50.00	4.65	14.183	0.106	0.0	0.0	0.0	1.35	53.7	19.2
41.002	47.91	6.00	13.824	0.302	0.0	0.0	0.0	1.11	78.3	52.3
43.000	50.00	4.28	14.488	0.131	0.0	0.0	0.0	2.08	82.6	23.6
41.003	46.91	6.27	13.528	0.483	0.0	0.0	0.0	1.28	90.6	81.7
39.003	46.85	6.29	12.983	0.630	0.0	0.0	0.0	4.32	687.7	106.5
33.006	46.31	6.44	11.650	1.153	0.0	0.0	0.0	1.16	184.3«	192.7
33.007	45.27	6.75	11.615	1.153	0.0	0.0	0.0	0.82	14.5«	192.7
33.008	44.22	7.08	11.514	1.171	0.0	0.0	0.0	2.18	38.5«	192.7
2.012	36.03	10.43	9.373	5.911	0.0	0.0	0.0	1.11	78.3«	768.9
2.013	35.13	10.92	9.173	5.911	0.0	0.0	0.0	1.11	78.3«	768.9
2.014	22.81	22.73	8.750	5.911	0.0	0.0	0.0	0.12	4.9«	768.9

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
2.015	39.133	0.261	150.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.015	22.57	23.12	13.534	5.911	0.0	0.0	0.0	1.66	263.6«	768.9

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
DCE-50021	15.082	1.125	Open Manhole	600	2.000	13.957	225				
DCE-50159	14.999	0.600	Open Manhole	600	3.000	14.399	150				
DCE-50022	15.100	1.566	Open Manhole	600	2.001	13.534	300	2.000	13.609	225	
								3.000	13.660	150	
DCE-50019	15.200	1.125	Open Manhole	600	4.000	14.075	225				
DCE-50021	15.132	1.941	Open Manhole	1200	2.002	13.191	450	2.001	13.342	300	1
								4.000	13.352	225	
DCE-50000	15.394	1.350	Open Manhole	1200	5.000	14.044	150				
DCE-50130	15.131	0.650	Open Manhole	600	6.000	14.481	150				
DCE-50001	15.316	1.578	Open Manhole	600	5.001	13.738	225	5.000	13.813	150	
								6.000	13.813	150	
DCE-50015	15.406	1.331	Open Manhole	600	7.000	14.075	150				
DCE-50002	15.315	1.787	Open Manhole	1200	5.002	13.528	300	5.001	13.603	225	
								7.000	13.678	150	
DCE-50014	15.200	1.425	Open Manhole	1200	8.000	13.775	225				
DCE-50003	15.144	1.853	Open Manhole	1200	5.003	13.291	450	5.002	13.441	300	
								8.000	13.441	225	
DCE-50004	15.040	1.939	Open Manhole	1500	2.003	13.101	450	2.002	13.101	450	
								5.003	13.101	450	
DCE-50037	15.350	1.350	Open Manhole	600	9.000	14.000	150				
DCE-50038	15.098	1.521	Open Manhole	1200	9.001	13.577	225	9.000	13.652	150	
DCE-50039	15.082	1.713	Open Manhole	1200	9.002	13.369	225	9.001	13.369	225	
DCE-50023	15.350	1.350	Open Manhole	600	10.000	14.000	150				
DCE-50024	15.127	1.940	Open Manhole	1200	9.003	13.187	300	9.002	13.262	225	
								10.000	13.262	150	
DCE-50005	15.155	2.392	Open Manhole	1200	2.004	12.763	450	2.003	12.763	450	
								9.003	12.913	300	
DCE-50025	15.350	1.350	Open Manhole	600	11.000	14.000	250				
DCE-50006	15.200	2.816	Open Manhole	1200	2.005	12.384	450	2.004	12.384	450	
								11.000	12.584	250	
DCE-50026	15.350	1.400	Open Manhole	600	12.000	13.950	200				
DCE-50027	15.284	1.889	Open Manhole	1200	12.001	13.395	300	12.000	13.495	200	
DCE-50016	15.300	1.425	Open Manhole	1200	13.000	13.875	225				
DCE-50017	15.409	1.584	Open Manhole	1200	13.001	13.825	225	13.000	13.825	225	
DCE-50030	15.389	1.677	Open Manhole	1200	13.002	13.712	300	13.001	13.712	225	
DCE-50034	15.432	1.334	Open Manhole	1200	14.000	14.098	150				
DCE-50031	15.401	2.547	Open Manhole	1200	13.003	13.136	450	13.002	13.286	300	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Back (m
								14.000	12.854	150	
DCE-50035	15.358	1.435	Open Manhole	1200	15.000	13.923	225				
DCE-50032	15.352	2.284	Open Manhole	1200	13.004	13.068	450	13.003	13.068	450	
								15.000	13.293	225	
DCE-50168	15.200	1.308	Open Manhole	1200	16.000	13.892	150				
DCE-50036	15.282	1.517	Open Manhole	1200	16.001	13.765	225	16.000	13.836	150	
DCE-50033	15.354	2.483	Open Manhole	1200	13.005	12.871	450	13.004	12.871	450	
								16.001	13.096	225	
DCE-50007	15.242	3.403	Open Manhole	1500	2.006	11.839	600	2.005	11.989	450	
								12.001	12.139	300	
								13.005	11.989	450	
TAK-50005	15.338	4.913	Open Manhole	1500	2.007	10.425	600	2.006	11.825	600	
DCE-50300(FC)	15.273	4.878	Open Manhole	1200	2.008	10.395	225	2.007	10.395	600	
DCE-50289	15.320	1.500	Open Manhole	1200	17.000	13.820	300				
DCE-50018	15.200	1.651	Open Manhole	1200	17.001	13.549	300	17.000	13.549	300	
DCE-50290	15.329	1.963	Open Manhole	1200	17.002	13.366	300	17.001	13.366	300	
DCE-50291	15.273	2.297	Open Manhole	1200	17.003	12.976	300	17.002	12.976	300	
DCE-50292	15.266	2.689	Open Manhole	1350	17.004	12.577	450	17.003	12.727	300	
DCE-50293	14.619	2.198	Open Manhole	1500	17.005	12.421	450	17.004	12.421	450	
DCE-50008	15.222	3.050	Open Manhole	1500	17.006	12.172	600	17.005	12.362	450	
TAK-50004	15.323	4.284	Open Manhole	1500	17.007	11.039	450	17.006	12.148	600	
DCE-50301(FC)	15.309	4.309	Open Manhole	1200	17.008	11.000	150	17.007	11.000	450	
DCE-50134	15.025	1.025	Open Manhole	600	18.000	14.000	225				
DCE-50029	15.389	1.425	Open Manhole	1200	19.000	13.964	225				
DCE-50201	15.396	1.807	Open Manhole	600	19.001	13.589	300	19.000	13.664	225	
DCE-50028	15.364	2.428	Open Manhole	1350	18.001	12.936	450	18.000	13.161	225	
								19.001	13.086	300	
DCE-50040	15.391	2.569	Open Manhole	1350	18.002	12.822	450	18.001	12.822	450	
TAK-50000	15.335	3.103	Open Manhole	1350	18.003	12.232	225	18.002	12.802	450	
DCE-50041(FC)	15.279	3.099	Open Manhole	1200	18.004	12.180	150	18.003	12.180	225	
TAK-50000	15.625	5.379	Open Manhole	1200	2.009	10.246	225	2.008	10.246	225	
								17.008	10.321	150	
								18.004	11.197	150	
DCE-50009	15.370	5.379	Open Manhole	1200	2.010	9.991	225	2.009	9.991	225	
DCE-50042	15.200	1.050	Open Manhole	600	20.000	14.150	150				
DCE-50043	15.221	1.170	Open Manhole	600	20.001	14.051	150	20.000	14.051	150	
DCE-50044	15.223	1.343	Open Manhole	600	20.002	13.880	150	20.001	13.880	150	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Back (m
DCE-50045	15.255	1.579	Open Manhole	600	20.003	13.676	225	20.002	13.751	150	
DCE-50046	15.207	1.692	Open Manhole	600	20.004	13.515	225	20.003	13.515	225	
DCE-50047	15.243	1.916	Open Manhole	1200	20.005	13.327	225	20.004	13.327	225	
DCE-50048	15.179	1.978	Open Manhole	1200	20.006	13.201	225	20.005	13.201	225	
DCE-50049	15.192	2.160	Open Manhole	1200	20.007	13.032	225	20.006	13.032	225	
DCE-50051	15.212	1.050	Open Manhole	600	21.000	14.162	150				
DCE-50052	15.209	1.723	Open Manhole	1200	21.001	13.486	150	21.000	13.486	150	
DCE-50054	15.187	1.050	Open Manhole	600	22.000	14.137	150				
DCE-50055	15.203	1.176	Open Manhole	600	22.001	14.027	150	22.000	14.027	150	
DCE-50138	15.025	0.625	Open Manhole	600	23.000	14.400	225				
DCE-50056	15.204	1.449	Open Manhole	600	22.002	13.755	225	22.001	13.830	150	
								23.000	14.155	225	
DCE-50057	15.215	1.557	Open Manhole	600	22.003	13.658	225	22.002	13.658	225	
DCE-50058	15.100	1.050	Open Manhole	600	24.000	14.050	150				
DCE-50059	15.158	1.216	Open Manhole	600	24.001	13.942	150	24.000	13.942	150	
DCE-50120	15.300	1.350	Open Manhole	1200	25.000	13.950	150				
DCE-50060	15.146	1.396	Open Manhole	600	24.002	13.750	150	24.001	13.750	150	
								25.000	13.750	150	
DCE-50061	15.225	1.663	Open Manhole	600	24.003	13.562	225	24.002	13.637	150	
DCE-50062	15.199	1.827	Open Manhole	1200	24.004	13.372	225	24.003	13.372	225	
DCE-50063	15.251	2.038	Open Manhole	1200	24.005	13.213	225	24.004	13.213	225	
DCE-50064	15.245	2.166	Open Manhole	1200	24.006	13.079	225	24.005	13.079	225	
DCE-50065	15.229	2.326	Open Manhole	1200	24.007	12.903	225	24.006	12.903	225	
DCE-50053	15.257	2.750	Open Manhole	1350	21.002	12.507	450	21.001	12.796	150	
								22.003	12.686	225	
								24.007	12.732	225	
DCE-50050	15.203	2.855	Open Manhole	1200	20.008	12.348	450	20.007	12.574	225	
								21.002	12.348	450	
TAK-50001	15.365	3.666	Open Manhole	1350	20.009	11.699	300	20.008	12.316	450	
DCE-50124(FC)	15.180	3.643	Open Manhole	1200	20.010	11.537	150	20.009	11.591	300	
DCE-50073	15.383	1.050	Open Manhole	600	26.000	14.333	150				
DCE-50074	15.386	1.173	Open Manhole	600	26.001	14.213	150	26.000	14.213	150	
DCE-50075	15.443	1.397	Open Manhole	600	26.002	14.046	150	26.001	14.046	150	
DCE-50076	15.401	1.568	Open Manhole	600	26.003	13.833	225	26.002	13.908	150	
DCE-50077	15.435	1.783	Open Manhole	600	26.004	13.652	225	26.003	13.652	225	
DCE-50066	15.389	1.050	Open Manhole	600	27.000	14.339	150				
DCE-50067	15.400	1.173	Open Manhole	600	27.001	14.227	150	27.000	14.227	150	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Back (m
DCE-50068	15.427	1.364	Open Manhole	600	27.002	14.063	150	27.001	14.063	150	
DCE-50069	15.479	1.557	Open Manhole	600	27.003	13.922	150	27.002	13.922	150	
DCE-50070	15.449	1.762	Open Manhole	1200	27.004	13.687	225	27.003	13.762	150	
DCE-50126	15.500	1.350	Open Manhole	1200	28.000	14.150	150				
DCE-50165	15.175	0.600	Open Manhole	600	29.000	14.575	225				
DCE-50166	15.256	1.453	Open Manhole	1200	29.001	13.803	225	29.000	13.803	225	
DCE-50167	15.269	1.775	Open Manhole	1200	29.002	13.494	225	29.001	13.494	225	
DCE-50071	15.439	2.042	Open Manhole	1200	27.005	13.397	225	27.004	13.397	225	
								28.000	13.486	150	
								29.002	13.397	225	
DCE-50078	15.384	1.050	Open Manhole	600	30.000	14.334	150				
DCE-50079	15.411	1.196	Open Manhole	600	30.001	14.215	150	30.000	14.215	150	
DCE-50080	15.421	1.372	Open Manhole	600	30.002	14.049	150	30.001	14.049	150	
DCE-50081	15.413	1.569	Open Manhole	600	30.003	13.844	225	30.002	13.919	150	
DCE-50082	15.410	1.747	Open Manhole	600	30.004	13.663	225	30.003	13.663	225	
DCE-50084	15.344	1.050	Open Manhole	600	31.000	14.294	150				
DCE-50085	15.324	1.122	Open Manhole	600	31.001	14.202	150	31.000	14.202	150	
DCE-50086	15.464	1.456	Open Manhole	600	31.002	14.008	150	31.001	14.008	150	
DCE-50087	15.370	1.543	Open Manhole	600	31.003	13.827	225	31.002	13.902	150	
DCE-50088	15.421	1.800	Open Manhole	1200	31.004	13.621	225	31.003	13.621	225	
DCE-50156	15.175	0.600	Open Manhole	600	32.000	14.575	225				
DCE-50089	15.395	1.969	Open Manhole	1200	31.005	13.426	225	31.004	13.426	225	
								32.000	13.426	225	
DCE-50071	15.437	2.427	Open Manhole	1350	30.005	13.010	450	30.004	13.236	225	
								31.005	13.235	225	
DCE-50072	15.428	2.483	Open Manhole	1350	26.005	12.945	450	26.004	13.087	225	
								27.005	13.170	225	
								30.005	12.945	450	
TAK-50002	15.534	3.419	Open Manhole	1350	26.006	12.115	450	26.005	12.865	450	
DCE-50076(FC)	15.407	3.407	Open Manhole	1200	26.007	12.000	150	26.006	12.000	450	
DCE-50010	15.402	5.563	Open Manhole	1500	2.011	9.839	225	2.010	9.839	225	
								20.010	9.914	150	
								26.007	9.914	150	
DCE-50115	15.116	1.050	Open Manhole	600	33.000	14.066	150				
DCE-50116	15.111	1.131	Open Manhole	600	33.001	13.980	150	33.000	13.980	150	
DCE-50117	15.130	1.336	Open Manhole	600	33.002	13.794	150	33.001	13.794	150	
DCE-50118	15.156	1.564	Open Manhole	600	33.003	13.592	225	33.002	13.667	150	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
DCE-50119	15.091	1.681	Open Manhole	600	33.004	13.410	225	33.003	13.410	225	
DCE-50110	15.110	1.050	Open Manhole	600	34.000	14.060	150				
DCE-50111	15.104	1.131	Open Manhole	600	34.001	13.973	150	34.000	13.973	150	
DCE-50112	15.138	1.444	Open Manhole	600	34.002	13.694	150	34.001	13.694	150	
DCE-50143	15.025	0.605	Open Manhole	600	35.000	14.420	225				
DCE-50113	15.168	1.739	Open Manhole	1200	34.003	13.430	225	34.002	13.505	150	
								35.000	13.429	225	
DCE-50114	15.115	1.968	Open Manhole	1200	34.004	13.147	225	34.003	13.147	225	
DCE-50101	15.290	1.050	Open Manhole	600	36.000	14.240	150				
DCE-50102	15.286	1.117	Open Manhole	600	36.001	14.169	150	36.000	14.169	150	
DCE-50121	15.382	1.350	Open Manhole	1200	37.000	14.032	150				
DCE-50103	15.275	1.436	Open Manhole	1200	36.002	13.840	150	36.001	13.840	150	
								37.000	13.839	150	
DCE-50104	15.322	1.772	Open Manhole	1200	36.003	13.550	225	36.002	13.625	150	
DCE-50105	15.250	1.929	Open Manhole	1200	36.004	13.321	225	36.003	13.321	225	
DCE-50109	15.400	1.350	Open Manhole	1200	38.000	14.050	150				
DCE-50106	15.321	2.294	Open Manhole	1200	36.005	13.027	225	36.004	13.027	225	
								38.000	13.117	150	15
DCE-50107	15.174	2.438	Open Manhole	1200	34.005	12.736	300	34.004	12.811	225	
								36.005	12.811	225	
DCE-50108	15.150	2.822	Open Manhole	1350	33.005	12.328	450	33.004	12.553	225	
								34.005	12.488	300	10
DCE-50096	15.272	1.050	Open Manhole	600	39.000	14.222	150				
DCE-50097	15.282	1.167	Open Manhole	600	39.001	14.115	150	39.000	14.115	150	
DCE-50098	15.310	1.415	Open Manhole	600	39.002	13.895	150	39.001	13.895	150	
DCE-50099	15.211	1.050	Open Manhole	600	40.000	14.161	150				
DCE-50100	15.294	1.301	Open Manhole	600	40.001	13.993	225	40.000	14.068	150	
DCE-50127	15.496	1.125	Open Manhole	1200	41.000	14.371	225				
DCE-50128	15.449	1.353	Open Manhole	1200	41.001	14.096	225	41.000	14.096	225	
DCE-50090	15.503	1.125	Open Manhole	600	42.000	14.378	225				
DCE-50091	15.499	1.187	Open Manhole	600	42.001	14.312	225	42.000	14.312	225	
DCE-50092	15.465	1.282	Open Manhole	600	42.002	14.183	225	42.001	14.183	225	
DCE-50093	15.414	1.590	Open Manhole	1200	41.002	13.824	300	41.001	13.898	225	
								42.002	13.899	225	
DCE-50154	15.088	0.600	Open Manhole	600	43.000	14.488	225				
DCE-50094	15.266	1.738	Open Manhole	1200	41.003	13.528	300	41.002	13.528	300	
								43.000	13.603	225	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Back (m
DCE-50095	15.241	2.258	Open Manhole	1350	39.003	12.983	450	39.002	13.537	150	
								40.001	13.462	225	
								41.003	13.387	300	
TAK-50003	15.423	3.773	Open Manhole	1350	33.006	11.650	450	33.005	12.277	450	
								39.003	12.789	450	
DCE-50122(FC)	15.286	3.671	Open Manhole	1200	33.007	11.615	150	33.006	11.615	450	
DCE-50123	15.290	3.776	Open Manhole	1200	33.008	11.514	150	33.007	11.514	150	
DCE-50011	15.299	5.926	Open Manhole	1200	2.012	9.373	300	2.011	9.448	225	
								33.008	9.523	150	
DCE-50012	15.197	6.024	Open Manhole	1200	2.013	9.173	300	2.012	9.173	300	
PUMP	15.161	6.411	Open Manhole	4000	2.014	8.750	225	2.013	9.008	300	
DCE-50169	15.099	1.823	Open Manhole	1350	2.015	13.534	450	2.014	13.276	225	
	15.000	1.727	Open Manhole	0		OUTFALL		2.015	13.273	450	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50021	473982.567	455086.140	473982.567	455086.140	Required	
DCE-50159	473992.985	455029.101	473992.985	455029.101	Required	
DCE-50022	473978.981	455033.998	473978.981	455033.998	Required	
DCE-50019	473943.069	455068.087	473943.069	455068.087	Required	
DCE-50021	473940.578	455036.050	473940.578	455036.050	Required	
DCE-50000	473860.094	455083.057	473860.094	455083.057	Required	
DCE-50130	473896.349	455099.879	473896.349	455099.879	Required	
DCE-50001	473894.611	455080.180	473894.611	455080.180	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50015	473858.361	455062.658	473858.361	455062.658	Required	
DCE-50002	473894.195	455059.903	473894.195	455059.903	Required	
DCE-50014	473903.474	455084.679	473903.474	455084.679	Required	
DCE-50003	473906.082	455047.125	473906.082	455047.125	Required	
DCE-50004	473922.478	455036.450	473922.478	455036.450	Required	
DCE-50037	473962.713	454971.179	473962.713	454971.179	Required	
DCE-50038	473986.934	454969.698	473986.934	454969.698	Required	
DCE-50039	473988.941	455000.807	473988.941	455000.807	Required	
DCE-50023	473972.691	454986.661	473972.691	454986.661	Required	
DCE-50024	473972.962	455001.602	473972.962	455001.602	Required	
DCE-50005	473918.179	455003.127	473918.179	455003.127	Required	
DCE-50025	473935.767	454967.245	473935.767	454967.245	Required	
DCE-50006	473901.240	454969.242	473901.240	454969.242	Required	
DCE-50026	473947.769	454948.610	473947.769	454948.610	Required	
DCE-50027	473945.640	454925.943	473945.640	454925.943	Required	
DCE-50016	473832.422	455046.519	473832.422	455046.519	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50017	473832.141	455039.057	473832.141	455039.057	Required	
DCE-50030	473849.045	455037.553	473849.045	455037.553	Required	
DCE-50034	473841.164	454921.764	473841.164	454921.764	Required	
DCE-50031	473842.891	454952.602	473842.891	454952.602	Required	
DCE-50035	473856.786	455007.894	473856.786	455007.894	Required	
DCE-50032	473853.141	454952.095	473853.141	454952.095	Required	
DCE-50168	473894.532	455002.728	473894.532	455002.728	Required	
DCE-50036	473886.758	455001.758	473886.758	455001.758	Required	
DCE-50033	473882.601	454949.091	473882.601	454949.091	Required	
DCE-50007	473898.183	454929.858	473898.183	454929.858	Required	
TAK-50005	473891.792	454920.224	473891.792	454920.224	Required	
DCE-50300(FC)	473885.833	454920.670	473885.833	454920.670	Required	
DCE-50289	473910.461	455029.881	473910.461	455029.881	Required	
DCE-50018	473908.620	455002.906	473908.620	455002.906	Required	
DCE-50290	473897.887	454988.044	473897.887	454988.044	Required	
DCE-50291	473894.439	454949.195	473894.439	454949.195	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50292	473869.935	454944.724	473869.935	454944.724	Required	
DCE-50293	473846.505	454943.343	473846.505	454943.343	Required	
DCE-50008	473845.404	454930.493	473845.404	454930.493	Required	
TAK-50004	473856.733	454918.034	473856.733	454918.034	Required	
DCE-50301(FC)	473861.037	454913.072	473861.037	454913.072	Required	
DCE-50134	473774.254	454911.600	473774.254	454911.600	Required	
DCE-50029	473799.345	455030.292	473799.345	455030.292	Required	
DCE-50201	473796.469	454985.396	473796.469	454985.396	Required	
DCE-50028	473791.644	454910.077	473791.644	454910.077	Required	
DCE-50040	473808.722	454908.913	473808.722	454908.913	Required	
TAK-50000	473841.089	454907.184	473841.089	454907.184	Required	
DCE-50041(FC)	473846.237	454906.883	473846.237	454906.883	Required	
TAK-50000	473860.783	454904.513	473860.783	454904.513	Required	
DCE-50009	473884.663	454859.409	473884.663	454859.409	Required	
DCE-50042	473786.301	454855.409	473786.301	454855.409	Required	
DCE-50043	473796.878	454865.910	473796.878	454865.910	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50044	473781.700	454886.698	473781.700	454886.698	Required	
DCE-50045	473796.128	454899.558	473796.128	454899.558	Required	
DCE-50046	473812.630	454882.025	473812.630	454882.025	Required	
DCE-50047	473835.702	454898.218	473835.702	454898.218	Required	
DCE-50048	473848.332	454884.126	473848.332	454884.126	Required	
DCE-50049	473830.361	454866.279	473830.361	454866.279	Required	
DCE-50051	473793.388	454831.484	473793.388	454831.484	Required	
DCE-50052	473811.914	454849.259	473811.914	454849.259	Required	
DCE-50054	473820.138	454786.538	473820.138	454786.538	Required	
DCE-50055	473831.947	454798.048	473831.947	454798.048	Required	
DCE-50138	473781.522	454806.737	473781.522	454806.737	Required	
DCE-50056	473812.851	454820.670	473812.851	454820.670	Required	
DCE-50057	473823.505	454830.587	473823.505	454830.587	Required	
DCE-50058	473834.675	454771.872	473834.675	454771.872	Required	
DCE-50059	473847.311	454782.128	473847.311	454782.128	Required	
DCE-50120	473856.716	454762.684	473856.716	454762.684	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50060	473868.326	454762.614	473868.326	454762.614	Required	
DCE-50061	473881.356	454773.478	473881.356	454773.478	Required	
DCE-50062	473865.495	454797.176	473865.495	454797.176	Required	
DCE-50063	473881.838	454814.569	473881.838	454814.569	Required	
DCE-50064	473868.112	454829.252	473868.112	454829.252	Required	
DCE-50065	473848.037	454812.086	473848.037	454812.086	Required	
DCE-50053	473830.312	454830.581	473830.312	454830.581	Required	
DCE-50050	473847.774	454846.865	473847.774	454846.865	Required	
TAK-50001	473855.837	454838.170	473855.837	454838.170	Required	
DCE-50124(FC)	473871.972	454837.725	473871.972	454837.725	Required	
DCE-50073	473903.878	454891.991	473903.878	454891.991	Required	
DCE-50074	473915.426	454878.195	473915.426	454878.195	Required	
DCE-50075	473899.426	454858.789	473899.426	454858.789	Required	
DCE-50076	473913.756	454843.949	473913.756	454843.949	Required	
DCE-50077	473933.529	454862.547	473933.529	454862.547	Required	
DCE-50066	473921.015	454905.421	473921.015	454905.421	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50067	473933.733	454894.439	473933.733	454894.439	Required	
DCE-50068	473953.224	454909.401	473953.224	454909.401	Required	
DCE-50069	473968.186	454894.348	473968.186	454894.348	Required	
DCE-50070	473950.799	454877.854	473950.799	454877.854	Required	
DCE-50126	473968.580	454866.870	473968.580	454866.870	Required	
DCE-50165	473986.381	454940.545	473986.381	454940.545	Required	
DCE-50166	473984.303	454903.883	473984.303	454903.883	Required	
DCE-50167	473981.308	454857.692	473981.308	454857.692	Required	
DCE-50071	473966.752	454855.737	473966.752	454855.737	Required	
DCE-50078	473910.919	454790.176	473910.919	454790.176	Required	
DCE-50079	473922.733	454803.460	473922.733	454803.460	Required	
DCE-50080	473906.550	454822.518	473906.550	454822.518	Required	
DCE-50081	473921.238	454835.405	473921.238	454835.405	Required	
DCE-50082	473941.367	454817.383	473941.367	454817.383	Required	
DCE-50084	473928.439	454775.383	473928.439	454775.383	Required	
DCE-50085	473939.586	454783.587	473939.586	454783.587	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50086	473960.244	454763.215	473960.244	454763.215	Required	
DCE-50087	473972.205	454773.709	473972.205	454773.709	Required	
DCE-50088	473955.616	454799.849	473955.616	454799.849	Required	
DCE-50156	473979.332	454821.693	473979.332	454821.693	Required	
DCE-50089	473974.602	454821.978	473974.602	454821.978	Required	
DCE-50071	473960.884	454835.274	473960.884	454835.274	Required	
DCE-50072	473956.462	454839.974	473956.462	454839.974	Required	
TAK-50002	473936.133	454840.018	473936.133	454840.018	Required	
DCE-50076(FC)	473918.502	454840.932	473918.502	454840.932	Required	
DCE-50010	473886.888	454829.082	473886.888	454829.082	Required	
DCE-50115	473852.296	454735.059	473852.296	454735.059	Required	
DCE-50116	473865.203	454734.219	473865.203	454734.219	Required	
DCE-50117	473876.090	454759.790	473876.090	454759.790	Required	
DCE-50118	473894.649	454754.892	473894.649	454754.892	Required	
DCE-50119	473888.373	454728.333	473888.373	454728.333	Required	
DCE-50110	473846.825	454715.114	473846.825	454715.114	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50111	473859.196	454711.179	473859.196	454711.179	Required	
DCE-50112	473856.397	454683.403	473856.397	454683.403	Required	
DCE-50143	473861.224	454665.243	473861.224	454665.243	Required	
DCE-50113	473874.184	454676.813	473874.184	454676.813	Required	
DCE-50114	473882.608	454703.805	473882.608	454703.805	Required	
DCE-50101	473959.563	454660.364	473959.563	454660.364	Required	
DCE-50102	473948.873	454660.132	473948.873	454660.132	Required	
DCE-50121	473967.173	454648.089	473967.173	454648.089	Required	
DCE-50103	473939.689	454639.034	473939.689	454639.034	Required	
DCE-50104	473918.900	454644.392	473918.900	454644.392	Required	
DCE-50105	473923.861	454666.699	473923.861	454666.699	Required	
DCE-50109	473898.560	454664.867	473898.560	454664.867	Required	
DCE-50106	473897.016	454678.782	473897.016	454678.782	Required	
DCE-50107	473906.427	454698.172	473906.427	454698.172	Required	
DCE-50108	473912.460	454722.307	473912.460	454722.307	Required	
DCE-50096	473969.600	454682.278	473969.600	454682.278	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50097	473954.601	454687.965	473954.601	454687.965	Required	
DCE-50098	473957.514	454709.752	473957.514	454709.752	Required	
DCE-50099	473916.137	454692.811	473916.137	454692.811	Required	
DCE-50100	473929.878	454690.024	473929.878	454690.024	Required	
DCE-50127	474018.290	454648.880	474018.290	454648.880	Required	
DCE-50128	473984.498	454672.417	473984.498	454672.417	Required	
DCE-50090	474039.628	454669.037	474039.628	454669.037	Required	
DCE-50091	474031.613	454674.736	474031.613	454674.736	Required	
DCE-50092	474021.386	454682.554	474021.386	454682.554	Required	
DCE-50093	473999.674	454697.916	473999.674	454697.916	Required	
DCE-50154	473979.799	454752.000	473979.799	454752.000	Required	
DCE-50094	473950.965	454731.692	473950.965	454731.692	Required	
DCE-50095	473936.137	454716.713	473936.137	454716.713	Required	
TAK-50003	473924.252	454719.407	473924.252	454719.407	Required	
DCE-50122(FC)	473926.643	454729.811	473926.643	454729.811	Required	
DCE-50123	473923.641	454744.583	473923.641	454744.583	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
DCE-50011	473889.535	454770.532	473889.535	454770.532	Required	
DCE-50012	473854.123	454751.726	473854.123	454751.726	Required	
PUMP	473822.209	454760.126	473822.209	454760.126	Required	
DCE-50169	473840.608	454675.228	473840.608	454675.228	Required	
	473806.442	454656.146			No Entry	

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
2.015		15.000	13.273	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	14
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.400		

Online Controls for Storm

Hydro-Brake® Optimum Manhole: DCE-50300(FC), DS/PN: 2.008, Volume (m³): 6.8

Unit Reference	MD-SHE-0154-1500-2426-1500
Design Head (m)	2.426
Design Flow (l/s)	15.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	154
Invert Level (m)	10.395
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.426	15.0	Kick-Flo®	1.376	11.5
Flush-Flo™	0.674	14.5	Mean Flow over Head Range	-	12.9

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.5	1.200	13.1	3.000	16.6	7.000	24.9
0.200	11.6	1.400	11.6	3.500	17.8	7.500	25.7
0.300	13.0	1.600	12.3	4.000	19.0	8.000	26.5
0.400	13.8	1.800	13.0	4.500	20.1	8.500	27.3
0.500	14.3	2.000	13.7	5.000	21.2	9.000	28.1
0.600	14.5	2.200	14.3	5.500	22.2	9.500	28.8
0.800	14.4	2.400	14.9	6.000	23.1		
1.000	14.0	2.600	15.5	6.500	24.0		

Hydro-Brake® Optimum Manhole: DCE-50301(FC), DS/PN: 17.008, Volume (m³): 5.7

Unit Reference	MD-SHE-0104-7000-2439-7000
Design Head (m)	2.439
Design Flow (l/s)	7.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	104
Invert Level (m)	11.000
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Hydro-Brake® Optimum Manhole: DCE-50301(FC), DS/PN: 17.008, Volume (m³): 5.7

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.439	7.0	Kick-Flo®	0.931	4.5
Flush-Flo™	0.458	5.6	Mean Flow over Head Range	-	5.5

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.5	1.200	5.0	3.000	7.7	7.000	11.5
0.200	5.0	1.400	5.4	3.500	8.3	7.500	11.9
0.300	5.4	1.600	5.7	4.000	8.8	8.000	12.3
0.400	5.6	1.800	6.1	4.500	9.3	8.500	12.6
0.500	5.6	2.000	6.4	5.000	9.8	9.000	13.0
0.600	5.5	2.200	6.7	5.500	10.3	9.500	13.3
0.800	5.1	2.400	6.9	6.000	10.7		
1.000	4.6	2.600	7.2	6.500	11.1		

Hydro-Brake® Optimum Manhole: DCE-50041(FC), DS/PN: 18.004, Volume (m³): 3.7

Unit Reference	MD-SCU-0075-6000-1046-6000
Design Head (m)	1.046
Design Flow (l/s)	6.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	12.180
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.046	6.0	Kick-Flo®	0.113	2.2
Flush-Flo™	0.102	2.2	Mean Flow over Head Range	-	4.1

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.2	0.400	3.8	0.800	5.3	1.400	6.9
0.200	2.8	0.500	4.3	1.000	5.9	1.600	7.3
0.300	3.4	0.600	4.6	1.200	6.4	1.800	7.7

Hydro-Brake® Optimum Manhole: DCE-50041(FC), DS/PN: 18.004, Volume (m³): 3.7

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
2.000	8.1	3.500	10.6	6.000	13.7	8.500	16.3
2.200	8.5	4.000	11.3	6.500	14.3	9.000	16.7
2.400	8.9	4.500	12.0	7.000	14.8	9.500	17.2
2.600	9.2	5.000	12.6	7.500	15.3		
3.000	9.9	5.500	13.2	8.000	15.8		

Hydro-Brake® Optimum Manhole: DCE-50124(FC), DS/PN: 20.010, Volume (m³): 5.2

Unit Reference	MD-SHE-0091-4500-1600-4500
Design Head (m)	1.600
Design Flow (l/s)	4.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	91
Invert Level (m)	11.537
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.600	4.5	Kick-Flo®	0.817	3.3
Flush-Flo™	0.399	4.1	Mean Flow over Head Range	-	3.7

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.9	1.200	3.9	3.000	6.0	7.000	9.0
0.200	3.8	1.400	4.2	3.500	6.5	7.500	9.3
0.300	4.1	1.600	4.5	4.000	6.9	8.000	9.6
0.400	4.1	1.800	4.7	4.500	7.3	8.500	9.9
0.500	4.1	2.000	5.0	5.000	7.7	9.000	10.1
0.600	4.0	2.200	5.2	5.500	8.0	9.500	10.4
0.800	3.4	2.400	5.4	6.000	8.4		
1.000	3.6	2.600	5.6	6.500	8.7		

Hydro-Brake® Optimum Manhole: DCE-50076(FC), DS/PN: 26.007, Volume (m³): 6.5

Unit Reference	MD-SCU-0073-6000-1200-6000
Design Head (m)	1.200
Design Flow (l/s)	6.0

Hydro-Brake® Optimum Manhole: DCE-50076(FC), DS/PN: 26.007, Volume (m³): 6.5

Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	73
Invert Level (m)	12.000
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	6.0	Kick-Flo®	0.110	2.0
Flush-Flo™	0.100	2.0	Mean Flow over Head Range	-	4.1

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.0	1.200	6.0	3.000	9.3	7.000	13.9
0.200	2.6	1.400	6.5	3.500	10.0	7.500	14.3
0.300	3.2	1.600	6.9	4.000	10.6	8.000	14.8
0.400	3.6	1.800	7.3	4.500	11.2	8.500	15.2
0.500	4.0	2.000	7.6	5.000	11.8	9.000	15.7
0.600	4.3	2.200	8.0	5.500	12.4	9.500	16.1
0.800	5.0	2.400	8.3	6.000	12.9		
1.000	5.5	2.600	8.6	6.500	13.4		

Hydro-Brake® Optimum Manhole: DCE-50122(FC), DS/PN: 33.007, Volume (m³): 5.6

Unit Reference	MD-SHE-0131-9000-1500-9000
Design Head (m)	1.500
Design Flow (l/s)	9.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	131
Invert Level (m)	11.615
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	9.0	Kick-Flo®	0.927	7.2
Flush-Flo™	0.440	9.0	Mean Flow over Head Range	-	7.9

The hydrological calculations have been based on the Head/Discharge relationship for the

Hydro-Brake® Optimum Manhole: DCE-50122(FC), DS/PN: 33.007, Volume (m³): 5.6

Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.7	1.200	8.1	3.000	12.5	7.000	18.7
0.200	8.1	1.400	8.7	3.500	13.4	7.500	19.3
0.300	8.8	1.600	9.3	4.000	14.3	8.000	19.9
0.400	9.0	1.800	9.8	4.500	15.1	8.500	20.5
0.500	9.0	2.000	10.3	5.000	15.9	9.000	21.1
0.600	8.8	2.200	10.8	5.500	16.7	9.500	21.7
0.800	8.2	2.400	11.2	6.000	17.4		
1.000	7.4	2.600	11.7	6.500	18.0		

Pump Manhole: PUMP, DS/PN: 2.014, Volume (m³): 82.7

Invert Level (m) 9.008

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	38.0000	8.112	38.0000

Storage Structures for Storm

Filter Drain Manhole: DCE-50159, DS/PN: 3.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	14.399	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	56.0		

Filter Drain Manhole: DCE-50130, DS/PN: 6.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	14.481	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	62.8		

Cellular Storage Manhole: TAK-50005, DS/PN: 2.007

Invert Level (m)	10.348	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	720.0	0.0	2.001	0.0	0.0
2.000	720.0	0.0			

Cellular Storage Manhole: TAK-50004, DS/PN: 17.007

Invert Level (m)	11.039	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	238.0	0.0	2.401	0.0	0.0
2.400	238.0	0.0			

Filter Drain Manhole: DCE-50134, DS/PN: 18.000

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	14.425
Infiltration Coefficient Side (m/hr)	0.00000	Trench Width (m)	0.6
Safety Factor	2.0	Trench Length (m)	201.9
Porosity	0.30	Pipe Diameter (m)	0.150

Filter Drain Manhole: DCE-50134, DS/PN: 18.000

Pipe Depth above Invert (m)	0.150	Cap Volume Depth (m)	0.600
Number of Pipes	3	Cap Infiltration Depth (m)	0.000
Slope (1:X)	1400.0		

Cellular Storage Manhole: TAK-50000, DS/PN: 18.003

Invert Level (m)	12.232	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	203.0	0.0	1.001	0.0	0.0
1.000	203.0	0.0			

Filter Drain Manhole: DCE-50138, DS/PN: 23.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	4
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	14.425	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	178.4		

Cellular Storage Manhole: TAK-50001, DS/PN: 20.009

Invert Level (m)	11.699	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	392.0	0.0	1.601	0.0	0.0
1.600	392.0	0.0			

Filter Drain Manhole: DCE-50165, DS/PN: 29.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	5
Porosity	0.30	Slope (1:X)	417.7
Invert Level (m)	14.575	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	83.5		

Filter Drain Manhole: DCE-50156, DS/PN: 32.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	2
Porosity	0.30	Slope (1:X)	800.0
Invert Level (m)	14.575	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	178.7		

Cellular Storage Manhole: TAK-50002, DS/PN: 26.006

Invert Level (m)	12.115	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	392.0	0.0	1.201	0.0	0.0
1.200	392.0	0.0			

Filter Drain Manhole: DCE-50143, DS/PN: 35.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	6
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	14.425	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	198.7		

Filter Drain Manhole: DCE-50154, DS/PN: 43.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.150
Safety Factor	2.0	Number of Pipes	7
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	14.488	Cap Volume Depth (m)	0.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000
Trench Length (m)	257.2		

Cellular Storage Manhole: TAK-50003, DS/PN: 33.006

Invert Level (m)	11.650	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	392.0	0.0	1.601	0.0	0.0
1.600	392.0	0.0			

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	14
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.000	DCE-50021	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
3.000	DCE-50159	15 Winter	1	+0%	30/15 Winter	100/15 Summer		
2.001	DCE-50022	15 Winter	1	+0%	30/15 Summer			
4.000	DCE-50019	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
2.002	DCE-50021	15 Winter	1	+0%	30/15 Summer			
5.000	DCE-50000	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
6.000	DCE-50130	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
5.001	DCE-50001	15 Winter	1	+0%	30/15 Summer			
7.000	DCE-50015	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
5.002	DCE-50002	15 Winter	1	+0%	30/15 Summer			
8.000	DCE-50014	15 Summer	1	+0%	30/15 Summer	100/15 Summer		
5.003	DCE-50003	15 Winter	1	+0%	30/15 Summer			
2.003	DCE-50004	15 Winter	1	+0%	30/15 Summer			
9.000	DCE-50037	15 Summer	1	+0%	100/15 Summer	100/15 Summer		
9.001	DCE-50038	15 Winter	1	+0%	30/15 Summer	100/15 Summer		
9.002	DCE-50039	15 Winter	1	+0%	30/15 Summer			
10.000	DCE-50023	15 Summer	1	+0%	100/15 Summer			
9.003	DCE-50024	15 Winter	1	+0%	30/15 Summer			

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.000	DCE-50021	14.074	-0.108	0.000	0.51		20.8	OK	5
3.000	DCE-50159	14.466	-0.083	0.000	0.40		14.9	OK	4
2.001	DCE-50022	13.690	-0.144	0.000	0.52		37.7	OK	
4.000	DCE-50019	14.178	-0.122	0.000	0.43		31.5	OK	5
2.002	DCE-50021	13.397	-0.244	0.000	0.42		71.5	OK	
5.000	DCE-50000	14.105	-0.089	0.000	0.34		4.7	OK	2
6.000	DCE-50130	14.551	-0.080	0.000	0.44		13.5	OK	4
5.001	DCE-50001	13.865	-0.098	0.000	0.60		23.1	OK	
7.000	DCE-50015	14.174	-0.051	0.000	0.77		13.9	OK	5
5.002	DCE-50002	13.692	-0.136	0.000	0.58		38.9	OK	
8.000	DCE-50014	13.872	-0.128	0.000	0.38		17.8	OK	4
5.003	DCE-50003	13.436	-0.305	0.000	0.23		56.0	OK	
2.003	DCE-50004	13.311	-0.240	0.000	0.45		126.2	OK	
9.000	DCE-50037	14.059	-0.091	0.000	0.32		6.6	OK	4
9.001	DCE-50038	13.676	-0.126	0.000	0.39		15.5	OK	4
9.002	DCE-50039	13.470	-0.124	0.000	0.42		15.6	OK	
10.000	DCE-50023	14.035	-0.115	0.000	0.13		4.7	OK	
9.003	DCE-50024	13.292	-0.195	0.000	0.26		18.9	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
2.004	DCE-50005	15 Winter	1	+0%	30/15 Summer		
11.000	DCE-50025	15 Summer	1	+0%	100/360 Winter		
2.005	DCE-50006	15 Winter	1	+0%	30/15 Summer		
12.000	DCE-50026	15 Summer	1	+0%	100/15 Summer		
12.001	DCE-50027	15 Winter	1	+0%	100/15 Summer		
13.000	DCE-50016	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
13.001	DCE-50017	15 Winter	1	+0%	30/15 Summer		
13.002	DCE-50030	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
14.000	DCE-50034	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
13.003	DCE-50031	15 Winter	1	+0%	100/15 Summer		
15.000	DCE-50035	15 Summer	1	+0%	100/15 Summer		
13.004	DCE-50032	15 Winter	1	+0%	100/15 Summer		
16.000	DCE-50168	15 Summer	1	+0%	30/15 Summer		
16.001	DCE-50036	15 Winter	1	+0%	100/15 Summer		
13.005	DCE-50033	15 Winter	1	+0%	100/15 Summer		
2.006	DCE-50007	15 Summer	1	+0%	1/15 Summer		
2.007	TAK-50005	360 Winter	1	+0%	30/30 Winter		
2.008	DCE-50300(FC)	360 Winter	1	+0%	1/30 Winter		
17.000	DCE-50289	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
17.001	DCE-50018	15 Summer	1	+0%	30/15 Summer		
17.002	DCE-50290	15 Winter	1	+0%	30/15 Summer		
17.003	DCE-50291	15 Winter	1	+0%	30/15 Summer		
17.004	DCE-50292	15 Winter	1	+0%	30/15 Summer		
17.005	DCE-50293	15 Winter	1	+0%	30/15 Summer		
17.006	DCE-50008	15 Winter	1	+0%	100/15 Winter		
17.007	TAK-50004	240 Winter	1	+0%	30/15 Summer		
17.008	DCE-50301(FC)	240 Winter	1	+0%	1/15 Summer		
18.000	DCE-50134	15 Summer	1	+0%	100/15 Summer	100/60 Winter	
19.000	DCE-50029	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
19.001	DCE-50201	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
18.001	DCE-50028	15 Winter	1	+0%	30/15 Summer		
18.002	DCE-50040	15 Winter	1	+0%	30/15 Summer		
18.003	TAK-50000	240 Winter	1	+0%	1/30 Winter		
18.004	DCE-50041(FC)	240 Winter	1	+0%	1/15 Summer		
2.009	TAK-50000	360 Winter	1	+0%	2/240 Winter		
2.010	DCE-50009	60 Winter	1	+0%	2/120 Winter		
20.000	DCE-50042	15 Summer	1	+0%	100/15 Summer		
20.001	DCE-50043	15 Winter	1	+0%	30/15 Summer		
20.002	DCE-50044	15 Winter	1	+0%	30/15 Summer		
20.003	DCE-50045	15 Winter	1	+0%	100/15 Summer		
20.004	DCE-50046	15 Winter	1	+0%	100/15 Summer		
20.005	DCE-50047	15 Winter	1	+0%	100/15 Summer		
20.006	DCE-50048	15 Winter	1	+0%	100/15 Summer		
20.007	DCE-50049	15 Winter	1	+0%	100/15 Summer		
21.000	DCE-50051	15 Summer	1	+0%			
21.001	DCE-50052	15 Winter	1	+0%	100/15 Summer		
22.000	DCE-50054	15 Summer	1	+0%	30/15 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
2.004	DCE-50005		13.007	-0.206	0.000	0.56		160.9	OK
11.000	DCE-50025		14.044	-0.206	0.000	0.07		9.4	OK
2.005	DCE-50006		12.641	-0.193	0.000	0.62		176.8	OK
12.000	DCE-50026		14.038	-0.112	0.000	0.40		20.1	OK
12.001	DCE-50027		13.487	-0.208	0.000	0.20		34.8	OK
13.000	DCE-50016		13.978	-0.122	0.000	0.43		13.7	OK
13.001	DCE-50017		13.928	-0.122	0.000	0.36		13.4	OK
13.002	DCE-50030		13.896	-0.116	0.000	0.67		50.4	OK
14.000	DCE-50034		14.161	-0.087	0.000	0.37		12.8	OK
13.003	DCE-50031		13.327	-0.259	0.000	0.37		62.0	OK
15.000	DCE-50035		14.006	-0.142	0.000	0.29		15.5	OK
13.004	DCE-50032		13.249	-0.269	0.000	0.34		76.0	OK
16.000	DCE-50168		13.969	-0.073	0.000	0.53		6.8	OK
16.001	DCE-50036		13.843	-0.147	0.000	0.26		14.5	OK
13.005	DCE-50033		12.998	-0.323	0.000	0.17		89.0	OK
2.006	DCE-50007		12.440	0.001	0.000	1.27		289.2	SURCHARGED
2.007	TAK-50005		10.772	-0.253	0.000	0.05		14.0	OK
2.008	DCE-50300(FC)		10.775	0.155	0.000	0.40		13.6	SURCHARGED
17.000	DCE-50289		13.980	-0.140	0.000	0.56		55.8	OK
17.001	DCE-50018		13.722	-0.127	0.000	0.63		60.2	OK
17.002	DCE-50290		13.546	-0.120	0.000	0.66		67.7	OK
17.003	DCE-50291		13.158	-0.118	0.000	0.68		67.8	OK
17.004	DCE-50292		12.778	-0.249	0.000	0.41		89.8	OK
17.005	DCE-50293		12.679	-0.192	0.000	0.61		99.2	OK
17.006	DCE-50008		12.438	-0.334	0.000	0.41		99.8	OK
17.007	TAK-50004		11.373	-0.116	0.000	0.04		5.6	OK
17.008	DCE-50301(FC)		11.377	0.227	0.000	0.12		5.1	SURCHARGED
18.000	DCE-50134		14.070	-0.155	0.000	0.21		21.5	OK
19.000	DCE-50029		14.057	-0.132	0.000	0.34		13.9	OK
19.001	DCE-50201		13.734	-0.155	0.000	0.45		39.3	OK
18.001	DCE-50028		13.136	-0.250	0.000	0.36		68.7	OK
18.002	DCE-50040		13.090	-0.182	0.000	0.66		78.6	OK
18.003	TAK-50000		12.579	0.122	0.000	0.12		4.0	SURCHARGED
18.004	DCE-50041(FC)		12.585	0.255	0.000	0.09		3.8	SURCHARGED
2.009	TAK-50000		10.377	-0.094	0.000	0.64		22.4	OK
2.010	DCE-50009		10.128	-0.088	0.000	0.68		23.3	OK
20.000	DCE-50042		14.202	-0.098	0.000	0.26		3.5	OK
20.001	DCE-50043		14.120	-0.081	0.000	0.42		5.8	OK
20.002	DCE-50044		13.949	-0.081	0.000	0.43		5.9	OK
20.003	DCE-50045		13.746	-0.155	0.000	0.21		8.1	OK
20.004	DCE-50046		13.595	-0.145	0.000	0.27		10.6	OK
20.005	DCE-50047		13.408	-0.144	0.000	0.28		10.7	OK
20.006	DCE-50048		13.290	-0.136	0.000	0.33		12.8	OK
20.007	DCE-50049		13.119	-0.138	0.000	0.32		20.1	OK
21.000	DCE-50051		14.196	-0.116	0.000	0.12		3.3	OK
21.001	DCE-50052		13.533	-0.103	0.000	0.21		5.9	OK

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.000	DCE-50054		14.185	-0.102	0.000	0.23		3.1	OK

PN	US/MH Name	Level Exceeded
2.004	DCE-50005	
11.000	DCE-50025	
2.005	DCE-50006	
12.000	DCE-50026	
12.001	DCE-50027	
13.000	DCE-50016	5
13.001	DCE-50017	
13.002	DCE-50030	3
14.000	DCE-50034	2
13.003	DCE-50031	
15.000	DCE-50035	
13.004	DCE-50032	
16.000	DCE-50168	
16.001	DCE-50036	
13.005	DCE-50033	
2.006	DCE-50007	
2.007	TAK-50005	
2.008	DCE-50300(FC)	
17.000	DCE-50289	5
17.001	DCE-50018	
17.002	DCE-50290	
17.003	DCE-50291	
17.004	DCE-50292	
17.005	DCE-50293	
17.006	DCE-50008	
17.007	TAK-50004	
17.008	DCE-50301(FC)	
18.000	DCE-50134	11
19.000	DCE-50029	3
19.001	DCE-50201	1
18.001	DCE-50028	
18.002	DCE-50040	
18.003	TAK-50000	
18.004	DCE-50041(FC)	
2.009	TAK-50000	
2.010	DCE-50009	
20.000	DCE-50042	
20.001	DCE-50043	
20.002	DCE-50044	
20.003	DCE-50045	

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

PN	US/MH Name	Level Exceeded
20.004	DCE-50046	
20.005	DCE-50047	
20.006	DCE-50048	
20.007	DCE-50049	
21.000	DCE-50051	
21.001	DCE-50052	
22.000	DCE-50054	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
22.001	DCE-50055	15 Winter	1	+0%	30/15 Summer		
23.000	DCE-50138	15 Winter	1	+0%	100/15 Summer		
22.002	DCE-50056	15 Winter	1	+0%	30/15 Summer		
22.003	DCE-50057	15 Winter	1	+0%			
24.000	DCE-50058	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
24.001	DCE-50059	15 Winter	1	+0%	30/15 Summer		
25.000	DCE-50120	15 Summer	1	+0%	30/15 Summer		
24.002	DCE-50060	15 Winter	1	+0%	30/15 Summer		
24.003	DCE-50061	15 Winter	1	+0%	100/15 Summer		
24.004	DCE-50062	15 Winter	1	+0%	30/15 Winter		
24.005	DCE-50063	15 Winter	1	+0%	30/15 Summer		
24.006	DCE-50064	15 Winter	1	+0%	30/15 Summer		
24.007	DCE-50065	15 Winter	1	+0%	30/15 Summer		
21.002	DCE-50053	15 Winter	1	+0%	30/15 Summer		
20.008	DCE-50050	15 Winter	1	+0%	30/15 Summer		
20.009	TAK-50001	240 Winter	1	+0%	30/30 Summer		
20.010	DCE-50124(FC)	240 Winter	1	+0%	1/15 Summer		
26.000	DCE-50073	15 Summer	1	+0%	100/15 Summer		
26.001	DCE-50074	15 Winter	1	+0%	30/15 Summer		
26.002	DCE-50075	15 Winter	1	+0%	30/15 Summer		
26.003	DCE-50076	15 Winter	1	+0%	100/15 Summer		
26.004	DCE-50077	15 Winter	1	+0%	100/15 Summer		
27.000	DCE-50066	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
27.001	DCE-50067	15 Winter	1	+0%	30/15 Summer		
27.002	DCE-50068	15 Winter	1	+0%	30/15 Summer		
27.003	DCE-50069	15 Winter	1	+0%	30/15 Summer		
27.004	DCE-50070	15 Winter	1	+0%	100/15 Summer		
28.000	DCE-50126	15 Summer	1	+0%			
29.000	DCE-50165	15 Winter	1	+0%			
29.001	DCE-50166	15 Winter	1	+0%	100/15 Summer		
29.002	DCE-50167	15 Winter	1	+0%	100/15 Summer		
27.005	DCE-50071	15 Winter	1	+0%	30/15 Winter		
30.000	DCE-50078	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
30.001	DCE-50079	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
30.002	DCE-50080	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
30.003	DCE-50081	15 Winter	1	+0%	30/15 Winter		
30.004	DCE-50082	15 Winter	1	+0%	30/15 Summer		
31.000	DCE-50084	15 Summer	1	+0%	100/15 Summer	100/15 Summer	
31.001	DCE-50085	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
31.002	DCE-50086	15 Winter	1	+0%	30/15 Summer		
31.003	DCE-50087	15 Winter	1	+0%	100/15 Summer		
31.004	DCE-50088	15 Winter	1	+0%	30/15 Summer		
32.000	DCE-50156	15 Summer	1	+0%			
31.005	DCE-50089	15 Winter	1	+0%	30/15 Summer		
30.005	DCE-50071	15 Winter	1	+0%	30/15 Summer		
26.005	DCE-50072	15 Winter	1	+0%	30/15 Summer		
26.006	TAK-50002	360 Winter	1	+0%	30/60 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.001	DCE-50055		14.095	-0.082	0.000	0.41		5.7	OK
23.000	DCE-50138		14.493	-0.132	0.000	0.35		14.5	OK
22.002	DCE-50056		13.873	-0.107	0.000	0.54		19.9	OK
22.003	DCE-50057		13.715	-0.168	0.000	0.14		20.0	OK
24.000	DCE-50058		14.099	-0.101	0.000	0.24		3.2	OK
24.001	DCE-50059		14.010	-0.082	0.000	0.42		5.8	OK
25.000	DCE-50120		13.995	-0.105	0.000	0.20		4.2	OK
24.002	DCE-50060		13.847	-0.053	0.000	0.73		9.9	OK
24.003	DCE-50061		13.649	-0.138	0.000	0.31		12.3	OK
24.004	DCE-50062		13.469	-0.128	0.000	0.38		14.7	OK
24.005	DCE-50063		13.310	-0.128	0.000	0.38		14.7	OK
24.006	DCE-50064		13.182	-0.122	0.000	0.43		16.8	OK
24.007	DCE-50065		13.035	-0.093	0.000	0.64		25.0	OK
21.002	DCE-50053		12.667	-0.290	0.000	0.27		59.6	OK
20.008	DCE-50050		12.584	-0.214	0.000	0.54		78.9	OK
20.009	TAK-50001		11.894	-0.105	0.000	0.06		4.3	OK
20.010	DCE-50124(FC)		11.890	0.203	0.000	0.08		4.1	SURCHARGED
26.000	DCE-50073		14.383	-0.100	0.000	0.24		3.3	OK
26.001	DCE-50074		14.282	-0.081	0.000	0.42		5.8	OK
26.002	DCE-50075		14.114	-0.081	0.000	0.43		5.8	OK
26.003	DCE-50076		13.903	-0.155	0.000	0.21		8.3	OK
26.004	DCE-50077		13.727	-0.150	0.000	0.24		15.7	OK
27.000	DCE-50066		14.391	-0.098	0.000	0.26		3.5	OK
27.001	DCE-50067		14.296	-0.081	0.000	0.42		5.8	OK
27.002	DCE-50068		14.132	-0.081	0.000	0.43		5.8	OK
27.003	DCE-50069		14.005	-0.066	0.000	0.59		8.1	OK
27.004	DCE-50070		13.758	-0.154	0.000	0.21		10.6	OK
28.000	DCE-50126		14.184	-0.116	0.000	0.12		4.6	OK
29.000	DCE-50165		14.622	-0.178	0.000	0.09		6.7	OK
29.001	DCE-50166		13.865	-0.163	0.000	0.16		6.6	OK
29.002	DCE-50167		13.558	-0.161	0.000	0.18		6.6	OK
27.005	DCE-50071		13.497	-0.125	0.000	0.40		20.6	OK
30.000	DCE-50078		14.384	-0.100	0.000	0.24		3.3	OK
30.001	DCE-50079		14.284	-0.081	0.000	0.42		5.8	OK
30.002	DCE-50080		14.141	-0.057	0.000	0.69		9.4	OK
30.003	DCE-50081		13.934	-0.134	0.000	0.34		13.3	OK
30.004	DCE-50082		13.757	-0.131	0.000	0.37		22.4	OK
31.000	DCE-50084		14.346	-0.098	0.000	0.26		3.5	OK
31.001	DCE-50085		14.270	-0.082	0.000	0.41		5.7	OK
31.002	DCE-50086		14.077	-0.082	0.000	0.43		5.8	OK
31.003	DCE-50087		13.896	-0.156	0.000	0.20		8.1	OK
31.004	DCE-50088		13.701	-0.145	0.000	0.27		10.6	OK
32.000	DCE-50156		14.624	-0.176	0.000	0.11		16.0	OK
31.005	DCE-50089		13.544	-0.107	0.000	0.53		25.1	OK
30.005	DCE-50071		13.195	-0.265	0.000	0.31		53.1	OK
26.005	DCE-50072		13.178	-0.217	0.000	0.52		88.5	OK

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.006	TAK-50002		12.338	-0.227	0.000	0.02		3.4	OK

PN	US/MH Name	Level Exceeded
22.001	DCE-50055	
23.000	DCE-50138	
22.002	DCE-50056	
22.003	DCE-50057	
24.000	DCE-50058	4
24.001	DCE-50059	
25.000	DCE-50120	
24.002	DCE-50060	
24.003	DCE-50061	
24.004	DCE-50062	
24.005	DCE-50063	
24.006	DCE-50064	
24.007	DCE-50065	
21.002	DCE-50053	
20.008	DCE-50050	
20.009	TAK-50001	
20.010	DCE-50124(FC)	
26.000	DCE-50073	
26.001	DCE-50074	
26.002	DCE-50075	
26.003	DCE-50076	
26.004	DCE-50077	
27.000	DCE-50066	3
27.001	DCE-50067	
27.002	DCE-50068	
27.003	DCE-50069	
27.004	DCE-50070	
28.000	DCE-50126	
29.000	DCE-50165	
29.001	DCE-50166	
29.002	DCE-50167	
27.005	DCE-50071	
30.000	DCE-50078	4
30.001	DCE-50079	3
30.002	DCE-50080	1
30.003	DCE-50081	
30.004	DCE-50082	
31.000	DCE-50084	2
31.001	DCE-50085	2
31.002	DCE-50086	

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

PN	US/MH Name	Level Exceeded
31.003	DCE-50087	
31.004	DCE-50088	
32.000	DCE-50156	
31.005	DCE-50089	
30.005	DCE-50071	
26.005	DCE-50072	
26.006	TAK-50002	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
26.007	DCE-50076(FC)	360 Winter	1	+0%	1/15 Summer		
2.011	DCE-50010	360 Winter	1	+0%	2/120 Winter		
33.000	DCE-50115	15 Summer	1	+0%	100/15 Summer		
33.001	DCE-50116	15 Winter	1	+0%	30/15 Summer		
33.002	DCE-50117	15 Winter	1	+0%	30/15 Summer		
33.003	DCE-50118	15 Winter	1	+0%	100/120 Winter		
33.004	DCE-50119	15 Winter	1	+0%	100/120 Winter		
34.000	DCE-50110	15 Summer	1	+0%	100/15 Summer	100/15 Summer	
34.001	DCE-50111	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
34.002	DCE-50112	15 Winter	1	+0%	30/15 Summer		
35.000	DCE-50143	15 Winter	1	+0%	100/240 Winter		
34.003	DCE-50113	15 Winter	1	+0%	30/15 Summer		
34.004	DCE-50114	15 Winter	1	+0%	30/15 Summer		
36.000	DCE-50101	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
36.001	DCE-50102	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
37.000	DCE-50121	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
36.002	DCE-50103	15 Winter	1	+0%	30/15 Summer		
36.003	DCE-50104	15 Winter	1	+0%	100/15 Summer		
36.004	DCE-50105	15 Winter	1	+0%	100/15 Summer		
38.000	DCE-50109	15 Summer	1	+0%	100/240 Winter		
36.005	DCE-50106	15 Winter	1	+0%	30/15 Summer		
34.005	DCE-50107	15 Winter	1	+0%	30/15 Summer		
33.005	DCE-50108	15 Winter	1	+0%	100/15 Summer		
39.000	DCE-50096	15 Summer	1	+0%	100/15 Summer		
39.001	DCE-50097	15 Winter	1	+0%	100/15 Summer		
39.002	DCE-50098	15 Winter	1	+0%	100/15 Summer		
40.000	DCE-50099	15 Summer	1	+0%	100/15 Summer		
40.001	DCE-50100	15 Winter	1	+0%	100/15 Summer		
41.000	DCE-50127	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
41.001	DCE-50128	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
42.000	DCE-50090	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
42.001	DCE-50091	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
42.002	DCE-50092	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
41.002	DCE-50093	15 Winter	1	+0%	30/15 Summer		
43.000	DCE-50154	15 Winter	1	+0%	100/360 Winter		
41.003	DCE-50094	15 Winter	1	+0%	30/15 Summer		
39.003	DCE-50095	15 Winter	1	+0%	100/15 Summer		
33.006	TAK-50003	240 Winter	1	+0%	2/120 Winter		
33.007	DCE-50122(FC)	240 Winter	1	+0%	1/15 Summer		
33.008	DCE-50123	60 Winter	1	+0%	100/120 Winter		
2.012	DCE-50011	360 Winter	1	+0%	1/240 Winter		
2.013	DCE-50012	360 Winter	1	+0%	1/240 Winter		
2.014	PUMP	360 Winter	1	+0%	1/15 Summer		
2.015	DCE-50169	360 Winter	1	+0%			

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.007	DCE-50076(FC)		12.337	0.187	0.000	0.08		3.3	SURCHARGED
2.011	DCE-50010		9.993	-0.071	0.000	0.76		30.9	OK
33.000	DCE-50115		14.115	-0.101	0.000	0.23		3.1	OK
33.001	DCE-50116		14.047	-0.082	0.000	0.41		5.6	OK
33.002	DCE-50117		13.862	-0.082	0.000	0.42		5.7	OK
33.003	DCE-50118		13.661	-0.156	0.000	0.21		8.1	OK
33.004	DCE-50119		13.475	-0.160	0.000	0.18		16.4	OK
34.000	DCE-50110		14.110	-0.100	0.000	0.24		3.2	OK
34.001	DCE-50111		14.035	-0.089	0.000	0.34		5.8	OK
34.002	DCE-50112		13.756	-0.089	0.000	0.35		5.8	OK
35.000	DCE-50143		14.478	-0.167	0.000	0.15		16.4	OK
34.003	DCE-50113		13.544	-0.111	0.000	0.51		24.6	OK
34.004	DCE-50114		13.258	-0.114	0.000	0.48		26.8	OK
36.000	DCE-50101		14.293	-0.097	0.000	0.27		3.5	OK
36.001	DCE-50102		14.224	-0.094	0.000	0.29		5.9	OK
37.000	DCE-50121		14.114	-0.068	0.000	0.57		7.9	OK
36.002	DCE-50103		13.944	-0.046	0.000	0.82		13.8	OK
36.003	DCE-50104		13.640	-0.135	0.000	0.34		16.1	OK
36.004	DCE-50105		13.418	-0.128	0.000	0.38		18.4	OK
38.000	DCE-50109		14.083	-0.117	0.000	0.11		4.6	OK
36.005	DCE-50106		13.136	-0.116	0.000	0.47		22.1	OK
34.005	DCE-50107		12.901	-0.135	0.000	0.58		57.1	OK
33.005	DCE-50108		12.536	-0.242	0.000	0.43		73.2	OK
39.000	DCE-50096		14.272	-0.100	0.000	0.25		3.3	OK
39.001	DCE-50097		14.177	-0.089	0.000	0.34		5.8	OK
39.002	DCE-50098		13.949	-0.096	0.000	0.28		5.9	OK
40.000	DCE-50099		14.212	-0.099	0.000	0.25		3.3	OK
40.001	DCE-50100		14.065	-0.153	0.000	0.22		15.0	OK
41.000	DCE-50127		14.451	-0.145	0.000	0.27		10.8	OK
41.001	DCE-50128		14.213	-0.108	0.000	0.52		20.6	OK
42.000	DCE-50090		14.431	-0.172	0.000	0.13		4.5	OK
42.001	DCE-50091		14.368	-0.169	0.000	0.14		6.2	OK
42.002	DCE-50092		14.268	-0.140	0.000	0.30		15.0	OK
41.002	DCE-50093		13.987	-0.137	0.000	0.55		41.1	OK
43.000	DCE-50154		14.561	-0.152	0.000	0.23		17.8	OK
41.003	DCE-50094		13.734	-0.094	0.000	0.82		64.8	OK
39.003	DCE-50095		13.163	-0.270	0.000	0.34		83.7	OK
33.006	TAK-50003		12.002	-0.098	0.000	0.07		9.1	OK
33.007	DCE-50122(FC)		11.997	0.232	0.000	0.67		8.9	SURCHARGED
33.008	DCE-50123		11.566	-0.098	0.000	0.26		9.7	OK
2.012	DCE-50011		9.793	0.120	0.000	0.55		40.1	SURCHARGED
2.013	DCE-50012		9.694	0.221	0.000	0.56		40.1	SURCHARGED
2.014	PUMP		9.596	0.621	0.000	2.41		38.0	SURCHARGED
2.015	DCE-50169		13.655	-0.329	0.000	0.16		38.0	OK

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

PN	US/MH Name	Level Exceeded
26.007	DCE-50076(FC)	
2.011	DCE-50010	
33.000	DCE-50115	
33.001	DCE-50116	
33.002	DCE-50117	
33.003	DCE-50118	
33.004	DCE-50119	
34.000	DCE-50110	3
34.001	DCE-50111	1
34.002	DCE-50112	
35.000	DCE-50143	
34.003	DCE-50113	
34.004	DCE-50114	
36.000	DCE-50101	4
36.001	DCE-50102	2
37.000	DCE-50121	4
36.002	DCE-50103	
36.003	DCE-50104	
36.004	DCE-50105	
38.000	DCE-50109	
36.005	DCE-50106	
34.005	DCE-50107	
33.005	DCE-50108	
39.000	DCE-50096	
39.001	DCE-50097	
39.002	DCE-50098	
40.000	DCE-50099	
40.001	DCE-50100	
41.000	DCE-50127	5
41.001	DCE-50128	4
42.000	DCE-50090	4
42.001	DCE-50091	1
42.002	DCE-50092	4
41.002	DCE-50093	
43.000	DCE-50154	
41.003	DCE-50094	
39.003	DCE-50095	
33.006	TAK-50003	
33.007	DCE-50122(FC)	
33.008	DCE-50123	
2.012	DCE-50011	
2.013	DCE-50012	
2.014	PUMP	
2.015	DCE-50169	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	14
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.000	DCE-50021	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
3.000	DCE-50159	15 Winter	2	+0%	30/15 Winter	100/15 Summer		
2.001	DCE-50022	15 Winter	2	+0%	30/15 Summer			
4.000	DCE-50019	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
2.002	DCE-50021	15 Winter	2	+0%	30/15 Summer			
5.000	DCE-50000	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
6.000	DCE-50130	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
5.001	DCE-50001	15 Winter	2	+0%	30/15 Summer			
7.000	DCE-50015	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
5.002	DCE-50002	15 Winter	2	+0%	30/15 Summer			
8.000	DCE-50014	15 Summer	2	+0%	30/15 Summer	100/15 Summer		
5.003	DCE-50003	15 Winter	2	+0%	30/15 Summer			
2.003	DCE-50004	15 Winter	2	+0%	30/15 Summer			
9.000	DCE-50037	15 Summer	2	+0%	100/15 Summer	100/15 Summer		
9.001	DCE-50038	15 Winter	2	+0%	30/15 Summer	100/15 Summer		
9.002	DCE-50039	15 Winter	2	+0%	30/15 Summer			
10.000	DCE-50023	15 Summer	2	+0%	100/15 Summer			
9.003	DCE-50024	15 Winter	2	+0%	30/15 Summer			

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.000	DCE-50021	14.095	-0.087	0.000	0.66		26.9	OK	5
3.000	DCE-50159	14.477	-0.072	0.000	0.52		19.2	OK	4
2.001	DCE-50022	13.718	-0.116	0.000	0.67		48.8	OK	
4.000	DCE-50019	14.195	-0.105	0.000	0.55		40.7	OK	5
2.002	DCE-50021	13.431	-0.210	0.000	0.55		92.5	OK	
5.000	DCE-50000	14.115	-0.079	0.000	0.44		6.1	OK	2
6.000	DCE-50130	14.563	-0.068	0.000	0.57		17.5	OK	4
5.001	DCE-50001	13.890	-0.073	0.000	0.78		29.8	OK	
7.000	DCE-50015	14.195	-0.030	0.000	0.99		17.8	OK	5
5.002	DCE-50002	13.723	-0.105	0.000	0.74		49.9	OK	
8.000	DCE-50014	13.887	-0.113	0.000	0.50		23.0	OK	4
5.003	DCE-50003	13.458	-0.283	0.000	0.29		72.1	OK	
2.003	DCE-50004	13.346	-0.205	0.000	0.57		162.2	OK	
9.000	DCE-50037	14.068	-0.082	0.000	0.42		8.5	OK	4
9.001	DCE-50038	13.692	-0.110	0.000	0.50		20.0	OK	4
9.002	DCE-50039	13.486	-0.108	0.000	0.53		20.1	OK	
10.000	DCE-50023	14.041	-0.109	0.000	0.16		6.0	OK	
9.003	DCE-50024	13.308	-0.179	0.000	0.33		24.4	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
2.004	DCE-50005	15 Winter	2	+0%	30/15 Summer		
11.000	DCE-50025	15 Summer	2	+0%	100/360 Winter		
2.005	DCE-50006	15 Winter	2	+0%	30/15 Summer		
12.000	DCE-50026	15 Summer	2	+0%	100/15 Summer		
12.001	DCE-50027	15 Winter	2	+0%	100/15 Summer		
13.000	DCE-50016	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
13.001	DCE-50017	15 Winter	2	+0%	30/15 Summer		
13.002	DCE-50030	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
14.000	DCE-50034	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
13.003	DCE-50031	15 Winter	2	+0%	100/15 Summer		
15.000	DCE-50035	15 Summer	2	+0%	100/15 Summer		
13.004	DCE-50032	15 Winter	2	+0%	100/15 Summer		
16.000	DCE-50168	15 Summer	2	+0%	30/15 Summer		
16.001	DCE-50036	15 Winter	2	+0%	100/15 Summer		
13.005	DCE-50033	15 Winter	2	+0%	100/15 Summer		
2.006	DCE-50007	15 Winter	2	+0%	1/15 Summer		
2.007	TAK-50005	360 Winter	2	+0%	30/30 Winter		
2.008	DCE-50300(FC)	360 Winter	2	+0%	1/30 Winter		
17.000	DCE-50289	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
17.001	DCE-50018	15 Summer	2	+0%	30/15 Summer		
17.002	DCE-50290	15 Winter	2	+0%	30/15 Summer		
17.003	DCE-50291	15 Winter	2	+0%	30/15 Summer		
17.004	DCE-50292	15 Winter	2	+0%	30/15 Summer		
17.005	DCE-50293	15 Winter	2	+0%	30/15 Summer		
17.006	DCE-50008	15 Winter	2	+0%	100/15 Winter		
17.007	TAK-50004	240 Winter	2	+0%	30/15 Summer		
17.008	DCE-50301(FC)	240 Winter	2	+0%	1/15 Summer		
18.000	DCE-50134	15 Summer	2	+0%	100/15 Summer	100/60 Winter	
19.000	DCE-50029	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
19.001	DCE-50201	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
18.001	DCE-50028	15 Winter	2	+0%	30/15 Summer		
18.002	DCE-50040	15 Winter	2	+0%	30/15 Summer		
18.003	TAK-50000	240 Winter	2	+0%	1/30 Winter		
18.004	DCE-50041(FC)	240 Winter	2	+0%	1/15 Summer		
2.009	TAK-50000	360 Winter	2	+0%	2/240 Winter		
2.010	DCE-50009	360 Winter	2	+0%	2/120 Winter		
20.000	DCE-50042	15 Summer	2	+0%	100/15 Summer		
20.001	DCE-50043	15 Winter	2	+0%	30/15 Summer		
20.002	DCE-50044	15 Winter	2	+0%	30/15 Summer		
20.003	DCE-50045	15 Winter	2	+0%	100/15 Summer		
20.004	DCE-50046	15 Winter	2	+0%	100/15 Summer		
20.005	DCE-50047	15 Winter	2	+0%	100/15 Summer		
20.006	DCE-50048	15 Winter	2	+0%	100/15 Summer		
20.007	DCE-50049	15 Winter	2	+0%	100/15 Summer		
21.000	DCE-50051	15 Summer	2	+0%			
21.001	DCE-50052	15 Winter	2	+0%	100/15 Summer		
22.000	DCE-50054	15 Summer	2	+0%	30/15 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
2.004	DCE-50005		13.051	-0.162	0.000	0.73		207.4	OK
11.000	DCE-50025		14.051	-0.199	0.000	0.09		12.1	OK
2.005	DCE-50006		12.777	-0.057	0.000	0.78		223.5	OK
12.000	DCE-50026		14.052	-0.098	0.000	0.52		26.0	OK
12.001	DCE-50027		13.500	-0.195	0.000	0.26		45.0	OK
13.000	DCE-50016		13.996	-0.104	0.000	0.56		17.7	OK
13.001	DCE-50017		13.966	-0.084	0.000	0.45		17.1	OK
13.002	DCE-50030		13.932	-0.080	0.000	0.83		63.0	OK
14.000	DCE-50034		14.171	-0.077	0.000	0.48		16.6	OK
13.003	DCE-50031		13.351	-0.235	0.000	0.46		77.5	OK
15.000	DCE-50035		14.018	-0.130	0.000	0.38		20.1	OK
13.004	DCE-50032		13.273	-0.245	0.000	0.43		96.5	OK
16.000	DCE-50168		13.983	-0.059	0.000	0.68		8.8	OK
16.001	DCE-50036		13.855	-0.135	0.000	0.33		18.8	OK
13.005	DCE-50033		13.015	-0.306	0.000	0.22		114.7	OK
2.006	DCE-50007		12.532	0.093	0.000	1.61		367.9	SURCHARGED
2.007	TAK-50005		10.880	-0.145	0.000	0.06		16.6	OK
2.008	DCE-50300(FC)		10.876	0.256	0.000	0.41		14.2	SURCHARGED
17.000	DCE-50289		14.009	-0.111	0.000	0.72		72.1	OK
17.001	DCE-50018		13.756	-0.093	0.000	0.81		77.7	OK
17.002	DCE-50290		13.581	-0.085	0.000	0.85		87.7	OK
17.003	DCE-50291		13.194	-0.082	0.000	0.88		87.2	OK
17.004	DCE-50292		12.812	-0.215	0.000	0.53		115.2	OK
17.005	DCE-50293		12.728	-0.143	0.000	0.79		128.2	OK
17.006	DCE-50008		12.480	-0.292	0.000	0.52		128.5	OK
17.007	TAK-50004		11.478	-0.011	0.000	0.04		5.6	OK
17.008	DCE-50301(FC)		11.473	0.323	0.000	0.12		5.1	SURCHARGED
18.000	DCE-50134		14.080	-0.145	0.000	0.27		27.9	OK
19.000	DCE-50029		14.071	-0.118	0.000	0.44		17.9	OK
19.001	DCE-50201		13.758	-0.131	0.000	0.58		50.3	OK
18.001	DCE-50028		13.179	-0.207	0.000	0.46		88.1	OK
18.002	DCE-50040		13.139	-0.133	0.000	0.84		100.2	OK
18.003	TAK-50000		12.676	0.219	0.000	0.14		4.4	SURCHARGED
18.004	DCE-50041(FC)		12.683	0.353	0.000	0.10		4.2	SURCHARGED
2.009	TAK-50000		10.630	0.159	0.000	0.67		23.6	SURCHARGED
2.010	DCE-50009		10.538	0.322	0.000	0.71		24.2	SURCHARGED
20.000	DCE-50042		14.210	-0.090	0.000	0.34		4.5	OK
20.001	DCE-50043		14.132	-0.069	0.000	0.55		7.5	OK
20.002	DCE-50044		13.960	-0.070	0.000	0.56		7.6	OK
20.003	DCE-50045		13.756	-0.145	0.000	0.27		10.5	OK
20.004	DCE-50046		13.608	-0.132	0.000	0.35		13.8	OK
20.005	DCE-50047		13.421	-0.131	0.000	0.36		13.8	OK
20.006	DCE-50048		13.304	-0.122	0.000	0.42		16.5	OK
20.007	DCE-50049		13.133	-0.124	0.000	0.41		26.0	OK
21.000	DCE-50051		14.201	-0.111	0.000	0.16		4.3	OK
21.001	DCE-50052		13.540	-0.096	0.000	0.28		7.7	OK

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.000	DCE-50054		14.193	-0.094	0.000	0.30		4.0	OK

PN	US/MH Name	Level Exceeded
2.004	DCE-50005	
11.000	DCE-50025	
2.005	DCE-50006	
12.000	DCE-50026	
12.001	DCE-50027	
13.000	DCE-50016	5
13.001	DCE-50017	
13.002	DCE-50030	3
14.000	DCE-50034	2
13.003	DCE-50031	
15.000	DCE-50035	
13.004	DCE-50032	
16.000	DCE-50168	
16.001	DCE-50036	
13.005	DCE-50033	
2.006	DCE-50007	
2.007	TAK-50005	
2.008	DCE-50300(FC)	
17.000	DCE-50289	5
17.001	DCE-50018	
17.002	DCE-50290	
17.003	DCE-50291	
17.004	DCE-50292	
17.005	DCE-50293	
17.006	DCE-50008	
17.007	TAK-50004	
17.008	DCE-50301(FC)	
18.000	DCE-50134	11
19.000	DCE-50029	3
19.001	DCE-50201	1
18.001	DCE-50028	
18.002	DCE-50040	
18.003	TAK-50000	
18.004	DCE-50041(FC)	
2.009	TAK-50000	
2.010	DCE-50009	
20.000	DCE-50042	
20.001	DCE-50043	
20.002	DCE-50044	
20.003	DCE-50045	

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

PN	US/MH Name	Level Exceeded
20.004	DCE-50046	
20.005	DCE-50047	
20.006	DCE-50048	
20.007	DCE-50049	
21.000	DCE-50051	
21.001	DCE-50052	
22.000	DCE-50054	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
22.001	DCE-50055	15 Winter	2	+0%	30/15 Summer		
23.000	DCE-50138	15 Winter	2	+0%	100/15 Summer		
22.002	DCE-50056	15 Winter	2	+0%	30/15 Summer		
22.003	DCE-50057	15 Winter	2	+0%			
24.000	DCE-50058	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
24.001	DCE-50059	15 Winter	2	+0%	30/15 Summer		
25.000	DCE-50120	15 Summer	2	+0%	30/15 Summer		
24.002	DCE-50060	15 Winter	2	+0%	30/15 Summer		
24.003	DCE-50061	15 Winter	2	+0%	100/15 Summer		
24.004	DCE-50062	15 Winter	2	+0%	30/15 Winter		
24.005	DCE-50063	15 Winter	2	+0%	30/15 Summer		
24.006	DCE-50064	15 Winter	2	+0%	30/15 Summer		
24.007	DCE-50065	15 Winter	2	+0%	30/15 Summer		
21.002	DCE-50053	15 Winter	2	+0%	30/15 Summer		
20.008	DCE-50050	15 Winter	2	+0%	30/15 Summer		
20.009	TAK-50001	240 Winter	2	+0%	30/30 Summer		
20.010	DCE-50124(FC)	240 Winter	2	+0%	1/15 Summer		
26.000	DCE-50073	15 Summer	2	+0%	100/15 Summer		
26.001	DCE-50074	15 Winter	2	+0%	30/15 Summer		
26.002	DCE-50075	15 Winter	2	+0%	30/15 Summer		
26.003	DCE-50076	15 Winter	2	+0%	100/15 Summer		
26.004	DCE-50077	15 Winter	2	+0%	100/15 Summer		
27.000	DCE-50066	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
27.001	DCE-50067	15 Winter	2	+0%	30/15 Summer		
27.002	DCE-50068	15 Winter	2	+0%	30/15 Summer		
27.003	DCE-50069	15 Winter	2	+0%	30/15 Summer		
27.004	DCE-50070	15 Winter	2	+0%	100/15 Summer		
28.000	DCE-50126	15 Summer	2	+0%			
29.000	DCE-50165	15 Winter	2	+0%			
29.001	DCE-50166	15 Winter	2	+0%	100/15 Summer		
29.002	DCE-50167	15 Winter	2	+0%	100/15 Summer		
27.005	DCE-50071	15 Winter	2	+0%	30/15 Winter		
30.000	DCE-50078	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
30.001	DCE-50079	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
30.002	DCE-50080	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
30.003	DCE-50081	15 Winter	2	+0%	30/15 Winter		
30.004	DCE-50082	15 Winter	2	+0%	30/15 Summer		
31.000	DCE-50084	15 Summer	2	+0%	100/15 Summer	100/15 Summer	
31.001	DCE-50085	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
31.002	DCE-50086	15 Winter	2	+0%	30/15 Summer		
31.003	DCE-50087	15 Winter	2	+0%	100/15 Summer		
31.004	DCE-50088	15 Winter	2	+0%	30/15 Summer		
32.000	DCE-50156	15 Summer	2	+0%			
31.005	DCE-50089	15 Winter	2	+0%	30/15 Summer		
30.005	DCE-50071	15 Winter	2	+0%	30/15 Summer		
26.005	DCE-50072	15 Winter	2	+0%	30/15 Summer		
26.006	TAK-50002	240 Winter	2	+0%	30/60 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.001	DCE-50055		14.106	-0.071	0.000	0.53		7.3	OK
23.000	DCE-50138		14.508	-0.117	0.000	0.46		19.1	OK
22.002	DCE-50056		13.896	-0.084	0.000	0.71		26.2	OK
22.003	DCE-50057		13.724	-0.159	0.000	0.19		26.4	OK
24.000	DCE-50058		14.107	-0.093	0.000	0.31		4.1	OK
24.001	DCE-50059		14.022	-0.070	0.000	0.54		7.5	OK
25.000	DCE-50120		14.002	-0.098	0.000	0.26		5.5	OK
24.002	DCE-50060		13.866	-0.034	0.000	0.94		12.7	OK
24.003	DCE-50061		13.661	-0.126	0.000	0.40		15.8	OK
24.004	DCE-50062		13.483	-0.114	0.000	0.49		18.9	OK
24.005	DCE-50063		13.324	-0.114	0.000	0.49		18.7	OK
24.006	DCE-50064		13.199	-0.105	0.000	0.55		21.6	OK
24.007	DCE-50065		13.059	-0.069	0.000	0.81		31.9	OK
21.002	DCE-50053		12.697	-0.260	0.000	0.35		77.2	OK
20.008	DCE-50050		12.627	-0.171	0.000	0.70		102.4	OK
20.009	TAK-50001		11.955	-0.044	0.000	0.06		4.3	OK
20.010	DCE-50124(FC)		11.951	0.264	0.000	0.08		4.1	SURCHARGED
26.000	DCE-50073		14.391	-0.092	0.000	0.32		4.3	OK
26.001	DCE-50074		14.293	-0.070	0.000	0.54		7.5	OK
26.002	DCE-50075		14.125	-0.070	0.000	0.55		7.6	OK
26.003	DCE-50076		13.913	-0.145	0.000	0.27		10.7	OK
26.004	DCE-50077		13.739	-0.138	0.000	0.31		20.3	OK
27.000	DCE-50066		14.399	-0.090	0.000	0.33		4.5	OK
27.001	DCE-50067		14.308	-0.069	0.000	0.55		7.5	OK
27.002	DCE-50068		14.143	-0.070	0.000	0.55		7.6	OK
27.003	DCE-50069		14.021	-0.051	0.000	0.76		10.5	OK
27.004	DCE-50070		13.768	-0.144	0.000	0.28		13.8	OK
28.000	DCE-50126		14.189	-0.111	0.000	0.15		5.9	OK
29.000	DCE-50165		14.628	-0.172	0.000	0.12		8.6	OK
29.001	DCE-50166		13.874	-0.154	0.000	0.21		8.5	OK
29.002	DCE-50167		13.567	-0.152	0.000	0.23		8.5	OK
27.005	DCE-50071		13.513	-0.109	0.000	0.52		26.8	OK
30.000	DCE-50078		14.392	-0.092	0.000	0.31		4.2	OK
30.001	DCE-50079		14.296	-0.070	0.000	0.54		7.5	OK
30.002	DCE-50080		14.160	-0.039	0.000	0.89		12.1	OK
30.003	DCE-50081		13.948	-0.121	0.000	0.43		17.1	OK
30.004	DCE-50082		13.772	-0.116	0.000	0.47		28.7	OK
31.000	DCE-50084		14.354	-0.090	0.000	0.34		4.5	OK
31.001	DCE-50085		14.281	-0.071	0.000	0.53		7.4	OK
31.002	DCE-50086		14.088	-0.070	0.000	0.56		7.4	OK
31.003	DCE-50087		13.906	-0.146	0.000	0.26		10.4	OK
31.004	DCE-50088		13.713	-0.133	0.000	0.35		13.7	OK
32.000	DCE-50156		14.630	-0.170	0.000	0.14		20.7	OK
31.005	DCE-50089		13.566	-0.086	0.000	0.69		32.5	OK
30.005	DCE-50071		13.233	-0.227	0.000	0.40		68.4	OK
26.005	DCE-50072		13.219	-0.176	0.000	0.68		114.5	OK

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.006	TAK-50002		12.402	-0.163	0.000	0.02		3.7	OK

PN	US/MH Name	Level Exceeded
22.001	DCE-50055	
23.000	DCE-50138	
22.002	DCE-50056	
22.003	DCE-50057	
24.000	DCE-50058	4
24.001	DCE-50059	
25.000	DCE-50120	
24.002	DCE-50060	
24.003	DCE-50061	
24.004	DCE-50062	
24.005	DCE-50063	
24.006	DCE-50064	
24.007	DCE-50065	
21.002	DCE-50053	
20.008	DCE-50050	
20.009	TAK-50001	
20.010	DCE-50124(FC)	
26.000	DCE-50073	
26.001	DCE-50074	
26.002	DCE-50075	
26.003	DCE-50076	
26.004	DCE-50077	
27.000	DCE-50066	3
27.001	DCE-50067	
27.002	DCE-50068	
27.003	DCE-50069	
27.004	DCE-50070	
28.000	DCE-50126	
29.000	DCE-50165	
29.001	DCE-50166	
29.002	DCE-50167	
27.005	DCE-50071	
30.000	DCE-50078	4
30.001	DCE-50079	3
30.002	DCE-50080	1
30.003	DCE-50081	
30.004	DCE-50082	
31.000	DCE-50084	2
31.001	DCE-50085	2
31.002	DCE-50086	

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

PN	US/MH Name	Level Exceeded
31.003	DCE-50087	
31.004	DCE-50088	
32.000	DCE-50156	
31.005	DCE-50089	
30.005	DCE-50071	
26.005	DCE-50072	
26.006	TAK-50002	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
26.007	DCE-50076(FC)	240 Winter	2	+0%	1/15 Summer		
2.011	DCE-50010	360 Winter	2	+0%	2/120 Winter		
33.000	DCE-50115	15 Summer	2	+0%	100/15 Summer		
33.001	DCE-50116	15 Winter	2	+0%	30/15 Summer		
33.002	DCE-50117	15 Winter	2	+0%	30/15 Summer		
33.003	DCE-50118	15 Winter	2	+0%	100/120 Winter		
33.004	DCE-50119	15 Winter	2	+0%	100/120 Winter		
34.000	DCE-50110	15 Summer	2	+0%	100/15 Summer	100/15 Summer	
34.001	DCE-50111	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
34.002	DCE-50112	15 Winter	2	+0%	30/15 Summer		
35.000	DCE-50143	15 Winter	2	+0%	100/240 Winter		
34.003	DCE-50113	15 Winter	2	+0%	30/15 Summer		
34.004	DCE-50114	15 Winter	2	+0%	30/15 Summer		
36.000	DCE-50101	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
36.001	DCE-50102	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
37.000	DCE-50121	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
36.002	DCE-50103	15 Winter	2	+0%	30/15 Summer		
36.003	DCE-50104	15 Winter	2	+0%	100/15 Summer		
36.004	DCE-50105	15 Winter	2	+0%	100/15 Summer		
38.000	DCE-50109	15 Summer	2	+0%	100/240 Winter		
36.005	DCE-50106	15 Winter	2	+0%	30/15 Summer		
34.005	DCE-50107	15 Winter	2	+0%	30/15 Summer		
33.005	DCE-50108	15 Winter	2	+0%	100/15 Summer		
39.000	DCE-50096	15 Summer	2	+0%	100/15 Summer		
39.001	DCE-50097	15 Winter	2	+0%	100/15 Summer		
39.002	DCE-50098	15 Winter	2	+0%	100/15 Summer		
40.000	DCE-50099	15 Summer	2	+0%	100/15 Summer		
40.001	DCE-50100	15 Winter	2	+0%	100/15 Summer		
41.000	DCE-50127	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
41.001	DCE-50128	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
42.000	DCE-50090	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
42.001	DCE-50091	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
42.002	DCE-50092	15 Winter	2	+0%	30/15 Summer	100/15 Summer	
41.002	DCE-50093	15 Winter	2	+0%	30/15 Summer		
43.000	DCE-50154	15 Winter	2	+0%	100/360 Winter		
41.003	DCE-50094	15 Winter	2	+0%	30/15 Summer		
39.003	DCE-50095	15 Winter	2	+0%	100/15 Summer		
33.006	TAK-50003	240 Winter	2	+0%	2/120 Winter		
33.007	DCE-50122(FC)	240 Winter	2	+0%	1/15 Summer		
33.008	DCE-50123	30 Winter	2	+0%	100/120 Winter		
2.012	DCE-50011	360 Winter	2	+0%	1/240 Winter		
2.013	DCE-50012	360 Winter	2	+0%	1/240 Winter		
2.014	PUMP	360 Winter	2	+0%	1/15 Summer		
2.015	DCE-50169	480 Summer	2	+0%			

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.007	DCE-50076(FC)		12.401	0.251	0.000	0.08		3.6	SURCHARGED
2.011	DCE-50010		10.478	0.414	0.000	0.80		32.6	SURCHARGED
33.000	DCE-50115		14.122	-0.094	0.000	0.30		4.0	OK
33.001	DCE-50116		14.059	-0.071	0.000	0.53		7.3	OK
33.002	DCE-50117		13.873	-0.071	0.000	0.54		7.4	OK
33.003	DCE-50118		13.671	-0.146	0.000	0.27		10.5	OK
33.004	DCE-50119		13.484	-0.151	0.000	0.24		21.3	OK
34.000	DCE-50110		14.117	-0.093	0.000	0.31		4.1	OK
34.001	DCE-50111		14.044	-0.079	0.000	0.44		7.5	OK
34.002	DCE-50112		13.765	-0.079	0.000	0.45		7.5	OK
35.000	DCE-50143		14.488	-0.157	0.000	0.19		21.4	OK
34.003	DCE-50113		13.564	-0.090	0.000	0.66		32.1	OK
34.004	DCE-50114		13.277	-0.095	0.000	0.62		34.9	OK
36.000	DCE-50101		14.301	-0.089	0.000	0.35		4.5	OK
36.001	DCE-50102		14.233	-0.086	0.000	0.38		7.7	OK
37.000	DCE-50121		14.130	-0.052	0.000	0.73		10.2	OK
36.002	DCE-50103		13.977	-0.013	0.000	1.00		16.8	OK
36.003	DCE-50104		13.651	-0.124	0.000	0.42		19.8	OK
36.004	DCE-50105		13.431	-0.115	0.000	0.48		23.0	OK
38.000	DCE-50109		14.087	-0.113	0.000	0.14		5.9	OK
36.005	DCE-50106		13.152	-0.100	0.000	0.59		27.7	OK
34.005	DCE-50107		12.931	-0.106	0.000	0.74		73.1	OK
33.005	DCE-50108		12.570	-0.208	0.000	0.56		94.1	OK
39.000	DCE-50096		14.280	-0.092	0.000	0.32		4.3	OK
39.001	DCE-50097		14.186	-0.079	0.000	0.45		7.5	OK
39.002	DCE-50098		13.957	-0.088	0.000	0.36		7.6	OK
40.000	DCE-50099		14.219	-0.092	0.000	0.32		4.3	OK
40.001	DCE-50100		14.075	-0.142	0.000	0.29		19.4	OK
41.000	DCE-50127		14.464	-0.132	0.000	0.35		14.0	OK
41.001	DCE-50128		14.233	-0.088	0.000	0.67		26.6	OK
42.000	DCE-50090		14.439	-0.164	0.000	0.16		5.8	OK
42.001	DCE-50091		14.376	-0.161	0.000	0.18		8.1	OK
42.002	DCE-50092		14.281	-0.127	0.000	0.39		19.3	OK
41.002	DCE-50093		14.017	-0.107	0.000	0.71		53.2	OK
43.000	DCE-50154		14.574	-0.139	0.000	0.31		24.1	OK
41.003	DCE-50094		13.802	-0.026	0.000	1.00		79.4	OK
39.003	DCE-50095		13.187	-0.246	0.000	0.42		104.1	OK
33.006	TAK-50003		12.109	0.009	0.000	0.08		10.0	SURCHARGED
33.007	DCE-50122(FC)		12.115	0.350	0.000	0.67		9.0	SURCHARGED
33.008	DCE-50123		11.569	-0.095	0.000	0.28		10.6	OK
2.012	DCE-50011		10.281	0.608	0.000	0.58		41.9	SURCHARGED
2.013	DCE-50012		10.182	0.709	0.000	0.58		41.7	SURCHARGED
2.014	PUMP		10.084	1.109	0.000	2.41		38.0	SURCHARGED
2.015	DCE-50169		13.655	-0.329	0.000	0.16		38.0	OK

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

PN	US/MH Name	Level Exceeded
26.007	DCE-50076(FC)	
2.011	DCE-50010	
33.000	DCE-50115	
33.001	DCE-50116	
33.002	DCE-50117	
33.003	DCE-50118	
33.004	DCE-50119	
34.000	DCE-50110	3
34.001	DCE-50111	1
34.002	DCE-50112	
35.000	DCE-50143	
34.003	DCE-50113	
34.004	DCE-50114	
36.000	DCE-50101	4
36.001	DCE-50102	2
37.000	DCE-50121	4
36.002	DCE-50103	
36.003	DCE-50104	
36.004	DCE-50105	
38.000	DCE-50109	
36.005	DCE-50106	
34.005	DCE-50107	
33.005	DCE-50108	
39.000	DCE-50096	
39.001	DCE-50097	
39.002	DCE-50098	
40.000	DCE-50099	
40.001	DCE-50100	
41.000	DCE-50127	5
41.001	DCE-50128	4
42.000	DCE-50090	4
42.001	DCE-50091	1
42.002	DCE-50092	4
41.002	DCE-50093	
43.000	DCE-50154	
41.003	DCE-50094	
39.003	DCE-50095	
33.006	TAK-50003	
33.007	DCE-50122(FC)	
33.008	DCE-50123	
2.012	DCE-50011	
2.013	DCE-50012	
2.014	PUMP	
2.015	DCE-50169	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	14
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.000	DCE-50021	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
3.000	DCE-50159	15 Winter	30	+0%	30/15 Winter	100/15 Summer		
2.001	DCE-50022	15 Winter	30	+0%	30/15 Summer			
4.000	DCE-50019	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
2.002	DCE-50021	15 Winter	30	+0%	30/15 Summer			
5.000	DCE-50000	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
6.000	DCE-50130	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
5.001	DCE-50001	15 Winter	30	+0%	30/15 Summer			
7.000	DCE-50015	15 Summer	30	+0%	30/15 Summer	100/15 Summer		
5.002	DCE-50002	15 Winter	30	+0%	30/15 Summer			
8.000	DCE-50014	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
5.003	DCE-50003	15 Winter	30	+0%	30/15 Summer			
2.003	DCE-50004	15 Winter	30	+0%	30/15 Summer			
9.000	DCE-50037	15 Winter	30	+0%	100/15 Summer	100/15 Summer		
9.001	DCE-50038	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
9.002	DCE-50039	15 Winter	30	+0%	30/15 Summer			
10.000	DCE-50023	15 Summer	30	+0%	100/15 Summer			
9.003	DCE-50024	15 Winter	30	+0%	30/15 Summer			

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.000	DCE-50021	14.576	0.394	0.000	1.22		49.6	SURCHARGED	5
3.000	DCE-50159	14.576	0.027	0.000	0.92		34.0	SURCHARGED	4
2.001	DCE-50022	14.236	0.402	0.000	1.08		78.2	SURCHARGED	
4.000	DCE-50019	14.504	0.204	0.000	1.03		75.5	SURCHARGED	5
2.002	DCE-50021	14.068	0.427	0.000	0.83		140.1	SURCHARGED	
5.000	DCE-50000	14.409	0.215	0.000	0.74		10.3	SURCHARGED	2
6.000	DCE-50130	14.658	0.027	0.000	0.90		27.7	SURCHARGED	4
5.001	DCE-50001	14.355	0.392	0.000	1.32		50.5	SURCHARGED	
7.000	DCE-50015	15.238	1.013	0.000	1.77		31.9	FLOOD RISK	5
5.002	DCE-50002	14.198	0.370	0.000	1.24		83.2	SURCHARGED	
8.000	DCE-50014	14.238	0.238	0.000	0.92		42.8	SURCHARGED	4
5.003	DCE-50003	14.109	0.368	0.000	0.42		103.1	SURCHARGED	
2.003	DCE-50004	13.967	0.416	0.000	0.82		232.3	SURCHARGED	
9.000	DCE-50037	14.119	-0.031	0.000	0.79		15.9	OK	4
9.001	DCE-50038	14.019	0.217	0.000	1.07		42.4	SURCHARGED	4
9.002	DCE-50039	13.931	0.337	0.000	0.98		36.6	SURCHARGED	
10.000	DCE-50023	14.057	-0.093	0.000	0.31		11.4	OK	
9.003	DCE-50024	13.843	0.356	0.000	0.52		38.9	SURCHARGED	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
2.004	DCE-50005	15 Winter	30	+0%	30/15 Summer		
11.000	DCE-50025	15 Summer	30	+0%	100/360 Winter		
2.005	DCE-50006	15 Winter	30	+0%	30/15 Summer		
12.000	DCE-50026	15 Summer	30	+0%	100/15 Summer		
12.001	DCE-50027	15 Summer	30	+0%	100/15 Summer		
13.000	DCE-50016	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
13.001	DCE-50017	15 Winter	30	+0%	30/15 Summer		
13.002	DCE-50030	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
14.000	DCE-50034	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
13.003	DCE-50031	15 Winter	30	+0%	100/15 Summer		
15.000	DCE-50035	15 Summer	30	+0%	100/15 Summer		
13.004	DCE-50032	15 Winter	30	+0%	100/15 Summer		
16.000	DCE-50168	15 Summer	30	+0%	30/15 Summer		
16.001	DCE-50036	15 Summer	30	+0%	100/15 Summer		
13.005	DCE-50033	15 Winter	30	+0%	100/15 Summer		
2.006	DCE-50007	15 Winter	30	+0%	1/15 Summer		
2.007	TAK-50005	480 Winter	30	+0%	30/30 Winter		
2.008	DCE-50300(FC)	240 Winter	30	+0%	1/30 Winter		
17.000	DCE-50289	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
17.001	DCE-50018	15 Winter	30	+0%	30/15 Summer		
17.002	DCE-50290	15 Winter	30	+0%	30/15 Summer		
17.003	DCE-50291	15 Winter	30	+0%	30/15 Summer		
17.004	DCE-50292	15 Winter	30	+0%	30/15 Summer		
17.005	DCE-50293	15 Winter	30	+0%	30/15 Summer		
17.006	DCE-50008	15 Winter	30	+0%	100/15 Winter		
17.007	TAK-50004	240 Winter	30	+0%	30/15 Summer		
17.008	DCE-50301(FC)	240 Winter	30	+0%	1/15 Summer		
18.000	DCE-50134	15 Summer	30	+0%	100/15 Summer	100/60 Winter	
19.000	DCE-50029	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
19.001	DCE-50201	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
18.001	DCE-50028	15 Winter	30	+0%	30/15 Summer		
18.002	DCE-50040	15 Winter	30	+0%	30/15 Summer		
18.003	TAK-50000	240 Winter	30	+0%	1/30 Winter		
18.004	DCE-50041(FC)	240 Winter	30	+0%	1/15 Summer		
2.009	TAK-50000	480 Winter	30	+0%	2/240 Winter		
2.010	DCE-50009	480 Winter	30	+0%	2/120 Winter		
20.000	DCE-50042	15 Summer	30	+0%	100/15 Summer		
20.001	DCE-50043	15 Summer	30	+0%	30/15 Summer		
20.002	DCE-50044	15 Winter	30	+0%	30/15 Summer		
20.003	DCE-50045	15 Summer	30	+0%	100/15 Summer		
20.004	DCE-50046	15 Winter	30	+0%	100/15 Summer		
20.005	DCE-50047	15 Winter	30	+0%	100/15 Summer		
20.006	DCE-50048	15 Winter	30	+0%	100/15 Summer		
20.007	DCE-50049	15 Winter	30	+0%	100/15 Summer		
21.000	DCE-50051	15 Summer	30	+0%			
21.001	DCE-50052	15 Summer	30	+0%	100/15 Summer		
22.000	DCE-50054	15 Winter	30	+0%	30/15 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
2.004	DCE-50005		13.743	0.530	0.000	1.04		297.7	SURCHARGED
11.000	DCE-50025		14.070	-0.180	0.000	0.18		22.9	OK
2.005	DCE-50006		13.317	0.483	0.000	1.15		329.8	SURCHARGED
12.000	DCE-50026		14.139	-0.011	0.000	1.00		49.8	OK
12.001	DCE-50027		13.557	-0.138	0.000	0.57		96.5	OK
13.000	DCE-50016		15.150	1.050	0.000	0.97		30.3	FLOOD RISK
13.001	DCE-50017		15.083	1.033	0.000	0.93		35.1	SURCHARGED
13.002	DCE-50030		15.002	0.990	0.000	1.68		127.1	SURCHARGED
14.000	DCE-50034		14.407	0.159	0.000	0.85		29.4	SURCHARGED
13.003	DCE-50031		13.475	-0.111	0.000	0.92		154.7	OK
15.000	DCE-50035		14.064	-0.084	0.000	0.70		37.2	OK
13.004	DCE-50032		13.382	-0.136	0.000	0.82		186.3	OK
16.000	DCE-50168		14.076	0.034	0.000	1.30		16.9	SURCHARGED
16.001	DCE-50036		13.909	-0.081	0.000	0.73		41.1	OK
13.005	DCE-50033		13.078	-0.243	0.000	0.43		221.4	OK
2.006	DCE-50007		12.786	0.347	0.000	2.73		623.4	SURCHARGED
2.007	TAK-50005		11.520	0.495	0.000	0.09		22.1	SURCHARGED
2.008	DCE-50300(FC)		11.519	0.899	0.000	0.41		14.1	SURCHARGED
17.000	DCE-50289		15.150	1.030	0.000	1.20		120.5	FLOOD RISK
17.001	DCE-50018		14.795	0.946	0.000	1.36		130.2	SURCHARGED
17.002	DCE-50290		14.476	0.810	0.000	1.45		149.5	SURCHARGED
17.003	DCE-50291		13.658	0.382	0.000	1.50		148.9	SURCHARGED
17.004	DCE-50292		13.097	0.070	0.000	0.91		199.0	SURCHARGED
17.005	DCE-50293		12.957	0.086	0.000	1.37		221.7	SURCHARGED
17.006	DCE-50008		12.618	-0.154	0.000	0.91		222.8	OK
17.007	TAK-50004		12.017	0.528	0.000	0.05		7.8	SURCHARGED
17.008	DCE-50301(FC)		12.050	0.900	0.000	0.13		5.6	SURCHARGED
18.000	DCE-50134		14.115	-0.110	0.000	0.52		52.8	OK
19.000	DCE-50029		14.503	0.314	0.000	0.79		31.8	SURCHARGED
19.001	DCE-50201		14.309	0.420	0.000	1.16		100.7	SURCHARGED
18.001	DCE-50028		13.490	0.104	0.000	0.94		179.0	SURCHARGED
18.002	DCE-50040		13.367	0.095	0.000	1.72		204.4	SURCHARGED
18.003	TAK-50000		13.138	0.681	0.000	0.19		6.0	SURCHARGED
18.004	DCE-50041(FC)		13.143	0.813	0.000	0.13		5.7	SURCHARGED
2.009	TAK-50000		11.303	0.832	0.000	0.71		25.0	SURCHARGED
2.010	DCE-50009		11.207	0.991	0.000	0.77		26.4	SURCHARGED
20.000	DCE-50042		14.286	-0.014	0.000	0.62		8.3	OK
20.001	DCE-50043		14.246	0.045	0.000	1.10		15.2	SURCHARGED
20.002	DCE-50044		14.044	0.014	0.000	1.07		14.5	SURCHARGED
20.003	DCE-50045		13.794	-0.107	0.000	0.52		20.3	OK
20.004	DCE-50046		13.659	-0.081	0.000	0.72		28.2	OK
20.005	DCE-50047		13.471	-0.081	0.000	0.73		27.7	OK
20.006	DCE-50048		13.366	-0.060	0.000	0.86		33.8	OK
20.007	DCE-50049		13.202	-0.055	0.000	0.86		54.6	OK
21.000	DCE-50051		14.217	-0.095	0.000	0.29		8.1	OK
21.001	DCE-50052		13.569	-0.067	0.000	0.59		16.3	OK

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.000	DCE-50054		14.295	0.008	0.000	0.53		7.2	SURCHARGED

PN	US/MH Name	Level Exceeded
2.004	DCE-50005	
11.000	DCE-50025	
2.005	DCE-50006	
12.000	DCE-50026	
12.001	DCE-50027	
13.000	DCE-50016	5
13.001	DCE-50017	
13.002	DCE-50030	3
14.000	DCE-50034	2
13.003	DCE-50031	
15.000	DCE-50035	
13.004	DCE-50032	
16.000	DCE-50168	
16.001	DCE-50036	
13.005	DCE-50033	
2.006	DCE-50007	
2.007	TAK-50005	
2.008	DCE-50300(FC)	
17.000	DCE-50289	5
17.001	DCE-50018	
17.002	DCE-50290	
17.003	DCE-50291	
17.004	DCE-50292	
17.005	DCE-50293	
17.006	DCE-50008	
17.007	TAK-50004	
17.008	DCE-50301(FC)	
18.000	DCE-50134	11
19.000	DCE-50029	3
19.001	DCE-50201	1
18.001	DCE-50028	
18.002	DCE-50040	
18.003	TAK-50000	
18.004	DCE-50041(FC)	
2.009	TAK-50000	
2.010	DCE-50009	
20.000	DCE-50042	
20.001	DCE-50043	
20.002	DCE-50044	
20.003	DCE-50045	

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

PN	US/MH Name	Level Exceeded
20.004	DCE-50046	
20.005	DCE-50047	
20.006	DCE-50048	
20.007	DCE-50049	
21.000	DCE-50051	
21.001	DCE-50052	
22.000	DCE-50054	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
22.001	DCE-50055	15 Winter	30	+0%	30/15 Summer		
23.000	DCE-50138	15 Winter	30	+0%	100/15 Summer		
22.002	DCE-50056	15 Winter	30	+0%	30/15 Summer		
22.003	DCE-50057	15 Winter	30	+0%			
24.000	DCE-50058	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
24.001	DCE-50059	15 Winter	30	+0%	30/15 Summer		
25.000	DCE-50120	15 Winter	30	+0%	30/15 Summer		
24.002	DCE-50060	15 Winter	30	+0%	30/15 Summer		
24.003	DCE-50061	15 Winter	30	+0%	100/15 Summer		
24.004	DCE-50062	15 Winter	30	+0%	30/15 Winter		
24.005	DCE-50063	15 Winter	30	+0%	30/15 Summer		
24.006	DCE-50064	15 Winter	30	+0%	30/15 Summer		
24.007	DCE-50065	15 Winter	30	+0%	30/15 Summer		
21.002	DCE-50053	15 Winter	30	+0%	30/15 Summer		
20.008	DCE-50050	15 Winter	30	+0%	30/15 Summer		
20.009	TAK-50001	360 Winter	30	+0%	30/30 Summer		
20.010	DCE-50124(FC)	360 Winter	30	+0%	1/15 Summer		
26.000	DCE-50073	15 Summer	30	+0%	100/15 Summer		
26.001	DCE-50074	15 Summer	30	+0%	30/15 Summer		
26.002	DCE-50075	15 Winter	30	+0%	30/15 Summer		
26.003	DCE-50076	15 Winter	30	+0%	100/15 Summer		
26.004	DCE-50077	15 Winter	30	+0%	100/15 Summer		
27.000	DCE-50066	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
27.001	DCE-50067	15 Winter	30	+0%	30/15 Summer		
27.002	DCE-50068	15 Winter	30	+0%	30/15 Summer		
27.003	DCE-50069	15 Winter	30	+0%	30/15 Summer		
27.004	DCE-50070	15 Winter	30	+0%	100/15 Summer		
28.000	DCE-50126	15 Summer	30	+0%			
29.000	DCE-50165	15 Winter	30	+0%			
29.001	DCE-50166	15 Winter	30	+0%	100/15 Summer		
29.002	DCE-50167	15 Winter	30	+0%	100/15 Summer		
27.005	DCE-50071	15 Winter	30	+0%	30/15 Winter		
30.000	DCE-50078	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
30.001	DCE-50079	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
30.002	DCE-50080	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
30.003	DCE-50081	15 Winter	30	+0%	30/15 Winter		
30.004	DCE-50082	15 Winter	30	+0%	30/15 Summer		
31.000	DCE-50084	15 Summer	30	+0%	100/15 Summer	100/15 Summer	
31.001	DCE-50085	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
31.002	DCE-50086	15 Winter	30	+0%	30/15 Summer		
31.003	DCE-50087	15 Winter	30	+0%	100/15 Summer		
31.004	DCE-50088	15 Winter	30	+0%	30/15 Summer		
32.000	DCE-50156	15 Summer	30	+0%			
31.005	DCE-50089	15 Winter	30	+0%	30/15 Summer		
30.005	DCE-50071	15 Winter	30	+0%	30/15 Summer		
26.005	DCE-50072	15 Winter	30	+0%	30/15 Summer		
26.006	TAK-50002	360 Winter	30	+0%	30/60 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.001	DCE-50055		14.264	0.087	0.000	1.01		13.9	SURCHARGED
23.000	DCE-50138		14.568	-0.057	0.000	0.90		37.2	OK
22.002	DCE-50056		14.064	0.084	0.000	1.39		51.5	SURCHARGED
22.003	DCE-50057		13.753	-0.130	0.000	0.37		51.6	OK
24.000	DCE-50058		14.352	0.152	0.000	0.52		7.0	SURCHARGED
24.001	DCE-50059		14.322	0.230	0.000	1.04		14.4	SURCHARGED
25.000	DCE-50120		14.143	0.043	0.000	0.45		9.5	SURCHARGED
24.002	DCE-50060		14.107	0.207	0.000	1.67		22.4	SURCHARGED
24.003	DCE-50061		13.723	-0.064	0.000	0.72		28.3	OK
24.004	DCE-50062		13.634	0.037	0.000	0.83		32.2	SURCHARGED
24.005	DCE-50063		13.524	0.086	0.000	0.87		33.3	SURCHARGED
24.006	DCE-50064		13.447	0.143	0.000	0.96		37.7	SURCHARGED
24.007	DCE-50065		13.338	0.210	0.000	1.35		53.0	SURCHARGED
21.002	DCE-50053		13.005	0.048	0.000	0.64		141.3	SURCHARGED
20.008	DCE-50050		12.869	0.071	0.000	1.34		196.4	SURCHARGED
20.009	TAK-50001		12.267	0.268	0.000	0.06		4.6	SURCHARGED
20.010	DCE-50124(FC)		12.273	0.586	0.000	0.08		4.1	SURCHARGED
26.000	DCE-50073		14.447	-0.036	0.000	0.59		8.0	OK
26.001	DCE-50074		14.404	0.041	0.000	1.10		15.1	SURCHARGED
26.002	DCE-50075		14.207	0.012	0.000	1.06		14.4	SURCHARGED
26.003	DCE-50076		13.952	-0.106	0.000	0.53		21.0	OK
26.004	DCE-50077		13.791	-0.086	0.000	0.67		43.4	OK
27.000	DCE-50066		14.536	0.047	0.000	0.60		8.0	SURCHARGED
27.001	DCE-50067		14.505	0.128	0.000	1.02		14.1	SURCHARGED
27.002	DCE-50068		14.345	0.132	0.000	0.99		13.5	SURCHARGED
27.003	DCE-50069		14.212	0.140	0.000	1.35		18.6	SURCHARGED
27.004	DCE-50070		13.801	-0.110	0.000	0.51		25.1	OK
28.000	DCE-50126		14.205	-0.095	0.000	0.29		11.2	OK
29.000	DCE-50165		14.649	-0.151	0.000	0.23		16.4	OK
29.001	DCE-50166		13.904	-0.124	0.000	0.40		16.1	OK
29.002	DCE-50167		13.658	-0.062	0.000	0.45		16.7	OK
27.005	DCE-50071		13.631	0.010	0.000	0.94		48.3	SURCHARGED
30.000	DCE-50078		14.739	0.255	0.000	0.54		7.3	SURCHARGED
30.001	DCE-50079		14.703	0.337	0.000	1.06		14.6	SURCHARGED
30.002	DCE-50080		14.505	0.306	0.000	1.79		24.3	SURCHARGED
30.003	DCE-50081		14.070	0.001	0.000	0.87		34.1	SURCHARGED
30.004	DCE-50082		13.930	0.042	0.000	0.93		57.2	SURCHARGED
31.000	DCE-50084		14.428	-0.016	0.000	0.62		8.3	OK
31.001	DCE-50085		14.391	0.039	0.000	1.07		14.9	SURCHARGED
31.002	DCE-50086		14.169	0.010	0.000	1.07		14.4	SURCHARGED
31.003	DCE-50087		13.972	-0.080	0.000	0.51		20.1	OK
31.004	DCE-50088		13.916	0.070	0.000	0.73		28.9	SURCHARGED
32.000	DCE-50156		14.653	-0.147	0.000	0.26		39.2	OK
31.005	DCE-50089		13.823	0.172	0.000	1.20		56.2	SURCHARGED
30.005	DCE-50071		13.546	0.086	0.000	0.76		128.4	SURCHARGED
26.005	DCE-50072		13.442	0.047	0.000	1.27		214.9	SURCHARGED

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.006	TAK-50002		12.714	0.149	0.000	0.03		5.3	SURCHARGED

PN	US/MH Name	Level Exceeded
22.001	DCE-50055	
23.000	DCE-50138	
22.002	DCE-50056	
22.003	DCE-50057	
24.000	DCE-50058	4
24.001	DCE-50059	
25.000	DCE-50120	
24.002	DCE-50060	
24.003	DCE-50061	
24.004	DCE-50062	
24.005	DCE-50063	
24.006	DCE-50064	
24.007	DCE-50065	
21.002	DCE-50053	
20.008	DCE-50050	
20.009	TAK-50001	
20.010	DCE-50124(FC)	
26.000	DCE-50073	
26.001	DCE-50074	
26.002	DCE-50075	
26.003	DCE-50076	
26.004	DCE-50077	
27.000	DCE-50066	3
27.001	DCE-50067	
27.002	DCE-50068	
27.003	DCE-50069	
27.004	DCE-50070	
28.000	DCE-50126	
29.000	DCE-50165	
29.001	DCE-50166	
29.002	DCE-50167	
27.005	DCE-50071	
30.000	DCE-50078	4
30.001	DCE-50079	3
30.002	DCE-50080	1
30.003	DCE-50081	
30.004	DCE-50082	
31.000	DCE-50084	2
31.001	DCE-50085	2
31.002	DCE-50086	

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

PN	US/MH Name	Level Exceeded
31.003	DCE-50087	
31.004	DCE-50088	
32.000	DCE-50156	
31.005	DCE-50089	
30.005	DCE-50071	
26.005	DCE-50072	
26.006	TAK-50002	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
26.007	DCE-50076(FC)	360 Winter	30	+0%	1/15 Summer		
2.011	DCE-50010	480 Winter	30	+0%	2/120 Winter		
33.000	DCE-50115	15 Summer	30	+0%	100/15 Summer		
33.001	DCE-50116	15 Summer	30	+0%	30/15 Summer		
33.002	DCE-50117	15 Winter	30	+0%	30/15 Summer		
33.003	DCE-50118	15 Summer	30	+0%	100/120 Winter		
33.004	DCE-50119	15 Summer	30	+0%	100/120 Winter		
34.000	DCE-50110	15 Winter	30	+0%	100/15 Summer	100/15 Summer	
34.001	DCE-50111	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
34.002	DCE-50112	15 Winter	30	+0%	30/15 Summer		
35.000	DCE-50143	15 Summer	30	+0%	100/240 Winter		
34.003	DCE-50113	15 Winter	30	+0%	30/15 Summer		
34.004	DCE-50114	15 Winter	30	+0%	30/15 Summer		
36.000	DCE-50101	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
36.001	DCE-50102	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
37.000	DCE-50121	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
36.002	DCE-50103	15 Winter	30	+0%	30/15 Summer		
36.003	DCE-50104	15 Winter	30	+0%	100/15 Summer		
36.004	DCE-50105	15 Winter	30	+0%	100/15 Summer		
38.000	DCE-50109	15 Summer	30	+0%	100/240 Winter		
36.005	DCE-50106	15 Winter	30	+0%	30/15 Summer		
34.005	DCE-50107	15 Winter	30	+0%	30/15 Summer		
33.005	DCE-50108	360 Winter	30	+0%	100/15 Summer		
39.000	DCE-50096	15 Summer	30	+0%	100/15 Summer		
39.001	DCE-50097	15 Summer	30	+0%	100/15 Summer		
39.002	DCE-50098	15 Summer	30	+0%	100/15 Summer		
40.000	DCE-50099	15 Summer	30	+0%	100/15 Summer		
40.001	DCE-50100	15 Summer	30	+0%	100/15 Summer		
41.000	DCE-50127	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
41.001	DCE-50128	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
42.000	DCE-50090	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
42.001	DCE-50091	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
42.002	DCE-50092	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
41.002	DCE-50093	15 Winter	30	+0%	30/15 Summer		
43.000	DCE-50154	15 Winter	30	+0%	100/360 Winter		
41.003	DCE-50094	15 Winter	30	+0%	30/15 Summer		
39.003	DCE-50095	15 Winter	30	+0%	100/15 Summer		
33.006	TAK-50003	360 Winter	30	+0%	2/120 Winter		
33.007	DCE-50122(FC)	60 Winter	30	+0%	1/15 Summer		
33.008	DCE-50123	15 Winter	30	+0%	100/120 Winter		
2.012	DCE-50011	480 Winter	30	+0%	1/240 Winter		
2.013	DCE-50012	480 Winter	30	+0%	1/240 Winter		
2.014	PUMP	480 Winter	30	+0%	1/15 Summer		
2.015	DCE-50169	960 Summer	30	+0%			

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.007	DCE-50076(FC)		12.736	0.586	0.000	0.11		4.7	SURCHARGED
2.011	DCE-50010		11.145	1.081	0.000	0.87		35.5	SURCHARGED
33.000	DCE-50115		14.200	-0.016	0.000	0.56		7.3	OK
33.001	DCE-50116		14.171	0.042	0.000	1.08		15.0	SURCHARGED
33.002	DCE-50117		13.955	0.010	0.000	1.06		14.3	SURCHARGED
33.003	DCE-50118		13.710	-0.106	0.000	0.53		20.7	OK
33.004	DCE-50119		13.527	-0.108	0.000	0.52		46.2	OK
34.000	DCE-50110		14.200	-0.010	0.000	0.59		7.8	OK
34.001	DCE-50111		14.175	0.052	0.000	0.91		15.4	SURCHARGED
34.002	DCE-50112		14.033	0.189	0.000	0.85		14.1	SURCHARGED
35.000	DCE-50143		14.517	-0.128	0.000	0.37		41.3	OK
34.003	DCE-50113		13.934	0.280	0.000	1.18		57.1	SURCHARGED
34.004	DCE-50114		13.549	0.177	0.000	1.09		60.9	SURCHARGED
36.000	DCE-50101		14.575	0.185	0.000	0.62		8.1	SURCHARGED
36.001	DCE-50102		14.549	0.230	0.000	0.70		14.2	SURCHARGED
37.000	DCE-50121		14.657	0.475	0.000	1.16		16.0	SURCHARGED
36.002	DCE-50103		14.402	0.412	0.000	1.71		28.6	SURCHARGED
36.003	DCE-50104		13.693	-0.082	0.000	0.71		33.7	OK
36.004	DCE-50105		13.535	-0.011	0.000	0.79		38.3	OK
38.000	DCE-50109		14.102	-0.098	0.000	0.26		11.2	OK
36.005	DCE-50106		13.348	0.096	0.000	0.96		45.6	SURCHARGED
34.005	DCE-50107		13.159	0.123	0.000	1.23		122.4	SURCHARGED
33.005	DCE-50108		12.680	-0.098	0.000	0.17		28.1	OK
39.000	DCE-50096		14.306	-0.066	0.000	0.60		8.1	OK
39.001	DCE-50097		14.232	-0.033	0.000	0.95		16.0	OK
39.002	DCE-50098		13.994	-0.052	0.000	0.75		15.9	OK
40.000	DCE-50099		14.246	-0.065	0.000	0.61		8.1	OK
40.001	DCE-50100		14.127	-0.090	0.000	0.67		44.9	OK
41.000	DCE-50127		15.032	0.436	0.000	0.59		23.6	SURCHARGED
41.001	DCE-50128		14.958	0.637	0.000	1.10		43.5	SURCHARGED
42.000	DCE-50090		14.887	0.284	0.000	0.30		10.5	SURCHARGED
42.001	DCE-50091		14.875	0.338	0.000	0.33		14.6	SURCHARGED
42.002	DCE-50092		14.853	0.445	0.000	0.75		37.4	SURCHARGED
41.002	DCE-50093		14.708	0.584	0.000	1.24		92.4	SURCHARGED
43.000	DCE-50154		14.618	-0.095	0.000	0.62		48.4	OK
41.003	DCE-50094		14.208	0.380	0.000	1.93		153.4	SURCHARGED
39.003	DCE-50095		13.297	-0.136	0.000	0.81		201.0	OK
33.006	TAK-50003		12.680	0.580	0.000	0.12		15.5	SURCHARGED
33.007	DCE-50122(FC)		12.703	0.938	0.000	0.67		9.0	SURCHARGED
33.008	DCE-50123		11.581	-0.083	0.000	0.40		14.9	OK
2.012	DCE-50011		10.929	1.256	0.000	0.61		44.1	SURCHARGED
2.013	DCE-50012		10.830	1.357	0.000	0.60		42.8	SURCHARGED
2.014	PUMP		10.732	1.757	0.000	2.41		38.0	SURCHARGED
2.015	DCE-50169		13.655	-0.329	0.000	0.16		38.0	OK

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

PN	US/MH Name	Level Exceeded
26.007	DCE-50076(FC)	
2.011	DCE-50010	
33.000	DCE-50115	
33.001	DCE-50116	
33.002	DCE-50117	
33.003	DCE-50118	
33.004	DCE-50119	
34.000	DCE-50110	3
34.001	DCE-50111	1
34.002	DCE-50112	
35.000	DCE-50143	
34.003	DCE-50113	
34.004	DCE-50114	
36.000	DCE-50101	4
36.001	DCE-50102	2
37.000	DCE-50121	4
36.002	DCE-50103	
36.003	DCE-50104	
36.004	DCE-50105	
38.000	DCE-50109	
36.005	DCE-50106	
34.005	DCE-50107	
33.005	DCE-50108	
39.000	DCE-50096	
39.001	DCE-50097	
39.002	DCE-50098	
40.000	DCE-50099	
40.001	DCE-50100	
41.000	DCE-50127	5
41.001	DCE-50128	4
42.000	DCE-50090	4
42.001	DCE-50091	1
42.002	DCE-50092	4
41.002	DCE-50093	
43.000	DCE-50154	
41.003	DCE-50094	
39.003	DCE-50095	
33.006	TAK-50003	
33.007	DCE-50122(FC)	
33.008	DCE-50123	
2.012	DCE-50011	
2.013	DCE-50012	
2.014	PUMP	
2.015	DCE-50169	

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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	14
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.900
M5-60 (mm)	19.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.000	DCE-50021	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
3.000	DCE-50159	15 Winter	100	+30%	30/15 Winter	100/15 Summer		
2.001	DCE-50022	15 Winter	100	+30%	30/15 Summer			
4.000	DCE-50019	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
2.002	DCE-50021	15 Winter	100	+30%	30/15 Summer			
5.000	DCE-50000	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
6.000	DCE-50130	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
5.001	DCE-50001	15 Winter	100	+30%	30/15 Summer			
7.000	DCE-50015	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
5.002	DCE-50002	15 Winter	100	+30%	30/15 Summer			
8.000	DCE-50014	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
5.003	DCE-50003	15 Winter	100	+30%	30/15 Summer			
2.003	DCE-50004	15 Winter	100	+30%	30/15 Summer			
9.000	DCE-50037	15 Winter	100	+30%	100/15 Summer	100/15 Summer		
9.001	DCE-50038	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
9.002	DCE-50039	15 Winter	100	+30%	30/15 Summer			
10.000	DCE-50023	15 Winter	100	+30%	100/15 Summer			
9.003	DCE-50024	15 Winter	100	+30%	30/15 Summer			

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.000	DCE-50021	15.093	0.911	11.398	1.49		60.7	FLOOD	5
3.000	DCE-50159	15.008	0.459	8.507	1.20		44.1	FLOOD	4
2.001	DCE-50022	15.082	1.248	0.000	1.35		97.8	FLOOD RISK	
4.000	DCE-50019	15.212	0.912	12.454	1.25		91.9	FLOOD	5
2.002	DCE-50021	15.005	1.364	0.000	1.03		174.9	FLOOD RISK	
5.000	DCE-50000	15.394	1.200	0.371	1.21		16.8	FLOOD	2
6.000	DCE-50130	15.137	0.506	6.054	1.19		36.7	FLOOD	4
5.001	DCE-50001	15.256	1.293	0.000	1.36		52.1	FLOOD RISK	
7.000	DCE-50015	15.414	1.189	7.629	1.86		33.6	FLOOD	5
5.002	DCE-50002	15.169	1.341	0.000	1.26		84.3	FLOOD RISK	
8.000	DCE-50014	15.203	1.203	3.503	1.25		58.1	FLOOD	4
5.003	DCE-50003	15.086	1.345	0.000	0.52		127.6	FLOOD RISK	
2.003	DCE-50004	14.961	1.410	0.000	0.94		265.5	FLOOD RISK	
9.000	DCE-50037	15.351	1.201	0.781	1.04		21.1	FLOOD	4
9.001	DCE-50038	15.101	1.299	2.602	1.44		57.0	FLOOD	4
9.002	DCE-50039	15.005	1.411	0.000	1.51		56.7	FLOOD RISK	
10.000	DCE-50023	15.061	0.911	0.000	0.47		17.2	FLOOD RISK	
9.003	DCE-50024	14.888	1.401	0.000	0.86		63.5	FLOOD RISK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
2.004	DCE-50005	480 Winter	100	+30%	30/15 Summer		
11.000	DCE-50025	480 Winter	100	+30%	100/360 Winter		
2.005	DCE-50006	480 Winter	100	+30%	30/15 Summer		
12.000	DCE-50026	15 Winter	100	+30%	100/15 Summer		
12.001	DCE-50027	480 Winter	100	+30%	100/15 Summer		
13.000	DCE-50016	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
13.001	DCE-50017	15 Summer	100	+30%	30/15 Summer		
13.002	DCE-50030	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
14.000	DCE-50034	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
13.003	DCE-50031	480 Winter	100	+30%	100/15 Summer		
15.000	DCE-50035	480 Winter	100	+30%	100/15 Summer		
13.004	DCE-50032	480 Winter	100	+30%	100/15 Summer		
16.000	DCE-50168	480 Winter	100	+30%	30/15 Summer		
16.001	DCE-50036	480 Winter	100	+30%	100/15 Summer		
13.005	DCE-50033	480 Winter	100	+30%	100/15 Summer		
2.006	DCE-50007	480 Winter	100	+30%	1/15 Summer		
2.007	TAK-50005	480 Winter	100	+30%	30/30 Winter		
2.008	DCE-50300(FC)	480 Winter	100	+30%	1/30 Winter		
17.000	DCE-50289	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
17.001	DCE-50018	15 Summer	100	+30%	30/15 Summer		
17.002	DCE-50290	15 Summer	100	+30%	30/15 Summer		
17.003	DCE-50291	15 Winter	100	+30%	30/15 Summer		
17.004	DCE-50292	15 Summer	100	+30%	30/15 Summer		
17.005	DCE-50293	15 Summer	100	+30%	30/15 Summer		
17.006	DCE-50008	960 Winter	100	+30%	100/15 Winter		
17.007	TAK-50004	960 Winter	100	+30%	30/15 Summer		
17.008	DCE-50301(FC)	960 Winter	100	+30%	1/15 Summer		
18.000	DCE-50134	240 Winter	100	+30%	100/15 Summer	100/60 Winter	
19.000	DCE-50029	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
19.001	DCE-50201	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
18.001	DCE-50028	120 Winter	100	+30%	30/15 Summer		
18.002	DCE-50040	120 Winter	100	+30%	30/15 Summer		
18.003	TAK-50000	120 Winter	100	+30%	1/30 Winter		
18.004	DCE-50041(FC)	120 Winter	100	+30%	1/15 Summer		
2.009	TAK-50000	480 Winter	100	+30%	2/240 Winter		
2.010	DCE-50009	480 Winter	100	+30%	2/120 Winter		
20.000	DCE-50042	15 Winter	100	+30%	100/15 Summer		
20.001	DCE-50043	15 Winter	100	+30%	30/15 Summer		
20.002	DCE-50044	15 Winter	100	+30%	30/15 Summer		
20.003	DCE-50045	15 Winter	100	+30%	100/15 Summer		
20.004	DCE-50046	15 Winter	100	+30%	100/15 Summer		
20.005	DCE-50047	15 Winter	100	+30%	100/15 Summer		
20.006	DCE-50048	15 Winter	100	+30%	100/15 Summer		
20.007	DCE-50049	15 Winter	100	+30%	100/15 Summer		
21.000	DCE-50051	15 Summer	100	+30%			
21.001	DCE-50052	15 Winter	100	+30%	100/15 Summer		
22.000	DCE-50054	15 Winter	100	+30%	30/15 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
2.004	DCE-50005		14.864	1.651	0.000	0.27		78.3	FLOOD RISK
11.000	DCE-50025		14.862	0.612	0.000	0.03		4.0	SURCHARGED
2.005	DCE-50006		14.861	2.027	0.000	0.31		88.2	SURCHARGED
12.000	DCE-50026		15.267	1.117	0.000	1.60		79.8	FLOOD RISK
12.001	DCE-50027		14.860	1.165	0.000	0.10		16.8	SURCHARGED
13.000	DCE-50016		15.318	1.218	18.009	2.32		73.0	FLOOD
13.001	DCE-50017		15.349	1.299	0.000	1.87		70.8	FLOOD RISK
13.002	DCE-50030		15.393	1.381	4.185	2.00		150.8	FLOOD
14.000	DCE-50034		15.433	1.185	0.860	1.22		42.0	FLOOD
13.003	DCE-50031		14.861	1.275	0.000	0.19		32.1	SURCHARGED
15.000	DCE-50035		14.863	0.715	0.000	0.12		6.6	SURCHARGED
13.004	DCE-50032		14.861	1.343	0.000	0.17		38.7	SURCHARGED
16.000	DCE-50168		14.862	0.820	0.000	0.23		2.9	SURCHARGED
16.001	DCE-50036		14.861	0.871	0.000	0.13		7.2	SURCHARGED
13.005	DCE-50033		14.859	1.538	0.000	0.09		45.9	SURCHARGED
2.006	DCE-50007		14.857	2.418	0.000	0.67		152.5	SURCHARGED
2.007	TAK-50005		14.856	3.831	0.000	0.11		29.1	SURCHARGED
2.008	DCE-50300(FC)		14.855	4.235	0.000	0.42		14.5	SURCHARGED
17.000	DCE-50289		15.347	1.227	27.098	1.32		132.0	FLOOD
17.001	DCE-50018		15.175	1.326	0.000	1.45		138.7	FLOOD RISK
17.002	DCE-50290		14.963	1.297	0.000	1.56		161.2	SURCHARGED
17.003	DCE-50291		14.048	0.772	0.000	1.60		158.4	SURCHARGED
17.004	DCE-50292		13.411	0.384	0.000	1.23		268.1	SURCHARGED
17.005	DCE-50293		13.153	0.282	0.000	1.98		319.8	SURCHARGED
17.006	DCE-50008		13.050	0.278	0.000	0.12		28.5	SURCHARGED
17.007	TAK-50004		13.049	1.560	0.000	0.04		6.7	SURCHARGED
17.008	DCE-50301(FC)		13.074	1.924	0.000	0.13		5.6	SURCHARGED
18.000	DCE-50134		15.091	0.866	65.592	0.16		15.9	FLOOD
19.000	DCE-50029		15.395	1.206	6.292	1.73		70.0	FLOOD
19.001	DCE-50201		15.396	1.507	0.058	1.68		146.0	FLOOD
18.001	DCE-50028		15.182	1.796	0.000	0.54		102.7	FLOOD RISK
18.002	DCE-50040		15.183	1.911	0.000	0.99		117.5	FLOOD RISK
18.003	TAK-50000		15.182	2.725	0.000	0.70		22.4	FLOOD RISK
18.004	DCE-50041(FC)		15.175	2.845	0.000	0.23		9.8	FLOOD RISK
2.009	TAK-50000		13.002	2.531	0.000	0.75		26.2	SURCHARGED
2.010	DCE-50009		12.890	2.674	0.000	0.79		27.0	SURCHARGED
20.000	DCE-50042		15.174	0.874	0.000	0.95		12.6	FLOOD RISK
20.001	DCE-50043		15.102	0.901	0.000	1.73		23.7	FLOOD RISK
20.002	DCE-50044		14.670	0.640	0.000	1.63		22.2	SURCHARGED
20.003	DCE-50045		14.345	0.444	0.000	0.79		30.8	SURCHARGED
20.004	DCE-50046		14.239	0.499	0.000	1.03		40.7	SURCHARGED
20.005	DCE-50047		14.020	0.468	0.000	1.08		41.0	SURCHARGED
20.006	DCE-50048		13.896	0.470	0.000	1.27		49.5	SURCHARGED
20.007	DCE-50049		13.678	0.421	0.000	1.16		74.1	SURCHARGED
21.000	DCE-50051		14.237	-0.075	0.000	0.50		13.7	OK
21.001	DCE-50052		13.745	0.109	0.000	0.91		25.0	SURCHARGED

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.000	DCE-50054		14.959	0.672	0.000	0.87		11.8	FLOOD RISK

PN	US/MH Name	Level Exceeded
2.004	DCE-50005	
11.000	DCE-50025	
2.005	DCE-50006	
12.000	DCE-50026	
12.001	DCE-50027	
13.000	DCE-50016	5
13.001	DCE-50017	
13.002	DCE-50030	3
14.000	DCE-50034	2
13.003	DCE-50031	
15.000	DCE-50035	
13.004	DCE-50032	
16.000	DCE-50168	
16.001	DCE-50036	
13.005	DCE-50033	
2.006	DCE-50007	
2.007	TAK-50005	
2.008	DCE-50300(FC)	
17.000	DCE-50289	5
17.001	DCE-50018	
17.002	DCE-50290	
17.003	DCE-50291	
17.004	DCE-50292	
17.005	DCE-50293	
17.006	DCE-50008	
17.007	TAK-50004	
17.008	DCE-50301(FC)	
18.000	DCE-50134	11
19.000	DCE-50029	3
19.001	DCE-50201	1
18.001	DCE-50028	
18.002	DCE-50040	
18.003	TAK-50000	
18.004	DCE-50041(FC)	
2.009	TAK-50000	
2.010	DCE-50009	
20.000	DCE-50042	
20.001	DCE-50043	
20.002	DCE-50044	
20.003	DCE-50045	

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

PN	US/MH Name	Level Exceeded
20.004	DCE-50046	
20.005	DCE-50047	
20.006	DCE-50048	
20.007	DCE-50049	
21.000	DCE-50051	
21.001	DCE-50052	
22.000	DCE-50054	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
22.001	DCE-50055	15 Winter	100	+30%	30/15 Summer		
23.000	DCE-50138	15 Winter	100	+30%	100/15 Summer		
22.002	DCE-50056	15 Winter	100	+30%	30/15 Summer		
22.003	DCE-50057	15 Winter	100	+30%			
24.000	DCE-50058	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
24.001	DCE-50059	15 Winter	100	+30%	30/15 Summer		
25.000	DCE-50120	15 Winter	100	+30%	30/15 Summer		
24.002	DCE-50060	15 Winter	100	+30%	30/15 Summer		
24.003	DCE-50061	15 Winter	100	+30%	100/15 Summer		
24.004	DCE-50062	15 Winter	100	+30%	30/15 Winter		
24.005	DCE-50063	15 Winter	100	+30%	30/15 Summer		
24.006	DCE-50064	15 Winter	100	+30%	30/15 Summer		
24.007	DCE-50065	15 Winter	100	+30%	30/15 Summer		
21.002	DCE-50053	15 Winter	100	+30%	30/15 Summer		
20.008	DCE-50050	15 Winter	100	+30%	30/15 Summer		
20.009	TAK-50001	960 Winter	100	+30%	30/30 Summer		
20.010	DCE-50124(FC)	960 Winter	100	+30%	1/15 Summer		
26.000	DCE-50073	15 Winter	100	+30%	100/15 Summer		
26.001	DCE-50074	15 Winter	100	+30%	30/15 Summer		
26.002	DCE-50075	15 Winter	100	+30%	30/15 Summer		
26.003	DCE-50076	15 Winter	100	+30%	100/15 Summer		
26.004	DCE-50077	15 Winter	100	+30%	100/15 Summer		
27.000	DCE-50066	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
27.001	DCE-50067	15 Winter	100	+30%	30/15 Summer		
27.002	DCE-50068	15 Winter	100	+30%	30/15 Summer		
27.003	DCE-50069	15 Winter	100	+30%	30/15 Summer		
27.004	DCE-50070	15 Winter	100	+30%	100/15 Summer		
28.000	DCE-50126	15 Summer	100	+30%			
29.000	DCE-50165	15 Winter	100	+30%			
29.001	DCE-50166	15 Winter	100	+30%	100/15 Summer		
29.002	DCE-50167	15 Winter	100	+30%	100/15 Summer		
27.005	DCE-50071	15 Winter	100	+30%	30/15 Winter		
30.000	DCE-50078	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
30.001	DCE-50079	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
30.002	DCE-50080	15 Summer	100	+30%	30/15 Summer	100/15 Summer	
30.003	DCE-50081	15 Winter	100	+30%	30/15 Winter		
30.004	DCE-50082	15 Winter	100	+30%	30/15 Summer		
31.000	DCE-50084	15 Winter	100	+30%	100/15 Summer	100/15 Summer	
31.001	DCE-50085	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
31.002	DCE-50086	15 Winter	100	+30%	30/15 Summer		
31.003	DCE-50087	15 Winter	100	+30%	100/15 Summer		
31.004	DCE-50088	15 Winter	100	+30%	30/15 Summer		
32.000	DCE-50156	15 Winter	100	+30%			
31.005	DCE-50089	15 Winter	100	+30%	30/15 Summer		
30.005	DCE-50071	15 Winter	100	+30%	30/15 Summer		
26.005	DCE-50072	15 Winter	100	+30%	30/15 Summer		
26.006	TAK-50002	480 Winter	100	+30%	30/60 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
22.001	DCE-50055		14.868	0.691	0.000	1.79		24.8	SURCHARGED
23.000	DCE-50138		14.639	0.014	0.000	1.05		43.3	SURCHARGED
22.002	DCE-50056		14.191	0.211	0.000	1.80		66.8	SURCHARGED
22.003	DCE-50057		13.768	-0.115	0.000	0.48		67.0	OK
24.000	DCE-50058		15.102	0.902	2.216	1.26		16.9	FLOOD
24.001	DCE-50059		15.153	1.061	0.000	1.47		20.4	FLOOD RISK
25.000	DCE-50120		15.180	1.080	0.000	0.64		13.4	FLOOD RISK
24.002	DCE-50060		15.094	1.194	0.000	1.98		26.7	FLOOD RISK
24.003	DCE-50061		14.761	0.974	0.000	0.93		36.5	SURCHARGED
24.004	DCE-50062		14.616	1.019	0.000	1.12		43.7	SURCHARGED
24.005	DCE-50063		14.415	0.977	0.000	1.17		44.8	SURCHARGED
24.006	DCE-50064		14.263	0.959	0.000	1.37		53.7	SURCHARGED
24.007	DCE-50065		13.995	0.867	0.000	2.12		83.0	SURCHARGED
21.002	DCE-50053		13.182	0.225	0.000	1.00		218.9	SURCHARGED
20.008	DCE-50050		13.018	0.220	0.000	1.98		291.1	SURCHARGED
20.009	TAK-50001		12.846	0.847	0.000	0.06		4.6	SURCHARGED
20.010	DCE-50124(FC)		12.847	1.160	0.000	0.08		4.1	SURCHARGED
26.000	DCE-50073		15.343	0.860	0.000	0.85		11.5	FLOOD RISK
26.001	DCE-50074		15.261	0.897	0.000	1.68		23.1	FLOOD RISK
26.002	DCE-50075		14.796	0.601	0.000	1.72		23.4	SURCHARGED
26.003	DCE-50076		14.417	0.359	0.000	0.86		33.6	SURCHARGED
26.004	DCE-50077		14.285	0.408	0.000	1.03		66.5	SURCHARGED
27.000	DCE-50066		15.390	0.901	0.916	1.00		13.4	FLOOD
27.001	DCE-50067		15.375	0.998	0.000	1.51		20.8	FLOOD RISK
27.002	DCE-50068		15.138	0.925	0.000	1.45		19.8	FLOOD RISK
27.003	DCE-50069		14.923	0.851	0.000	2.13		29.2	SURCHARGED
27.004	DCE-50070		14.264	0.352	0.000	0.76		37.7	SURCHARGED
28.000	DCE-50126		14.224	-0.076	0.000	0.48		18.9	OK
29.000	DCE-50165		14.673	-0.127	0.000	0.39		27.6	OK
29.001	DCE-50166		14.242	0.214	0.000	0.58		23.6	SURCHARGED
29.002	DCE-50167		14.128	0.409	0.000	0.71		26.4	SURCHARGED
27.005	DCE-50071		14.092	0.471	0.000	1.38		70.9	SURCHARGED
30.000	DCE-50078		15.387	0.903	3.191	1.52		20.6	FLOOD
30.001	DCE-50079		15.412	1.046	0.976	1.70		23.4	FLOOD
30.002	DCE-50080		15.421	1.222	0.016	2.01		27.3	FLOOD
30.003	DCE-50081		15.026	0.958	0.000	1.18		46.3	SURCHARGED
30.004	DCE-50082		14.789	0.901	0.000	1.51		92.4	SURCHARGED
31.000	DCE-50084		15.345	0.901	0.769	1.09		14.5	FLOOD
31.001	DCE-50085		15.324	0.972	0.067	1.50		20.8	FLOOD
31.002	DCE-50086		15.050	0.892	0.000	1.63		21.8	SURCHARGED
31.003	DCE-50087		14.865	0.813	0.000	0.73		29.0	SURCHARGED
31.004	DCE-50088		14.757	0.912	0.000	1.02		40.4	SURCHARGED
32.000	DCE-50156		14.689	-0.111	0.000	0.43		64.3	OK
31.005	DCE-50089		14.547	0.896	0.000	2.00		93.7	SURCHARGED
30.005	DCE-50071		13.786	0.326	0.000	1.24		209.2	SURCHARGED
26.005	DCE-50072		13.656	0.261	0.000	1.98		334.6	SURCHARGED

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.006	TAK-50002		13.257	0.692	0.000	0.03		6.6	SURCHARGED

PN	US/MH Name	Level Exceeded
22.001	DCE-50055	
23.000	DCE-50138	
22.002	DCE-50056	
22.003	DCE-50057	
24.000	DCE-50058	4
24.001	DCE-50059	
25.000	DCE-50120	
24.002	DCE-50060	
24.003	DCE-50061	
24.004	DCE-50062	
24.005	DCE-50063	
24.006	DCE-50064	
24.007	DCE-50065	
21.002	DCE-50053	
20.008	DCE-50050	
20.009	TAK-50001	
20.010	DCE-50124(FC)	
26.000	DCE-50073	
26.001	DCE-50074	
26.002	DCE-50075	
26.003	DCE-50076	
26.004	DCE-50077	
27.000	DCE-50066	3
27.001	DCE-50067	
27.002	DCE-50068	
27.003	DCE-50069	
27.004	DCE-50070	
28.000	DCE-50126	
29.000	DCE-50165	
29.001	DCE-50166	
29.002	DCE-50167	
27.005	DCE-50071	
30.000	DCE-50078	4
30.001	DCE-50079	3
30.002	DCE-50080	1
30.003	DCE-50081	
30.004	DCE-50082	
31.000	DCE-50084	2
31.001	DCE-50085	2
31.002	DCE-50086	

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

PN	US/MH Name	Level Exceeded
31.003	DCE-50087	
31.004	DCE-50088	
32.000	DCE-50156	
31.005	DCE-50089	
30.005	DCE-50071	
26.005	DCE-50072	
26.006	TAK-50002	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
26.007	DCE-50076(FC)	480 Winter	100	+30%	1/15 Summer		
2.011	DCE-50010	480 Winter	100	+30%	2/120 Winter		
33.000	DCE-50115	15 Winter	100	+30%	100/15 Summer		
33.001	DCE-50116	15 Winter	100	+30%	30/15 Summer		
33.002	DCE-50117	360 Winter	100	+30%	30/15 Summer		
33.003	DCE-50118	360 Winter	100	+30%	100/120 Winter		
33.004	DCE-50119	360 Winter	100	+30%	100/120 Winter		
34.000	DCE-50110	15 Winter	100	+30%	100/15 Summer	100/15 Summer	
34.001	DCE-50111	15 Summer	100	+30%	30/15 Summer	100/15 Summer	
34.002	DCE-50112	15 Winter	100	+30%	30/15 Summer		
35.000	DCE-50143	360 Winter	100	+30%	100/240 Winter		
34.003	DCE-50113	360 Winter	100	+30%	30/15 Summer		
34.004	DCE-50114	360 Winter	100	+30%	30/15 Summer		
36.000	DCE-50101	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
36.001	DCE-50102	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
37.000	DCE-50121	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
36.002	DCE-50103	15 Winter	100	+30%	30/15 Summer		
36.003	DCE-50104	360 Winter	100	+30%	100/15 Summer		
36.004	DCE-50105	360 Winter	100	+30%	100/15 Summer		
38.000	DCE-50109	360 Winter	100	+30%	100/240 Winter		
36.005	DCE-50106	360 Winter	100	+30%	30/15 Summer		
34.005	DCE-50107	360 Winter	100	+30%	30/15 Summer		
33.005	DCE-50108	360 Winter	100	+30%	100/15 Summer		
39.000	DCE-50096	15 Summer	100	+30%	100/15 Summer		
39.001	DCE-50097	360 Winter	100	+30%	100/15 Summer		
39.002	DCE-50098	360 Winter	100	+30%	100/15 Summer		
40.000	DCE-50099	360 Winter	100	+30%	100/15 Summer		
40.001	DCE-50100	360 Winter	100	+30%	100/15 Summer		
41.000	DCE-50127	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
41.001	DCE-50128	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
42.000	DCE-50090	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
42.001	DCE-50091	15 Summer	100	+30%	30/15 Summer	100/15 Summer	
42.002	DCE-50092	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
41.002	DCE-50093	15 Summer	100	+30%	30/15 Summer		
43.000	DCE-50154	480 Winter	100	+30%	100/360 Winter		
41.003	DCE-50094	480 Winter	100	+30%	30/15 Summer		
39.003	DCE-50095	480 Winter	100	+30%	100/15 Summer		
33.006	TAK-50003	480 Winter	100	+30%	2/120 Winter		
33.007	DCE-50122(FC)	480 Winter	100	+30%	1/15 Summer		
33.008	DCE-50123	480 Winter	100	+30%	100/120 Winter		
2.012	DCE-50011	480 Winter	100	+30%	1/240 Winter		
2.013	DCE-50012	480 Winter	100	+30%	1/240 Winter		
2.014	PUMP	480 Winter	100	+30%	1/15 Summer		
2.015	DCE-50169	960 Summer	100	+30%			

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
26.007	DCE-50076(FC)		13.281	1.131	0.000	0.13		5.7	SURCHARGED
2.011	DCE-50010		12.819	2.755	0.000	0.89		36.3	SURCHARGED
33.000	DCE-50115		14.890	0.674	0.000	0.87		11.4	FLOOD RISK
33.001	DCE-50116		14.819	0.690	0.000	1.75		24.2	FLOOD RISK
33.002	DCE-50117		14.762	0.818	0.000	0.26		3.5	SURCHARGED
33.003	DCE-50118		14.760	0.943	0.000	0.13		5.3	SURCHARGED
33.004	DCE-50119		14.758	1.124	0.000	0.12		11.1	SURCHARGED
34.000	DCE-50110		15.111	0.901	0.888	0.94		12.4	FLOOD
34.001	DCE-50111		15.104	0.981	0.060	1.11		18.9	FLOOD
34.002	DCE-50112		14.781	0.937	0.000	1.10		18.4	SURCHARGED
35.000	DCE-50143		14.771	0.126	0.000	0.09		9.6	FLOOD RISK
34.003	DCE-50113		14.769	1.114	0.000	0.31		15.0	SURCHARGED
34.004	DCE-50114		14.765	1.393	0.000	0.30		16.8	SURCHARGED
36.000	DCE-50101		15.291	0.901	1.396	1.06		13.7	FLOOD
36.001	DCE-50102		15.286	0.967	0.087	0.99		20.0	FLOOD
37.000	DCE-50121		15.384	1.202	1.823	1.53		21.1	FLOOD
36.002	DCE-50103		15.164	1.174	0.000	2.19		36.7	FLOOD RISK
36.003	DCE-50104		14.771	0.996	0.000	0.20		9.6	SURCHARGED
36.004	DCE-50105		14.768	1.222	0.000	0.24		11.4	SURCHARGED
38.000	DCE-50109		14.765	0.565	0.000	0.06		2.4	SURCHARGED
36.005	DCE-50106		14.764	1.512	0.000	0.29		13.9	SURCHARGED
34.005	DCE-50107		14.760	1.723	0.000	0.37		36.4	SURCHARGED
33.005	DCE-50108		14.755	1.977	0.000	0.28		46.5	SURCHARGED
39.000	DCE-50096		14.762	0.390	0.000	0.96		12.8	SURCHARGED
39.001	DCE-50097		14.759	0.494	0.000	0.21		3.6	SURCHARGED
39.002	DCE-50098		14.757	0.711	0.000	0.17		3.6	SURCHARGED
40.000	DCE-50099		14.758	0.447	0.000	0.13		1.8	SURCHARGED
40.001	DCE-50100		14.757	0.540	0.000	0.15		9.8	SURCHARGED
41.000	DCE-50127		15.501	0.905	5.214	1.27		51.1	FLOOD
41.001	DCE-50128		15.453	1.132	4.292	1.48		58.5	FLOOD
42.000	DCE-50090		15.505	0.902	1.672	0.64		22.4	FLOOD
42.001	DCE-50091		15.499	0.962	0.035	0.59		26.5	FLOOD
42.002	DCE-50092		15.467	1.059	2.470	1.06		52.6	FLOOD
41.002	DCE-50093		15.302	1.178	0.000	1.59		118.4	FLOOD RISK
43.000	DCE-50154		14.758	0.045	0.000	0.12		9.5	SURCHARGED
41.003	DCE-50094		14.758	0.930	0.000	0.44		35.0	SURCHARGED
39.003	DCE-50095		14.754	1.321	0.000	0.18		45.7	SURCHARGED
33.006	TAK-50003		14.754	2.654	0.000	0.17		21.9	SURCHARGED
33.007	DCE-50122(FC)		14.751	2.986	0.000	0.84		11.3	SURCHARGED
33.008	DCE-50123		12.784	1.120	0.000	0.31		11.6	SURCHARGED
2.012	DCE-50011		12.638	2.965	0.000	0.63		45.7	SURCHARGED
2.013	DCE-50012		12.539	3.066	0.000	0.63		45.0	SURCHARGED
2.014	PUMP		12.441	3.466	0.000	2.41		38.0	SURCHARGED
2.015	DCE-50169		13.655	-0.329	0.000	0.16		38.0	OK

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

PN	US/MH Name	Level Exceeded
26.007	DCE-50076(FC)	
2.011	DCE-50010	
33.000	DCE-50115	
33.001	DCE-50116	
33.002	DCE-50117	
33.003	DCE-50118	
33.004	DCE-50119	
34.000	DCE-50110	3
34.001	DCE-50111	1
34.002	DCE-50112	
35.000	DCE-50143	
34.003	DCE-50113	
34.004	DCE-50114	
36.000	DCE-50101	4
36.001	DCE-50102	2
37.000	DCE-50121	4
36.002	DCE-50103	
36.003	DCE-50104	
36.004	DCE-50105	
38.000	DCE-50109	
36.005	DCE-50106	
34.005	DCE-50107	
33.005	DCE-50108	
39.000	DCE-50096	
39.001	DCE-50097	
39.002	DCE-50098	
40.000	DCE-50099	
40.001	DCE-50100	
41.000	DCE-50127	5
41.001	DCE-50128	4
42.000	DCE-50090	4
42.001	DCE-50091	1
42.002	DCE-50092	4
41.002	DCE-50093	
43.000	DCE-50154	
41.003	DCE-50094	
39.003	DCE-50095	
33.006	TAK-50003	
33.007	DCE-50122(FC)	
33.008	DCE-50123	
2.012	DCE-50011	
2.013	DCE-50012	
2.014	PUMP	
2.015	DCE-50169	