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**SOUTH BUCKS**  
District Council

## **Pinewood Community Liaison Group**

**Wednesday, 3 April 2019 at 5.00 pm**

**Room 6 - Capswood, Oxford Road, Denham**

### **SUPPLEMENTARY A G E N D A**

Item

5. Progress from Pinewood (*Pages 3 - 42*)

**Note:** All reports will be updated orally at the meeting if appropriate and may be supplemented by additional reports at the Chairman's discretion.

**If you would like this document in large print or an alternative format, please contact 01895 837236; email [democraticservices@chilternandsouthbucks.gov.uk](mailto:democraticservices@chilternandsouthbucks.gov.uk)**

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1 April 2019

Cllr Nick Naylor  
 Leader  
 South Bucks District Council  
 Capswood  
 Oxford Road  
 Denham  
 Bucks UB9 4LH

### PROGRESS FROM PINWOOD

Further to the PCLG meeting on 14 January 2019, please find below updates on the points raised following discussions with my colleagues.

### SOUTHERN ATTENUATION POND

Members of the PCLG had previously queried if new drainage works had been constructed on land belonging to Pinewood, known as the 'Southern Fields'. A formal response to this was issued by Pinewood demonstrating that the works had been constructed in 2016, at the same time as the main works to Phase One of Pinewood East, which included the Southern Attenuation Pond.

As explained at the previous PCLG we can confirm that the works were completed in accordance with the detailed surface water drainage strategy, approved by the Local Planning Authority under planning application reference 14/01992/REM.

Details of the application are available on the online planning register. Included with that submission was the separate 'Surface Water Technical Note' produced by Arup (enclosed), which makes direct reference to the construction of an emergency spillway in both attenuation bonds (north and south).

The separately enclosed 'Proposed Surface Water Drainage Layout' plan shows the location of the spillway, alongside a plan showing its detailed design (also enclosed).

Most recently the Phase One 'Proposed Surface Water Drainage Layout' was also submitted for information, as part of the Phase Two Reserved Matters Application in relation to the Phase Two surface water drainage strategy which was approved in September 2017.

We trust this now closes out this ongoing query.



### **ALDERBOURNE FARM**

Pinewood has now completed the transaction of Alderbourne Farm which covers approximately 80 acres. The site is under the control and management of Pinewood's Site Operations Team and is subject to a 24hr security presence.

Pinewood's Site Operations Manager and Community Liaison Officer met with residents of Springfield Cottages shortly after completion to provide reassurance on the management and safety of the site, and to reconfirm key points of contact within Pinewood.

No plans are in place at this time for redevelopment of the site. Where appropriate, local residents will be consulted on any future plans or changes of use of the existing property.

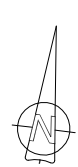
### **TREE PLANTING**

Verbal update expected at the PCLG meeting on 3 April.

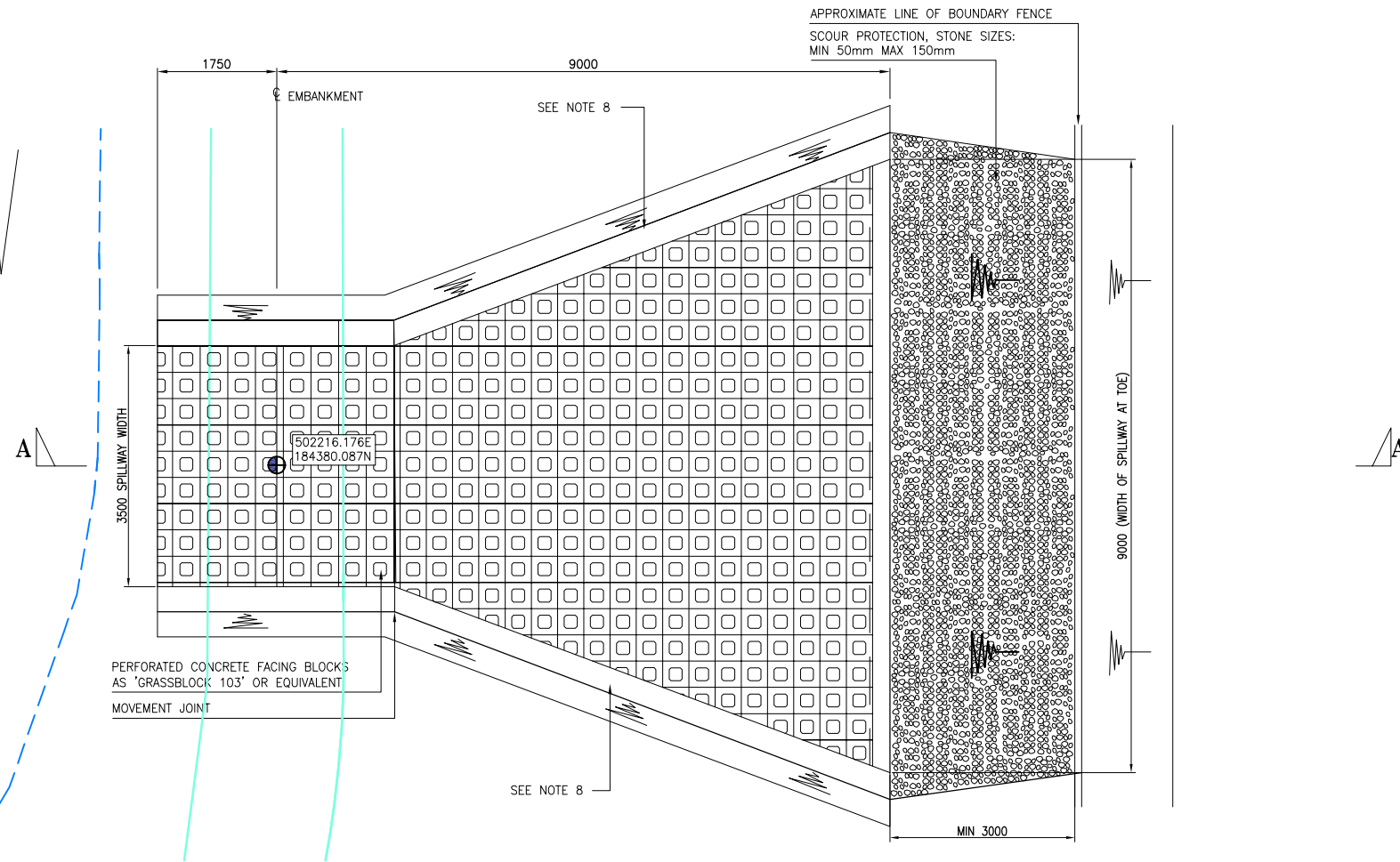
### **NEXT MEETING**

We are pleased to welcome Mark Hobbs, Community Liaison for Sir Robert McAlpine to our next PCLG on 3 April. Please feel free to ask Mark any questions you may have about Phase 2.

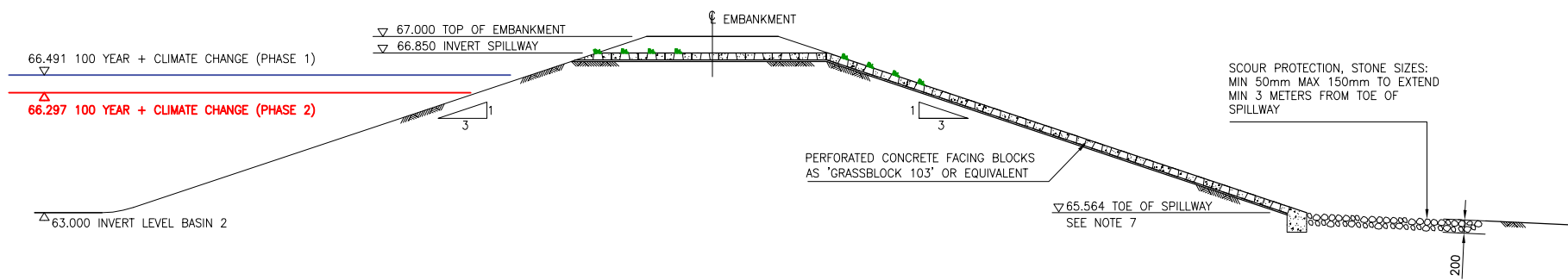
**Andrew M Smith**  
**Corporate Affairs Director**



BASIN 2



**PLAN OF EXISTING SPILLWAY**  
SCALE 1:50



**SECTION A-A**

**NOTES:**

1. DO NOT SCALE FROM THIS DRAWING, USE ONLY FIGURED DIMENSIONS. ANY QUERIES REGARDING DIMENSIONS SHOULD BE REFERRED TO THE ENGINEER.
2. DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
3. ALL TO BE INSTALLED IN LINE WITH GOOD PRACTICE AND IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND RECOMMENDATIONS.
4. SPILLWAY TO BE CONSTRUCTED USING PRECAST PERFORATED CONCRETE BLOCKS AS 'GRASSBLOCK 103' BY GRASS CONCRETE Ltd, OR EQUAL AND APPROVED.
5. SPILLWAY CONCRETE CLADDING TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS AND RECOMMENDATIONS OF THE MANUFACTURER.
6. THE GEOTEXTILE LAYER IS TO BE INSTALLED ON TOP OF THE 25mm SAND BLINDING, DIRECTLY BENEATH THE PERFORATED CONCRETE BLOCKS
7. LEVEL OF SPILLWAY TOE TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
8. GRASSCRETE TO EXTEND HALF WAY UP SPILLWAY EXCAVATIONS SIDE SLOPES.

REV	DATE	DESCRIPTION	BY	CHK	APR
P02	12.07.2017	PLANNING ISSUE. MINOR ADJUSTMENT TO 100year WATER LEVEL.	TNG	VK	NAL
P01	11.07.2017	PLANNING ISSUE	ABS	VK	NAL

Drawing Status: **PLANNING**

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Project: **IVER HEATH, PINWOOD STUDIOS (Phase 2)**

Drawing Title: **POND 2 EMERGENCY SPILLWALL DETAILS**

Project No	Sheet	Scale	Revision:
61673	A1	AS SHOWN	P02

Project Name-Originator-Volume-Level-Type-Role-Number  
PS2-MDG-00-XX-DR-D-XX.10.08

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NOTE: THIS DRAWING SUPERSEDES PS1-MDG-XX-00-DR-D-64028

REV	DESCRIPTION	BY	RE	AP	DATE
K	LOCATION OF S-SWIC14 ADJUSTED	AGS	FAZ	FAZ	18.11.15
J	GULLIES ADDED TO REINTRODUCED ROADS, BUILDINGS 2.13, 2.18, 2.19 & 2.20 MOVED & DRAINAGE UPDATED. BUND DRAINAGE UPDATED.	AGS	FAZ	FAZ	17.11.15
I	SPACIO DRAINAGE AND ACO CHANNELS ADDED	AGS	FAZ	FAZ	23.10.15
H	BASIN 2 SPILLWAY ADDED	AGS	FAZ	FAZ	02.09.15
G	LOCATION OF SWIC06 AMENDED	AGS	FAZ	FAZ	14.08.15
F	OUTFALL ROUTE FROM BASIN 2 AMENDED	AGS	FAZ	FAZ	04.08.15
E	GULLY AMENDMENTS, CONNECTIONS UPDATED, GULLIES REMOVED ON OMITTED ROADS	AGS	FAZ	FAZ	23.06.15
D	GULLIES ON ROUNDABOUT RELOCATED & COORDINATES UPDATED. LIFT CHAMBER PUMPS REMOVED. SWMH20.9 RELOCATED. SWMH20.10 DELETED. SWIC38 AND SWIC39 DELETED	AGS	FAZ	FAZ	04.06.15
C	AMENDED GULLY LOCATIONS HIGHLIGHTED	AGS	FAZ	FAZ	22.05.15
B	GULLY LOCATIONS AMENDED AND COORDINATES UPDATED	AGS	FAZ	FAZ	21.05.15
A	MODIFICATIONS TO DRAINAGE LAYOUT FOR WHOLE SITE & GULLIES ADDED	EW	AGS	FAZ	11.05.15

DRAWN BY	EW	DATE	29.04.2015
REVIEWED BY	AGS	SCALE	1:1250
AUTHORISED BY	FAZ	ISSUE	P
		REVISION	K
DRAWING NUMBER <b>2241.PS.D.01</b>			

Gully Location Co-ordinates

Reference	Easting	Northing	Type
PSG001	501890.034	184625.037	Single
PSG002	501874.854	184606.669	Single
PSG101	501908.669	184622.624	Single
PSG102	501899.783	184630.081	Single
PSG103	501951.553	184715.432	Single
PSG104	501946.526	184717.957	Single
PSG105	501977.015	184765.784	Single
PSG106	501971.995	184768.322	Single
PSG107	501997.054	184805.431	Single
PSG108	501992.040	184807.967	Single
PSG109	502008.362	184833.257	Single
PSG110	502001.447	184834.809	Single
PSG116	501887.452	184944.746	Double
PSG201	501914.317	184598.911	Single
PSG202	501917.659	184605.578	Single
PDG203	501961.432	184576.817	Double
PDG204	501963.624	184582.068	Double
PSG301	501971.742	184566.732	Single
PSG302	501977.031	184565.478	Single
PSG309	502143.181	184539.416	Single
PSG310	502134.118	184540.372	Single
PSG311	502137.704	184585.812	Single
PSG312	502131.173	184585.690	Single
PSG313	502132.111	184680.156	Single
PSG314	502129.232	184674.142	Single
PSG315	502082.890	184705.040	Single
PSG316	502080.351	184700.021	Single
PDG317	502037.219	184728.046	Double
PDG318	502034.718	184723.129	Double
PDG318	502035.935	184722.510	Double
PSG319	501991.622	184751.183	Single
PSG320	501989.083	184746.163	Single
PSG401	501989.841	184586.485	Single
PSG402	501984.404	184587.222	Single
PSG404	502019.476	184662.094	Single
PSG405	502049.140	184706.306	Single
PSG406	502044.121	184716.844	Single
PSG408	502024.496	184659.556	Single
PDG444	502047.580	184588.362	Double
PDG445	502049.012	184582.830	Double
PSG501	501908.711	184857.608	Single
PSG502	501911.250	184862.628	Single
PSG503	501959.607	184831.871	Single
PSG504	501962.144	184836.892	Single
PSG505	501986.035	184818.470	Single
PSG506	501991.232	184822.171	Single
PSG701	501848.621	184879.987	Single
PSG702	501843.682	184882.540	Single
PSG703	501875.573	184931.990	Single
PSG704	501670.641	184934.516	Single
PSG801	501815.386	184822.174	Single
PSG803	501911.290	184773.703	Single
PSG804	501913.829	184778.722	Single
PDG805	501957.112	184750.347	Double
PSG806	501956.452	184757.112	Single
PSG202A	501852.766	184557.908	Single
PSG202B	501854.955	184581.929	Single
PSG202C	501844.574	184565.330	Single
PSG202D	501889.951	184597.937	Single
PSG311A	502139.314	184609.092	Single
PSG312A	502132.948	184610.084	Single
PDG444A	502111.116	184600.305	Double
PDG445A	502112.108	184594.828	Double
PSG701A	501859.978	184888.555	Single
PSG702A	501857.563	184883.583	Single

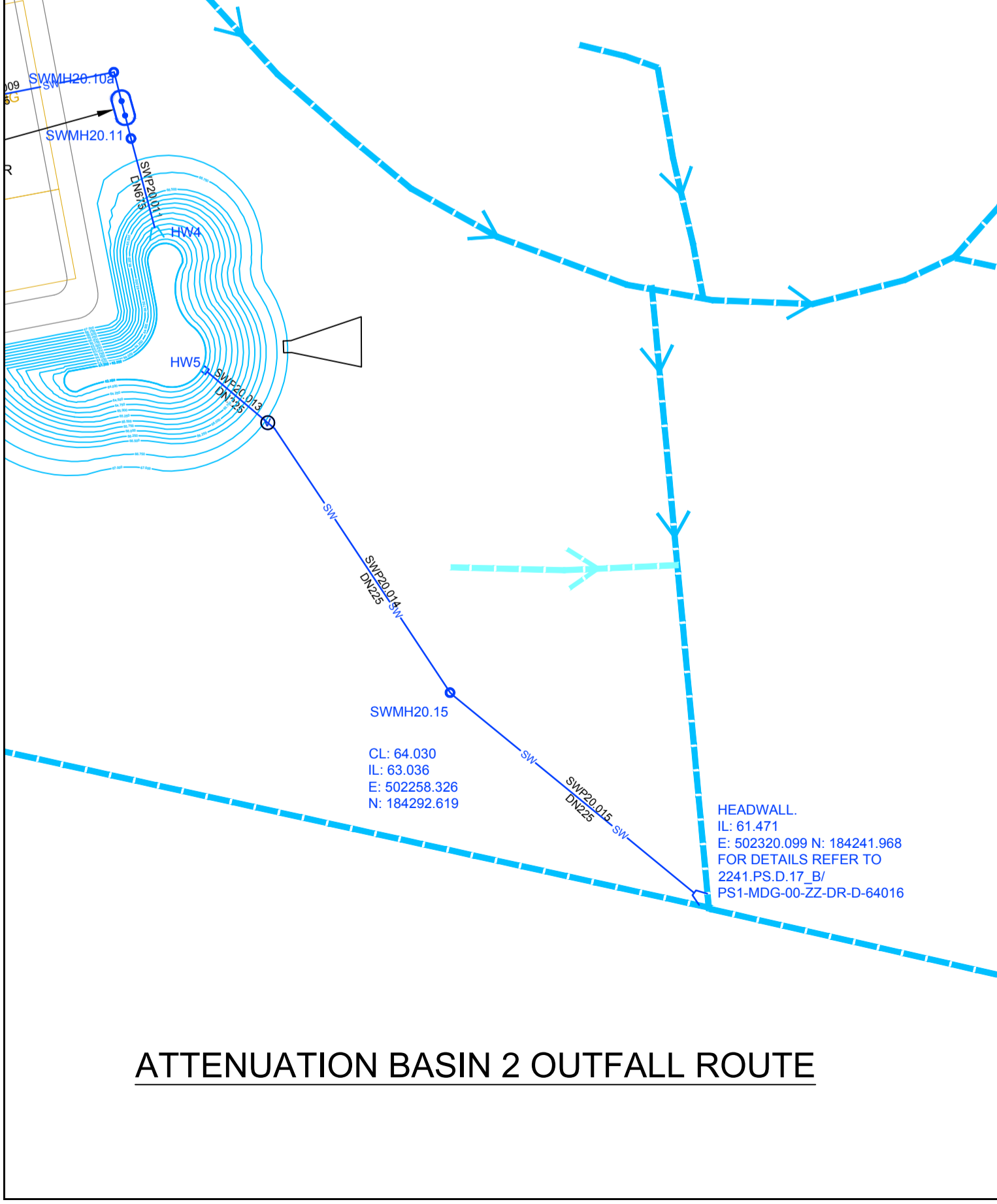
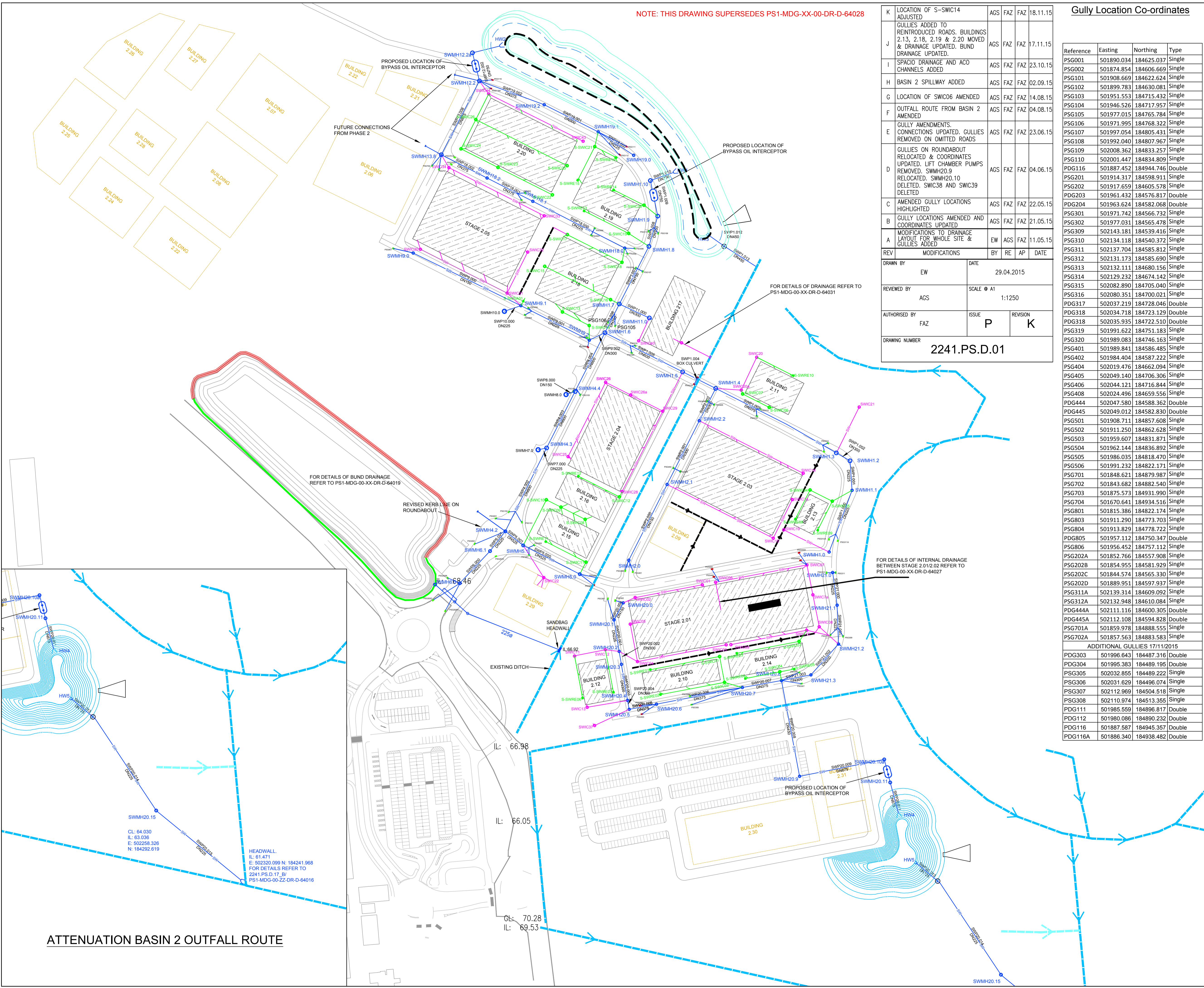
ADDITIONAL GULLIES 17/11/2015

PDG303	501996.643	184487.316	Double
PDG304	501995.383	184489.195	Double
PSG305	502032.855	184489.222	Single
PSG306	502031.859	184496.074	Single
PSG307	502112.969	184504.518	Single
PSG308	502110.974	184513.355	Single
PDG111	501985.559	184896.817	Double
PDG112	501980.086	184890.232	Double
PDG116	501887.587	184945.357	Double
PDG116A	501886.340	184938.482	Double

NOTES:

- All levels are given in metres above Ordnance Datum (mAOD).
- All pipe dimensions are in millimetres unless otherwise stated.
- Unless otherwise indicated, all construction details shall comply with Sewers for Adoption - 7th Edition.
- ACO F900 with compatible silt trap at 50m intervals and compatible junction units.

- Key:
- Full Site Boundary
  - Proposed SW Gravity Drain
  - Proposed SW Filter Drain
  - Existing SW Ditch
  - Proposed SW Manhole
  - Proposed SW Flow Control Manhole
  - Proposed Plot Drainage
  - Proposed Plot Drainage Manhole
  - Proposed Single Gully
  - Proposed Double Gully
  - Proposed SPACIO Drainage
  - Proposed Spading Eye (SPACIO)
  - Proposed Shallow Access (SPACIO)
  - ACO F900 Channels



REV	DATE	DESCRIPTION	BY	CHK	APR
C11	18.11.15	LOCATION OF S-SWIC14 ADJUSTED	JSR	AD	NL
C10	18.11.15	GULLIES ADDED TO REINTRODUCED ROADS, BUILDINGS 2.13, 2.18, 2.19 & 2.20 MOVED & DRAINAGE UPDATED. BUND DRAINAGE UPDATED.	JSR	AD	NL
C09	23.10.15	ACO CHANNELS ADDED	TDA	AD	NL
C08	19.10.15	SPACIO DRAINAGE ADDED	TDA	AD	NL
C07	03.09.15	SPILLWAY TO POND 2 ADDED	DR	AD	NL
C06	14.08.15	LOCATION OF SW1C06 AMENDED	CM	AD	NL
C05	04.08.15	REVISED OUTFALL FROM POND 2	TDA	AD	RFF
C04	25.06.15	OMISSION OF GULLIES	SH	AD	MA
C03	05.06.15	LOCATIONS OF SWMH 20.9 AND 20.10A RE-LOCATED	JSR	AD	DB
C02	22.05.15	AMENDED GULLY LOCATIONS	CM	AD	RFF
C01	15.05.15	ISSUED FOR CONSTRUCTION	CM	AD	RFF

**FOR CONSTRUCTION**

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Project: **IVER HEATH, PINWOOD STUDIOS (Phase 1)**

Drawing Title: **PROPOSED SURFACE WATER DRAINAGE LAYOUT**

Project No: 61638	Sheet: A1	Scale: 1:1250	Revision: C11
Project Name-Originator-Volume-Level-Type-Role-Number			
PS1-MDG-00-XX-DR-D-64000			

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Project title	Pinewood Studios	Job number	239026 Pinewood Studios
cc		File reference	
Prepared by	Anna Collins	Date	19 November 2014
Subject	Pinewood Studios Storm and Foul water strategy – additional information		

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## 1 Introduction

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This technical note has been prepared as an additional note to the Storm and Foul drainage strategy report prepared for Pinewood Studios Ltd to support the submission of the first Reserved Matters application for the Pinewood Studios Development Framework (PDSF). This technical note provides additional information with regards to the hydraulic modelling undertaken and the proposed storm drainage strategy for the development.

## 2 Design Standards

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On-site storm drainage will be designed to adoptable standards, although it is expected that it will not be adopted.

The storm water drainage will be assessed and designed in accordance with, but not limited to, the following key design standards and industry guidance:

- Sewers for Adoption - 7th Edition
- Rainfall Runoff Management for Developments Report SC030219
- BS EN 752: Drain and Sewer Systems Outside Buildings
- R&D Technical Report W5-074/A – Preliminary Rainfall Runoff Management for Developments
- Flood Estimation Handbook (Institute of Hydrology 1999)

## 3 Hydraulic Model

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### 3.1 Introduction

A drainage model was created using the urban drainage software package Microdrainage by XP Solutions which demonstrates how the pipe network, attenuation ponds and flow control devices behave during rainfall events of different duration and frequency. The peak rate of runoff from the site for the critical duration storm was then checked against the equivalent greenfield runoff rates used to define discharge compliance limits namely the 100% (1 year), 3.33% (30 year) and the 1% (100 year) events.

Results from the initial analysis showed that at each basin the developed rates of discharge for the 30 year and the 100 year events would not exceed the estimated undeveloped (greenfield) rates but that for the 1 year event, discharge would exceed the estimated undeveloped runoff rate. This note details the proposed solutions so that the 1 year event developed discharge rate would not exceed the corresponding peak greenfield runoff rate.

# Technical Note

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## 3.2 Attenuation Basin 1

Attenuation Basin 1 has a large contributing catchment area and so the peak runoff rates for different frequency storm events are vary significantly. The flow control (Hydrobrake) device was initially sized based on the critical duration (6 hour), 100 year greenfield runoff rate. However during the long duration 1 year storm events the flow control device allowed a greater discharge than the 1 year peak greenfield runoff rate.

The proposed solution is to provide a low level and high level outlet to the basin. The low level outfall will discharge at no greater than the 1 year peak greenfield runoff rate using an orifice plate and the high level outfall will discharge at no greater than the 100 year peak greenfield runoff rate using a Hydrobrake flow control device with a linear discharge profile. The combined discharge from the orifice and the Hydrobrake when the pond is full is not greater than the 100 year greenfield discharge.

These flow control devices have been modelled in Microdrainage and the resulting peak rate of runoff and volume of storage required for the developed site recalculated for the 1 year, 30 year and 100 year flows, with climate change allowance included.

## 3.3 Attenuation Basin 2

Attenuation basin 2 has a much smaller contributing catchment area and therefore peak runoff rates between the different storm events are not significantly different. For Attenuation basin 2, it is not proposed to provide two outfalls and two control devices at different levels because the greenfield discharge limit for the 1 in 1 year event is small (12 l/s).

The proposed solution is to lower the design flow for the flow control device to a discharge rate similar to the greenfield runoff rate for the 30 year event and increase the storage volume as required. The flow control device has been modelled in Microdrainage and the resulting peak rate of runoff and volume of storage required recalculated for the 1 year, 30 year and 100 year flows with climate change allowance included.

## 4 Proposed Infrastructure

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### 4.1 Attenuation Basin 1

Runoff from the site is collected and delivered to Attenuation basin 1 via a network of large diameter pipes.

It is proposed to have two inlets set at a level of 64.0mAOD outfalling to Attenuation basin 1 which is 0.5m above the permanent water level. This will help limit the surcharging of the upstream conveyance system. A concrete outlet headwall with a steel grate will be provided. A gabion mattress will be placed to provide erosion protection to the bottom of the basin. Inlet structures will be provided on both the east and west end of the ponds to avoid short-circuiting and dead storage areas.

Attenuation Basin 1 will have a low level outfall with an invert of 63.2m AOD and a high level outfall with an invert of 64.4m AOD. Both outfalls will be designed to be easy to construct and maintain and limit the risk of blockages. An emergency overflow spillway will be set at the maximum flood storage level for the basin of 66.0m AOD.

### 4.2 Attenuation Basin 2

Runoff from the site is collected and delivered to Attenuation basin 2 via a network of large diameter pipes.

# Technical Note

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It is proposed to have one inlet set at a level of 64.5mAOD which is 0.5m above the permanent water level. Attenuation basin 2 will have one outlet controlled by a Hydrobrake flow control device with a linear discharge curve. Downstream of the outlet the flow will discharge into a grassed swale with a gradient following the existing ground contours and connecting with the existing field ditch. An emergency overflow spillway will be set at the maximum flood storage level of 66.5m AOD.

## 5 Volume of Attenuation Storage

The results of the modelling demonstrate that for attenuation basin 1 (north basin) the storage volume required to handle the 1 in 100 year critical duration event plus 30% climate change is less than 10,000m<sup>3</sup> and for attenuation basin 2 (south basin) the required storage volume is less than 3000m<sup>3</sup>. For events in excess of the 100 year event including climate change, a high level overflow will restrict any further rise in water level in each basin by discharging excess flow overland towards the receiving ditches.

## 6 Check on Runoff Rates

Developed surface water runoff rates have been modelled for each of the critical storm events and the peak rates have been compared against the greenfield runoff rate. The results are shown in Table 1 below.

Table 1 Comparison of Peak Runoff Rates for Critical Duration Storms and Different Frequency Events



Annual flow rate probability	Attenuation Basin 1		Attenuation Basin 2	
	Greenfield runoff rate (l/s)	Developed Runoff Rate (l/s)	Greenfield runoff rate (l/s)	Developed Runoff Rate (l/s)
1% (100 Yr)	201	193	43	25
3.33% (30 Yr)	145	145	31	18
100% (1 Yr)	54	49	12	12

The Table shows that the peak discharges for the developed site are less than or equal to the greenfield peak runoff rates for each event.

## 7 Results of Analysis

The key modelling inputs and outputs and a schematic of the surface water drainage system are included in Appendix A.

### DOCUMENT CHECKING (not mandatory for File Note)

	Prepared by	Checked by	Approved by
Name	Anna Collins	Paul Thompson	Paul Thompson
Signature	[AC]		

# Technical Note


239026 Pinewood Studios 19 November 2014

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## A1 Appendix A

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Results of Surface Water Drainage System Analysis (Updated 19-11-2014)

Ove Arup & Partners International Ltd		Page 1
The Arup Campus Blyth Gate Solihull B90 8AE		
Date 19/11/2014 14:43 File 16092014 PINWOOD STUDI...	Designed by Anna.Collins Checked by	
XP Solutions	Network 2014.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm


Pipe Sizes STANDARD Manhole Sizes STANDARD

```

FEH Rainfall Model
  Return Period (years)          2
    Site Location Pinewood
      C (1km)    -0.025
      D1 (1km)   0.277
      D2 (1km)   0.312
      D3 (1km)   0.226
      E (1km)    0.301
      F (1km)    2.674
  Maximum Rainfall (mm/hr)      50
  Maximum Time of Concentration (mins)  30
    Foul Sewage (l/s/ha)        0.000
  Volumetric Runoff Coeff.      0.750
  Add Flow / Climate Change (%)  0
    Minimum Backdrop Height (m)  0.200
    Maximum Backdrop Height (m)  1.500
  Min Design Depth for Optimisation (m)  1.200
  Min Vel for Auto Design only (m/s)    1.00
  Min Slope for Optimisation (1:X)      300

```

Designed with Level Soffits

Ove Arup & Partners International Ltd		Page 2
The Arup Campus Blyth Gate Solihull B90 8AE		
Date 19/11/2014 14:43 File 16092014 PINWOOD STUDI...	Designed by Anna.Collins Checked by	
XP Solutions	Network 2014.1.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	450	1.0	68.500	66.800	1.250	Open Manhole	1350
1.001	o	450	1.1	68.400	66.385	1.565	Open Manhole	1350
1.002	o	600	1.2	68.250	66.108	1.542	Open Manhole	1500
1.003	o	600	1.3	68.000	65.897	1.503	Open Manhole	1500
2.000	o	450	2.0	68.500	67.000	1.050	Open Manhole	1350
3.000	o	300	3.0	68.500	66.900	1.300	Open Manhole	1050
2.001	o	450	2.1	68.250	66.228	1.572	Open Manhole	1350
1.004	o	900	1.4	67.500	64.931	1.669	Open Manhole	1800
4.000	o	450	4.0	72.000	70.000	1.550	Open Manhole	1350
4.001	o	450	4.1	71.000	68.500	2.050	Open Manhole	1350
4.002	o	600	4.2	70.000	67.200	2.200	Open Manhole	1500
5.000	o	525	5.0	68.500	66.700	1.275	Open Manhole	1500
5.001	o	525	5.1	68.500	66.425	1.550	Open Manhole	1500
4.003	o	675	4.3	69.000	66.129	2.196	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	41.079	99.0	1.1	68.400	66.385	1.565	Open Manhole	1350
1.001	25.486	200.7	1.2	68.250	66.258	1.542	Open Manhole	1500
1.002	42.126	199.6	1.3	68.000	65.897	1.503	Open Manhole	1500
1.003	63.121	199.8	1.4	67.500	65.581	1.319	Open Manhole	1800
2.000	60.641	150.5	2.1	68.250	66.597	1.203	Open Manhole	1350
3.000	78.289	150.0	2.1	68.250	66.378	1.572	Open Manhole	1350
2.001	84.709	100.0	1.4	67.500	65.381	1.669	Open Manhole	1800
1.004	90.693	200.2	1.5	68.750	64.478	3.372	Open Manhole	1800
4.000	56.581	37.7	4.1	71.000	68.500	2.050	Open Manhole	1350
4.001	85.848	74.7	4.2	70.000	67.350	2.200	Open Manhole	1500
4.002	22.764	111.0	4.3	69.000	66.995	1.405	Open Manhole	1500
5.000	40.777	148.3	5.1	68.500	66.425	1.550	Open Manhole	1500
5.001	29.182	199.9	4.3	69.000	66.279	2.196	Open Manhole	1500
4.003	69.833	149.9	4.4	69.250	65.663	2.912	Open Manhole	1800


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.004	o	750	4.4	69.250	65.588	2.912	Open Manhole	1800
4.005	o	750	4.5	69.250	65.335	3.165	Open Manhole	1800
6.000	o	450	6.0	69.500	67.850	1.200	Open Manhole	1350
6.001	o	450	6.1	69.000	66.694	1.856	Open Manhole	1350
6.002	o	450	6.2	68.750	65.538	2.762	Open Manhole	1350
6.003	o	450	6.3	68.750	65.739	2.561	Open Manhole	1350
1.005	o	900	1.5	68.750	64.478	3.372	Open Manhole	1800
7.000	o	300	7.0	68.000	66.500	1.200	Open Manhole	1050
1.006	o	900	1.6	68.700	64.379	3.421	Open Manhole	1800
1.007	o	900	1.7	68.500	64.274	3.326	Open Manhole	1800
1.008	o	900	1.8	68.300	64.196	3.204	Open Manhole	1800
1.009	o	900	1.9	68.000	64.079	3.021	Open Manhole	1800
8.000	o	450	8.0	69.000	67.200	1.350	Open Manhole	1350
8.001	o	450	8.1	68.750	66.496	1.804	Open Manhole	1350
9.000	o	450	9.0	70.500	68.500	1.550	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.004	37.926	149.9	4.5	69.250	65.335	3.165	Open Manhole	1800
4.005	37.926	149.9	1.5	68.750	65.082	2.918	Open Manhole	1800
6.000	81.512	70.5	6.1	69.000	66.694	1.856	Open Manhole	1350
6.001	64.190	55.5	6.2	68.750	65.538	2.762	Open Manhole	1350
6.002	9.251	125.0	6.3	68.750	65.464	2.836	Open Manhole	1350
6.003	4.689	151.3	1.5	68.750	65.708	2.592	Open Manhole	1800
1.005	29.817	301.2	1.6	68.700	64.379	3.421	Open Manhole	1800
7.000	19.862	20.0	1.6	68.700	65.507	2.893	Open Manhole	1800
1.006	31.404	299.1	1.7	68.500	64.274	3.326	Open Manhole	1800
1.007	23.536	301.7	1.8	68.300	64.196	3.204	Open Manhole	1800
1.008	35.047	299.5	1.9	68.000	64.079	3.021	Open Manhole	1800
1.009	46.336	80.0	1.10	66.500	63.500	2.100	Open Manhole	1800
8.000	70.428	100.0	8.1	68.750	66.496	1.804	Open Manhole	1350
8.001	79.653	99.9	8.2	68.500	65.699	2.351	Open Manhole	1800
9.000	38.247	76.5	9.1	70.000	68.000	1.550	Open Manhole	1350

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PIPELINE SCHEDULES for Storm


Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.001	o	450	9.1	70.000	68.000	1.550	Open Manhole	1350
10.000	o	300	10.0	70.000	68.400	1.300	Open Manhole	1050
9.002	o	600	9.2	69.800	67.359	1.841	Open Manhole	1500
9.003	o	600	9.3	69.500	66.817	2.083	Open Manhole	1500
9.004	o	750	9.4	69.500	66.446	2.304	Open Manhole	1800
9.005	o	750	9.5	69.500	66.129	2.621	Open Manhole	1800
11.000	o	450	11.0	71.500	69.800	1.250	Open Manhole	1350
11.001	o	600	11.1	70.000	68.150	1.250	Open Manhole	1500
11.002	o	600	11.2	69.500	67.700	1.200	Open Manhole	1500
12.000	o	300	12.0	69.500	67.700	1.500	Open Manhole	1050
13.000	o	450	13.0	69.500	67.700	1.350	Open Manhole	1350
13.001	o	450	13.1	69.500	67.270	1.780	Open Manhole	1350
11.003	o	750	11.3	69.500	66.390	2.360	Open Manhole	1800
9.006	o	800	9.6	69.000	65.771	2.429	Open Manhole	1800

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.001	39.316	80.1	9.2	69.800	67.509	1.841	Open Manhole	1500
10.000	52.751	71.2	9.2	69.800	67.659	1.841	Open Manhole	1500
9.002	81.279	150.0	9.3	69.500	66.817	2.083	Open Manhole	1500
9.003	33.155	150.0	9.4	69.500	66.596	2.304	Open Manhole	1800
9.004	47.479	149.8	9.5	69.500	66.129	2.621	Open Manhole	1800
9.005	43.921	142.6	9.6	69.000	65.821	2.429	Open Manhole	1800
11.000	81.287	54.2	11.1	70.000	68.300	1.250	Open Manhole	1500
11.001	50.562	112.4	11.2	69.500	67.700	1.200	Open Manhole	1500
11.002	56.181	199.9	11.3	69.500	67.419	1.481	Open Manhole	1800
12.000	70.428	81.9	11.3	69.500	66.840	2.360	Open Manhole	1800
13.000	28.237	65.7	13.1	69.500	67.270	1.780	Open Manhole	1350
13.001	58.716	101.2	11.3	69.500	66.690	2.360	Open Manhole	1800
11.003	64.445	113.3	9.6	69.000	65.821	2.429	Open Manhole	1800
9.006	39.688	200.4	9.7	68.500	65.573	2.127	Open Manhole	1800



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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.007	o	900	9.7	68.500	65.473	2.127	Open Manhole	1800
14.000	o	300	14.0	68.500	66.850	1.350	Open Manhole	1050
14.001	o	300	14.1	68.500	66.643	1.557	Open Manhole	1200
14.002	o	450	14.2	68.500	66.237	1.813	Open Manhole	1350
14.003	o	450	14.3	68.957	65.889	2.618	Open Manhole	1350
9.008	o	900	9.8	69.000	65.155	2.945	Open Manhole	1800
15.000	o	450	15.0	68.000	67.300	0.250	Open Manhole	1350
15.001	o	450	15.1	68.168	66.967	0.751	Open Manhole	1350
15.002	o	450	15.2	68.500	66.284	1.766	Open Manhole	1350
8.002	o	900	8.2	68.500	64.577	3.023	Open Manhole	1800
8.003	o	900	8.3	66.500	64.308	1.292	Open Manhole	1800
1.010	o	450	1.10	66.500	63.200	2.850	Open Manhole	1800
1.011	o	450	1.11	66.500	62.910	3.140	Open Manhole	1350
1.012	o	450	1.12	64.000	62.708	0.842	Open Manhole	1350
16.000	o	375	16.0	68.500	66.900	1.225	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.007	45.746	143.9	9.8	69.000	65.155	2.945	Open Manhole	1800
14.000	20.748	100.2	14.1	68.500	66.643	1.557	Open Manhole	1200
14.001	38.414	150.1	14.2	68.500	66.387	1.813	Open Manhole	1350
14.002	52.160	149.9	14.3	68.957	65.889	2.618	Open Manhole	1350
14.003	42.644	150.2	9.8	69.000	65.605	2.945	Open Manhole	1800
9.008	59.104	199.7	8.2	68.500	64.859	2.741	Open Manhole	1800
15.000	33.264	99.9	15.1	68.168	66.967	0.751	Open Manhole	1350
15.001	53.263	99.9	15.2	68.500	66.434	1.616	Open Manhole	1350
15.002	39.236	100.1	8.2	68.500	65.892	2.158	Open Manhole	1800
8.002	53.898	200.4	8.3	66.500	64.308	1.292	Open Manhole	1800
8.003	161.682	200.6	1.10	66.500	63.502	2.098	Open Manhole	1800
1.010	37.453	200.0	1.11	66.500	63.013	3.037	Open Manhole	1350
1.011	21.787	108.0	1.12	64.000	62.708	0.842	Open Manhole	1350
1.012	5.750	108.0	55	63.400	62.655	0.295	Open Manhole	1200
16.000	30.793	147.3	16.1	68.500	66.691	1.434	Open Manhole	1350

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
16.001	o	450	16.1	68.500	66.616	1.434	Open Manhole	1350
16.002	o	450	16.2	68.500	66.377	1.673	Open Manhole	1350
16.003	o	450	16.3	68.152	66.103	1.599	Open Manhole	1350
17.000	o	375	17.0	68.500	66.900	1.225	Open Manhole	1350
17.001	o	375	17.1	68.500	66.582	1.543	Open Manhole	1350
17.002	o	375	17.2	68.500	66.442	1.683	Open Manhole	1350
17.003	o	375	17.3	68.500	66.352	1.773	Open Manhole	1350
16.004	o	450	16.4	68.500	65.570	2.480	Open Manhole	1350
18.000	o	600	18.0	67.500	66.000	0.900	Open Manhole	1500
18.001	o	600	18.1	67.500	65.555	1.345	Open Manhole	1500
16.005	o	900	16.5	67.500	64.887	1.713	Open Manhole	1800
16.006	o	900	16.6	67.500	64.683	1.917	Open Manhole	1800
16.007	o	900	16.7	66.500	64.528	1.072	Open Manhole	1800
16.008	o	225	16.8	66.500	64.000	2.275	Open Manhole	1800
16.009	o	225	16.9	66.500	63.700	2.575	Open Manhole	1200
16.010	3 \=/	1000	16.10	64.000	63.500	0.000	Junction	
16.011	3 \=/	1000	16.11	63.161	62.961	0.000	Junction	

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
16.001	36.821	154.1	16.2	68.500	66.377	1.673	Open Manhole	1350
16.002	28.874	105.4	16.3	68.152	66.103	1.599	Open Manhole	1350
16.003	79.921	149.9	16.4	68.500	65.570	2.480	Open Manhole	1350
17.000	46.721	146.9	17.1	68.500	66.582	1.543	Open Manhole	1350
17.001	28.077	200.6	17.2	68.500	66.442	1.683	Open Manhole	1350
17.002	18.041	200.5	17.3	68.500	66.352	1.773	Open Manhole	1350
17.003	20.097	201.0	16.4	68.500	66.252	1.873	Open Manhole	1350
16.004	40.190	172.5	16.5	67.500	65.337	1.713	Open Manhole	1800
18.000	88.922	199.8	18.1	67.500	65.555	1.345	Open Manhole	1500
18.001	35.827	301.1	16.5	67.500	65.436	1.464	Open Manhole	1800
16.005	61.177	299.9	16.6	67.500	64.683	1.917	Open Manhole	1800
16.006	46.372	299.2	16.7	66.500	64.528	1.072	Open Manhole	1800
16.007	49.107	94.3	16.8	66.500	64.007	1.593	Open Manhole	1800
16.008	52.835	300.0	16.9	66.500	63.824	2.451	Open Manhole	1200
16.009	43.018	300.0	16.10	64.000	63.557	0.218	Junction	
16.010	29.661	55.0	16.11	63.161	62.961	-0.300	Junction	
16.011	30.430	55.0	16.12	62.620	62.408	0.012	Open Manhole	1000

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
16.012	3 \=/	1000	16.12	62.620	62.408	0.012	Open Manhole	1000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
16.012	3.962	67.0		62.562	62.349	0.013	Open Manhole	0

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Online Controls for Storm

Complex Manhole: 1.10, DS/PN: 1.010, Volume (m<sup>3</sup>): 138.4

Orifice

Diameter (m) 0.154 Discharge Coefficient 0.600 Invert Level (m) 63.300

Hydro-Brake Optimum®

Unit Reference	MD-SCU-0320-1250-1600-1250
Design Head (m)	1.600
Design Flow (l/s)	125.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Diameter (mm)	320
Invert Level (m)	64.500
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	1800


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.600	125.0
Flush-Flo™	0.362	72.0
Kick-Flo®	0.476	69.5
Mean Flow over Head Range	-	82.9

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	10.6	1.200	108.7	3.000	169.9	7.000	257.3
0.200	36.1	1.400	117.1	3.500	183.2	7.500	266.1
0.300	63.3	1.600	125.0	4.000	195.5	8.000	274.7
0.400	71.7	1.800	132.4	4.500	207.1	8.500	283.0
0.500	71.1	2.000	139.4	5.000	218.1	9.000	291.1
0.600	77.7	2.200	146.0	5.500	228.6	9.500	298.9
0.800	89.3	2.400	152.3	6.000	238.5		
1.000	99.5	2.600	158.4	6.500	248.1		

Hydro-Brake Optimum® Manhole: 16.8, DS/PN: 16.008, Volume (m<sup>3</sup>): 36.5

Unit Reference	MD-SCU-0126-2500-2500-2500
Design Head (m)	2.500
Design Flow (l/s)	25.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Diameter (mm)	126

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Hydro-Brake Optimum® Manhole: 16.8, DS/PN: 16.008, Volume (m³): 36.5

Invert Level (m) 64.000  
Minimum Outlet Pipe Diameter (mm) 150  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.500	25.0
Flush-Flo™	0.151	7.6
Kick-Flo®	0.191	7.4
Mean Flow over Head Range	-	16.9

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	5.0	1.200	17.6	3.000	27.3	7.000	41.1
0.200	7.6	1.400	18.9	3.500	29.4	7.500	42.5
0.300	9.1	1.600	20.2	4.000	31.4	8.000	43.9
0.400	10.5	1.800	21.4	4.500	33.2	8.500	45.2
0.500	11.6	2.000	22.5	5.000	34.9	9.000	46.5
0.600	12.7	2.200	23.5	5.500	36.6	9.500	47.7
0.800	14.5	2.400	24.5	6.000	38.2		
1.000	16.1	2.600	25.5	6.500	39.7		

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Storage Structures for Storm

Tank or Pond Manhole: 1.10, DS/PN: 1.010

Invert Level (m) 63.500

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	1464.0	0.700	3076.0	2.700	6176.0
0.500	2479.0	1.700	4500.0	3.000	7766.0

Tank or Pond Manhole: 16.8, DS/PN: 16.008

Invert Level (m) 64.000

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	1000.0	2.500	2000.0

Swale Manhole: 16.10, DS/PN: 16.010

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	29.7
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	3.0
Safety Factor	2.0	Slope (1:X)	60.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	63.500	Cap Infiltration Depth (m)	0.000
Base Width (m)	1.0	Include Swale Volume	No

Swale Manhole: 16.11, DS/PN: 16.011


Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	30.4
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	3.0
Safety Factor	2.0	Slope (1:X)	50.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	62.961	Cap Infiltration Depth (m)	0.000
Base Width (m)	1.0	Include Swale Volume	No

Swale Manhole: 16.12, DS/PN: 16.012


Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	62.408
Infiltration Coefficient Side (m/hr)	0.00000	Base Width (m)	1.0
Safety Factor	2.0	Length (m)	4.0
Porosity	1.00	Side Slope (1:X)	3.0

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<p><u>Swale Manhole: 16.12, DS/PN: 16.012</u></p> <p>Slope (1:X) 67.0 Cap Infiltration Depth (m) 0.000  Cap Volume Depth (m) 0.000 Include Swale Volume Yes</p>		
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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)  
for Storm

PN	Storm	Return Period	Climate Change	First X SurchARGE	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
1.005	15 Winter	30	0%	30/15 Winter				
7.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
1.006	15 Winter	30	0%	30/15 Winter				
1.007	15 Winter	30	0%	30/15 Winter				
1.008	15 Winter	30	0%	30/15 Winter				
1.009	240 Winter	30	0%	30/120 Winter				
8.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
8.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
9.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
9.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
10.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
9.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
9.003	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
9.004	15 Winter	30	0%	30/15 Winter	100/15 Winter			
9.005	15 Winter	30	0%	30/15 Winter				
11.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
11.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
11.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
12.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
13.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
13.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
11.003	15 Winter	30	0%	30/15 Winter				
9.006	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
9.007	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
14.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
14.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
14.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
14.003	15 Winter	30	0%	30/15 Winter				
9.008	15 Winter	30	0%	30/15 Winter				
15.000	15 Winter	30	0%	100/15 Winter	100/15 Winter			3
15.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
15.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			1
8.002	15 Winter	30	0%	30/15 Winter				
8.003	15 Winter	30	0%	30/15 Winter	100/30 Winter			2
1.010	240 Winter	30	0%	1/15 Winter				
1.011	240 Winter	30	0%	100/15 Winter				
1.012	240 Winter	30	0%	30/30 Winter				
16.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
16.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
16.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
16.003	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
17.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			3
17.001	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
17.002	15 Winter	30	0%	30/15 Winter	100/15 Winter			1
17.003	15 Winter	30	0%	30/15 Winter				
16.004	15 Winter	30	0%	30/15 Winter				
18.000	15 Winter	30	0%	30/15 Winter	100/15 Winter			2
18.001	15 Winter	30	0%	30/15 Winter				
16.005	15 Winter	30	0%	30/15 Winter				
16.006	15 Winter	30	0%	30/15 Winter				

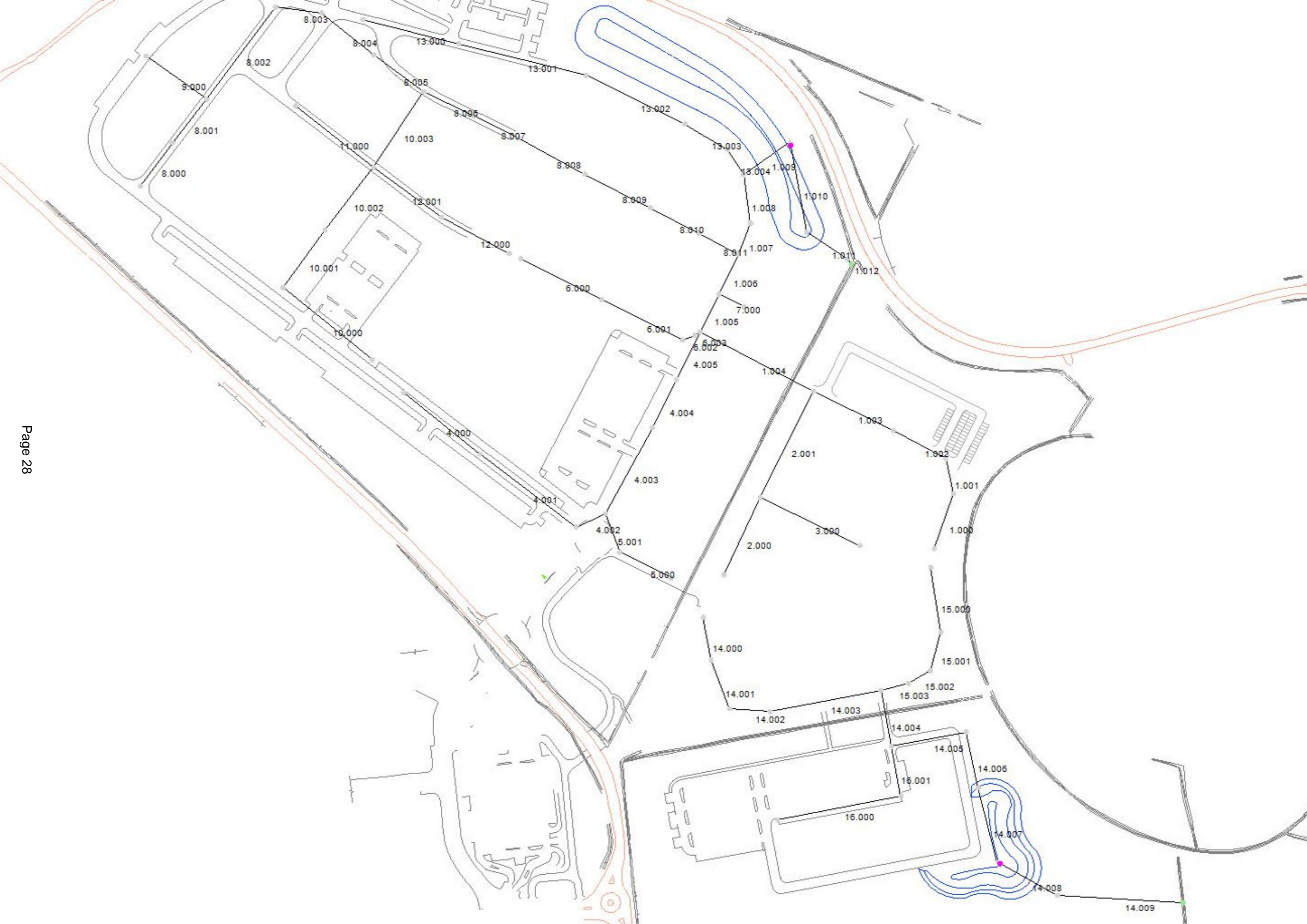
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)  
for Storm

PN	Storm	Return Period	Climate Change	First X SurchARGE	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
16.007	600 Winter	30	0%	100/15 Winter				
16.008	600 Winter	30	0%	1/15 Winter				
16.009	600 Winter	30	0%					
16.010	600 Winter	30	0%					
16.011	600 Winter	30	0%					
16.012	600 Winter	30	0%					

PN	US/MH Name	Water		Flooded		Pipe		Status
		Level (m)	Surch'd Depth (m)	Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	
1.000	1.0	67.621	0.371	0.000	0.31	0.0	85.0	SURCHARGED
1.001	1.1	67.605	0.770	0.000	0.61	0.0	92.5	SURCHARGED
1.002	1.2	67.590	0.882	0.000	0.93	0.0	321.1	SURCHARGED
1.003	1.3	67.539	1.042	0.000	0.70	0.0	297.4	SURCHARGED
2.000	2.0	67.828	0.378	0.000	0.81	0.0	197.0	SURCHARGED
3.000	3.0	67.892	0.692	0.000	1.01	0.0	87.7	SURCHARGED
2.001	2.1	67.781	1.103	0.000	0.79	0.0	239.6	SURCHARGED
1.004	1.4	67.464	1.633	0.000	0.38	0.0	430.9	FLOOD RISK
4.000	4.0	70.196	-0.254	0.000	0.40	0.0	191.3	OK
4.001	4.1	68.918	-0.032	0.000	0.78	0.0	274.8	OK
4.002	4.2	68.483	0.683	0.000	0.85	0.0	288.1	SURCHARGED
5.000	5.0	68.479	1.254	0.000	0.49	0.0	148.1	FLOOD RISK
5.001	5.1	68.457	1.507	0.000	0.52	0.0	114.7	FLOOD RISK
4.003	4.3	68.437	1.633	0.000	1.09	0.0	710.3	SURCHARGED
4.004	4.4	68.048	1.710	0.000	1.10	0.0	648.4	SURCHARGED
4.005	4.5	67.748	1.663	0.000	1.16	0.0	686.9	SURCHARGED
6.000	6.0	68.054	-0.246	0.000	0.42	0.0	154.1	OK
6.001	6.1	67.769	0.625	0.000	0.45	0.0	179.9	SURCHARGED
6.002	6.2	67.617	1.629	0.000	1.27	0.0	161.2	SURCHARGED
6.003	6.3	67.503	1.314	0.000	1.32	0.0	167.7	SURCHARGED
1.005	1.5	67.407	2.029	0.000	1.78	0.0	1274.3	SURCHARGED
7.000	7.0	67.043	0.243	0.000	0.95	0.0	178.5	SURCHARGED
1.006	1.6	66.834	1.555	0.000	1.87	0.0	1341.6	SURCHARGED
1.007	1.7	66.222	1.048	0.000	1.87	0.0	1341.3	SURCHARGED
1.008	1.8	65.601	0.505	0.000	1.87	0.0	1338.9	SURCHARGED
1.009	1.9	65.158	0.179	0.000	0.31	0.0	404.8	SURCHARGED
8.000	8.0	68.228	0.578	0.000	0.49	0.0	149.0	SURCHARGED
8.001	8.1	68.081	1.135	0.000	1.33	0.0	403.4	SURCHARGED
9.000	9.0	69.748	0.798	0.000	0.86	0.0	257.8	SURCHARGED
9.001	9.1	69.680	1.230	0.000	0.71	0.0	209.1	SURCHARGED
10.000	10.0	69.617	0.917	0.000	0.62	0.0	77.6	SURCHARGED
9.002	9.2	69.568	1.609	0.000	0.84	0.0	433.9	FLOOD RISK
9.003	9.3	69.322	1.905	0.000	1.60	0.0	566.4	FLOOD RISK
9.004	9.4	69.015	1.819	0.000	0.82	0.0	543.4	SURCHARGED
9.005	9.5	68.944	2.065	0.000	0.80	0.0	524.6	SURCHARGED
11.000	11.0	70.903	0.653	0.000	1.02	0.0	423.4	SURCHARGED
11.001	11.1	69.631	0.881	0.000	0.86	0.0	434.4	SURCHARGED
11.002	11.2	69.366	1.066	0.000	1.25	0.0	499.4	FLOOD RISK
12.000	12.0	69.067	1.067	0.000	0.82	0.0	96.1	SURCHARGED

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


PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
13.000	13.0	69.113	0.963	0.000	0.27	0.0	74.9	SURCHARGED
13.001	13.1	69.083	1.363	0.000	0.67	0.0	197.4	SURCHARGED
11.003	11.3	69.023	1.883	0.000	0.70	0.0	619.6	SURCHARGED
9.006	9.6	68.787	2.216	0.000	1.95	0.0	1160.8	FLOOD RISK
9.007	9.7	68.118	1.745	0.000	1.20	0.0	1139.5	SURCHARGED
14.000	14.0	67.939	0.789	0.000	0.78	0.0	66.8	SURCHARGED
14.001	14.1	67.922	0.979	0.000	0.80	0.0	67.5	SURCHARGED
14.002	14.2	67.804	1.117	0.000	0.73	0.0	176.0	SURCHARGED
14.003	14.3	67.761	1.422	0.000	0.73	0.0	163.5	SURCHARGED
9.008	9.8	67.662	1.607	0.000	1.39	0.0	1282.6	SURCHARGED
15.000	15.0	67.646	-0.104	0.000	0.78	0.0	190.9	OK
15.001	15.1	67.546	0.129	0.000	0.64	0.0	188.2	SURCHARGED
15.002	15.2	67.497	0.763	0.000	1.54	0.0	407.8	SURCHARGED
8.002	8.2	67.098	1.621	0.000	2.08	0.0	1827.0	SURCHARGED
8.003	8.3	65.931	0.723	0.000	1.37	0.0	1793.6	SURCHARGED
1.010	1.10	65.153	1.503	0.000	0.79	0.0	145.4	SURCHARGED
1.011	1.11	63.319	-0.041	0.000	0.77	0.0	145.4	OK
1.012	1.12	63.201	0.043	0.000	1.15	0.0	145.4	SURCHARGED
16.000	16.0	67.750	0.475	0.000	1.41	0.0	188.8	SURCHARGED
16.001	16.1	67.614	0.548	0.000	0.77	0.0	159.3	SURCHARGED
16.002	16.2	67.490	0.663	0.000	1.04	0.0	229.8	SURCHARGED
16.003	16.3	67.280	0.727	0.000	0.83	0.0	205.4	SURCHARGED
17.000	17.0	67.789	0.514	0.000	0.87	0.0	131.7	SURCHARGED
17.001	17.1	67.693	0.736	0.000	1.21	0.0	133.2	SURCHARGED
17.002	17.2	67.507	0.690	0.000	1.83	0.0	160.9	SURCHARGED
17.003	17.3	67.230	0.503	0.000	1.79	0.0	166.4	SURCHARGED
16.004	16.4	66.910	0.890	0.000	1.84	0.0	376.1	SURCHARGED
18.000	18.0	67.456	0.856	0.000	1.32	0.0	592.6	FLOOD RISK
18.001	18.1	66.688	0.533	0.000	2.21	0.0	574.8	SURCHARGED
16.005	16.5	66.126	0.339	0.000	1.33	0.0	1013.3	SURCHARGED
16.006	16.6	65.750	0.167	0.000	1.39	0.0	1000.6	SURCHARGED
16.007	16.7	65.203	-0.225	0.000	0.10	0.0	121.9	OK
16.008	16.8	65.201	0.976	0.000	0.61	0.0	17.6	SURCHARGED
16.009	16.9	63.828	-0.097	0.000	0.62	0.0	17.6	OK
16.010	16.10	63.545	-0.455	0.000	0.01	0.0	17.6	OK
16.011	16.11	63.005	-0.156	0.000	0.07	0.0	17.6	FLOOD RISK*
16.012	16.12	62.456	-0.164	0.000	0.08	0.0	17.6	FLOOD RISK






Summary Wizard of 360 minute 1 year Winter I+0% for Storm

PN	US/MH Name	Rank	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
1.005	1.5	46	64.726	-0.652	0.000	0.16	0.0	118.2	OK
7.000	7.0	37	66.539	-0.261	0.000	0.04	0.0	7.5	OK
1.006	1.6	48	64.632	-0.647	0.000	0.18	0.0	126.1	OK
1.007	1.7	49	64.528	-0.646	0.000	0.18	0.0	126.2	OK
1.008	1.8	55	64.450	-0.646	0.000	0.18	0.0	127.3	OK
1.009	1.9	55	64.369	-0.610	0.000	0.10	0.0	127.3	OK
8.000	8.0	37	67.252	-0.398	0.000	0.03	0.0	9.3	OK
8.001	8.1	37	66.583	-0.363	0.000	0.08	0.0	25.6	OK
9.000	9.0	37	68.556	-0.394	0.000	0.04	0.0	11.2	OK
9.001	9.1	38	68.065	-0.385	0.000	0.05	0.0	15.2	OK
10.000	10.0	37	68.433	-0.267	0.000	0.03	0.0	3.4	OK
9.002	9.2	37	67.455	-0.504	0.000	0.06	0.0	31.5	OK
9.003	9.3	37	66.950	-0.467	0.000	0.11	0.0	39.6	OK
9.004	9.4	37	66.566	-0.630	0.000	0.06	0.0	40.8	OK
9.005	9.5	38	66.262	-0.617	0.000	0.07	0.0	47.7	OK
11.000	11.0	37	69.876	-0.374	0.000	0.07	0.0	28.0	OK
11.001	11.1	37	68.243	-0.507	0.000	0.06	0.0	29.2	OK
11.002	11.2	38	67.828	-0.472	0.000	0.10	0.0	41.1	OK
12.000	12.0	37	67.737	-0.263	0.000	0.04	0.0	4.3	OK
13.000	13.0	37	67.737	-0.413	0.000	0.02	0.0	4.8	OK
13.001	13.1	37	67.324	-0.396	0.000	0.03	0.0	10.2	OK
11.003	11.3	38	66.519	-0.621	0.000	0.07	0.0	61.2	OK
9.006	9.6	38	66.015	-0.556	0.000	0.20	0.0	120.2	OK
9.007	9.7	38	65.691	-0.682	0.000	0.13	0.0	128.1	OK
14.000	14.0	37	66.885	-0.265	0.000	0.03	0.0	2.8	OK
14.001	14.1	38	66.709	-0.234	0.000	0.11	0.0	9.2	OK
14.002	14.2	38	66.306	-0.381	0.000	0.06	0.0	13.8	OK
14.003	14.3	38	65.984	-0.355	0.000	0.10	0.0	22.8	OK
9.008	9.8	39	65.400	-0.655	0.000	0.17	0.0	153.2	OK
15.000	15.0	37	67.354	-0.396	0.000	0.03	0.0	8.3	OK
15.001	15.1	37	67.019	-0.398	0.000	0.03	0.0	9.2	OK
15.002	15.2	37	66.369	-0.365	0.000	0.08	0.0	21.3	OK
8.002	8.2	43	64.867	-0.610	0.000	0.23	0.0	199.6	OK
8.003	8.3	49	64.541	-0.667	0.000	0.15	0.0	199.8	OK
1.010	1.10	49	64.368	0.718	0.000	0.27	0.0	49.3	SURCHARGED
1.011	1.11	49	63.065	-0.295	0.000	0.26	0.0	49.3	OK
1.012	1.12	49	62.902	-0.256	0.000	0.39	0.0	49.3	OK
16.000	16.0	37	66.960	-0.315	0.000	0.06	0.0	8.3	OK
16.001	16.1	38	66.693	-0.373	0.000	0.07	0.0	14.2	OK
16.002	16.2	38	66.463	-0.364	0.000	0.08	0.0	18.3	OK
16.003	16.3	38	66.188	-0.365	0.000	0.08	0.0	20.1	OK
17.000	17.0	37	66.949	-0.326	0.000	0.04	0.0	6.4	OK
17.001	17.1	38	66.665	-0.292	0.000	0.11	0.0	12.3	OK
17.002	17.2	38	66.544	-0.273	0.000	0.17	0.0	14.7	OK
17.003	17.3	38	66.458	-0.269	0.000	0.18	0.0	16.5	OK
16.004	16.4	39	65.699	-0.321	0.000	0.18	0.0	37.3	OK
18.000	18.0	37	66.099	-0.501	0.000	0.06	0.0	29.1	OK
18.001	18.1	39	65.688	-0.467	0.000	0.11	0.0	29.1	OK
16.005	16.5	45	65.077	-0.710	0.000	0.10	0.0	76.8	OK
16.006	16.6	48	64.879	-0.704	0.000	0.11	0.0	77.2	OK

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Summary Wizard of 360 minute 1 year Winter I+0% for Storm

PN	US/MH Name	Rank	Water		Flooded		Pipe		Status
			Level (m)	Surch'd Depth (m)	Volume (m <sup>3</sup> )	Flow / O'flow Cap. (l/s)	Flow (l/s)		
16.007	16.7	49	64.675	-0.753	0.000	0.06	0.0	77.3	OK
16.008	16.8	54	64.509	0.284	0.000	0.41	0.0	11.7	SURCHARGED
16.009	16.9	54	63.800	-0.125	0.000	0.41	0.0	11.7	OK
16.010	16.10	54	63.535	-0.465	0.000	0.01	0.0	11.7	OK
16.011	16.11	54	62.996	-0.165	0.000	0.05	0.0	11.7	FLOOD RISK*
16.012	16.12	54	62.445	-0.175	0.000	0.05	0.0	11.7	FLOOD RISK

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XP Solutions		Network 2014.1.1

Rainfall Hyetograph for 360 minute 1 year Winter I+0% (Storm)


<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>
6	0.282	78	1.971	150	7.609	222	6.906	294	1.854
12	0.811	84	2.130	156	8.208	228	6.275	300	1.796
18	1.200	90	2.341	162	8.766	234	5.653	306	1.769
24	1.487	96	2.652	168	9.314	240	4.983	312	1.765
30	1.639	102	2.994	174	9.703	246	4.425	318	1.769
36	1.726	108	3.392	180	9.984	252	3.909	324	1.764
42	1.764	114	3.909	186	9.984	258	3.392	330	1.726
48	1.769	120	4.425	192	9.703	264	2.994	336	1.639
54	1.765	126	4.983	198	9.314	270	2.652	342	1.487
60	1.769	132	5.653	204	8.766	276	2.341	348	1.200
66	1.796	138	6.275	210	8.208	282	2.130	354	0.811
72	1.854	144	6.906	216	7.609	288	1.971	360	0.282






Summary Wizard of 360 minute 30 year Winter I+0% for Storm

PN	US/MH Name	Rank	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
1.005	1.5	21	65.192	-0.186	0.000	0.39	0.0	279.8	OK
7.000	7.0	23	66.562	-0.238	0.000	0.10	0.0	18.0	OK
1.006	1.6	20	65.186	-0.093	0.000	0.41	0.0	297.4	OK
1.007	1.7	18	65.174	0.000	0.000	0.41	0.0	294.6	OK
1.008	1.8	19	65.158	0.062	0.000	0.41	0.0	293.7	SURCHARGED
1.009	1.9	16	65.154	0.175	0.000	0.22	0.0	287.2	SURCHARGED
8.000	8.0	23	67.280	-0.370	0.000	0.07	0.0	22.2	OK
8.001	8.1	23	66.632	-0.314	0.000	0.20	0.0	61.0	OK
9.000	9.0	23	68.590	-0.360	0.000	0.09	0.0	26.6	OK
9.001	9.1	24	68.104	-0.346	0.000	0.12	0.0	36.2	OK
10.000	10.0	23	68.449	-0.251	0.000	0.06	0.0	8.0	OK
9.002	9.2	24	67.510	-0.449	0.000	0.15	0.0	74.9	OK
9.003	9.3	24	67.027	-0.390	0.000	0.27	0.0	94.2	OK
9.004	9.4	24	66.637	-0.559	0.000	0.15	0.0	97.2	OK
9.005	9.5	24	66.339	-0.540	0.000	0.17	0.0	113.7	OK
11.000	11.0	23	69.920	-0.330	0.000	0.16	0.0	66.6	OK
11.001	11.1	23	68.298	-0.452	0.000	0.14	0.0	69.6	OK
11.002	11.2	24	67.901	-0.399	0.000	0.25	0.0	97.8	OK
12.000	12.0	23	67.759	-0.241	0.000	0.09	0.0	10.1	OK
13.000	13.0	23	67.759	-0.391	0.000	0.04	0.0	11.5	OK
13.001	13.1	23	67.356	-0.364	0.000	0.08	0.0	24.2	OK
11.003	11.3	24	66.593	-0.547	0.000	0.16	0.0	145.7	OK
9.006	9.6	24	66.163	-0.408	0.000	0.48	0.0	286.2	OK
9.007	9.7	26	65.822	-0.551	0.000	0.32	0.0	304.7	OK
14.000	14.0	23	66.906	-0.244	0.000	0.08	0.0	6.8	OK
14.001	14.1	19	66.746	-0.197	0.000	0.26	0.0	21.8	OK
14.002	14.2	22	66.347	-0.340	0.000	0.14	0.0	32.9	OK
14.003	14.3	19	66.038	-0.301	0.000	0.24	0.0	54.1	OK
9.008	9.8	26	65.548	-0.507	0.000	0.40	0.0	364.5	OK
15.000	15.0	23	67.385	-0.365	0.000	0.08	0.0	19.7	OK
15.001	15.1	23	67.048	-0.369	0.000	0.07	0.0	22.0	OK
15.002	15.2	23	66.417	-0.317	0.000	0.19	0.0	50.7	OK
8.002	8.2	24	65.218	-0.259	0.000	0.54	0.0	474.8	OK
8.003	8.3	18	65.208	0.000	0.000	0.36	0.0	470.3	OK
1.010	1.10	16	65.149	1.499	0.000	0.79	0.0	145.1	SURCHARGED
1.011	1.11	16	63.318	-0.042	0.000	0.76	0.0	145.1	OK
1.012	1.12	16	63.200	0.042	0.000	1.14	0.0	145.1	SURCHARGED
16.000	16.0	23	66.995	-0.280	0.000	0.15	0.0	19.8	OK
16.001	16.1	23	66.737	-0.329	0.000	0.16	0.0	33.8	OK
16.002	16.2	23	66.512	-0.315	0.000	0.20	0.0	43.7	OK
16.003	16.3	23	66.237	-0.316	0.000	0.19	0.0	47.9	OK
17.000	17.0	23	66.979	-0.296	0.000	0.10	0.0	15.2	OK
17.001	17.1	22	66.713	-0.244	0.000	0.27	0.0	29.2	OK
17.002	17.2	23	66.606	-0.211	0.000	0.40	0.0	35.0	OK
17.003	17.3	22	66.522	-0.205	0.000	0.42	0.0	39.3	OK
16.004	16.4	26	65.777	-0.243	0.000	0.43	0.0	88.7	OK
18.000	18.0	23	66.156	-0.444	0.000	0.15	0.0	69.3	OK
18.001	18.1	28	65.764	-0.391	0.000	0.27	0.0	69.3	OK
16.005	16.5	33	65.194	-0.593	0.000	0.24	0.0	182.7	OK
16.006	16.6	25	65.190	-0.393	0.000	0.26	0.0	183.7	OK

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Summary Wizard of 360 minute 30 year Winter I+0% for Storm

PN	US/MH		Water	Flooded			Pipe		Status
	Name	Rank	Level (m)	Surch'd Depth (m)	Volume (m <sup>3</sup> )	Flow / O'flow Cap. (l/s)	Flow (l/s)		
16.007	16.7	22	65.188	-0.240	0.000	0.15	0.0	181.8	OK
16.008	16.8	22	65.186	0.961	0.000	0.61	0.0	17.5	SURCHARGED
16.009	16.9	22	63.828	-0.097	0.000	0.62	0.0	17.5	OK
16.010	16.10	22	63.544	-0.456	0.000	0.01	0.0	17.5	OK
16.011	16.11	22	63.005	-0.156	0.000	0.07	0.0	17.5	FLOOD RISK*
16.012	16.12	22	62.456	-0.164	0.000	0.08	0.0	17.5	FLOOD RISK

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Rainfall Hyetograph for 360 minute 30 year Winter I+0% (Storm)

<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>
6	0.672	78	4.690	150	18.108	222	16.435	294	4.412
12	1.931	84	5.069	156	19.534	228	14.933	300	4.274
18	2.855	90	5.572	162	20.863	234	13.454	306	4.210
24	3.538	96	6.311	168	22.168	240	11.858	312	4.201
30	3.901	102	7.125	174	23.093	246	10.531	318	4.210
36	4.107	108	8.072	180	23.761	252	9.304	324	4.198
42	4.198	114	9.304	186	23.761	258	8.072	330	4.107
48	4.210	120	10.531	192	23.093	264	7.125	336	3.901
54	4.201	126	11.858	198	22.168	270	6.311	342	3.538
60	4.210	132	13.454	204	20.863	276	5.572	348	2.855
66	4.274	138	14.933	210	19.534	282	5.069	354	1.931
72	4.412	144	16.435	216	18.108	288	4.690	360	0.671



Summary Wizard of 360 minute 100 year Winter I+30% for Storm

PN	US/MH Name	Rank	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
1.005	1.5	10	66.089	0.711	0.000	0.66	0.0	475.4	SURCHARGED
7.000	7.0	16	66.583	-0.217	0.000	0.17	0.0	31.9	OK
1.006	1.6	9	66.083	0.804	0.000	0.70	0.0	505.5	SURCHARGED
1.007	1.7	6	66.076	0.902	0.000	0.70	0.0	504.9	SURCHARGED
1.008	1.8	3	66.069	0.973	0.000	0.71	0.0	508.0	SURCHARGED
1.009	1.9	1	66.063	1.084	0.000	0.39	0.0	507.2	SURCHARGED
8.000	8.0	15	67.308	-0.342	0.000	0.13	0.0	39.4	OK
8.001	8.1	15	66.681	-0.265	0.000	0.36	0.0	108.3	OK
9.000	9.0	16	68.619	-0.331	0.000	0.16	0.0	47.3	OK
9.001	9.1	14	68.141	-0.309	0.000	0.22	0.0	64.2	OK
10.000	10.0	16	68.467	-0.233	0.000	0.11	0.0	14.3	OK
9.002	9.2	15	67.565	-0.394	0.000	0.26	0.0	132.9	OK
9.003	9.3	15	67.107	-0.310	0.000	0.47	0.0	167.3	OK
9.004	9.4	15	66.705	-0.491	0.000	0.26	0.0	172.6	OK
9.005	9.5	14	66.445	-0.434	0.000	0.31	0.0	201.6	OK
11.000	11.0	15	69.963	-0.287	0.000	0.29	0.0	118.2	OK
11.001	11.1	15	68.351	-0.399	0.000	0.25	0.0	123.6	OK
11.002	11.2	12	67.977	-0.323	0.000	0.44	0.0	173.6	OK
12.000	12.0	16	67.778	-0.222	0.000	0.15	0.0	18.0	OK
13.000	13.0	15	67.780	-0.370	0.000	0.07	0.0	20.4	OK
13.001	13.1	15	67.384	-0.336	0.000	0.15	0.0	43.0	OK
11.003	11.3	14	66.666	-0.474	0.000	0.29	0.0	258.7	OK
9.006	9.6	14	66.343	-0.228	0.000	0.85	0.0	507.6	OK
9.007	9.7	10	66.109	-0.264	0.000	0.56	0.0	537.8	OK
14.000	14.0	16	66.924	-0.226	0.000	0.14	0.0	12.0	OK
14.001	14.1	11	66.786	-0.157	0.000	0.46	0.0	38.7	OK
14.002	14.2	12	66.387	-0.300	0.000	0.24	0.0	58.5	OK
14.003	14.3	10	66.115	-0.224	0.000	0.43	0.0	96.1	OK
9.008	9.8	10	66.100	0.045	0.000	0.69	0.0	631.2	SURCHARGED
15.000	15.0	16	67.413	-0.337	0.000	0.14	0.0	35.0	OK
15.001	15.1	16	67.075	-0.342	0.000	0.13	0.0	39.1	OK
15.002	15.2	16	66.465	-0.269	0.000	0.34	0.0	89.9	OK
8.002	8.2	9	66.089	0.612	0.000	0.93	0.0	816.7	SURCHARGED
8.003	8.3	7	66.075	0.867	0.000	0.62	0.0	815.7	SURCHARGED
1.010	1.10	1	66.056	2.406	0.000	1.06	0.0	193.3	SURCHARGED
1.011	1.11	1	63.500	0.140	0.000	1.02	0.0	193.3	SURCHARGED
1.012	1.12	1	63.291	0.133	0.000	1.52	0.0	193.3	SURCHARGED
16.000	16.0	16	67.030	-0.245	0.000	0.26	0.0	35.1	OK
16.001	16.1	13	66.781	-0.285	0.000	0.29	0.0	60.0	OK
16.002	16.2	14	66.561	-0.266	0.000	0.35	0.0	77.5	OK
16.003	16.3	13	66.285	-0.268	0.000	0.34	0.0	85.0	OK
17.000	17.0	16	67.006	-0.269	0.000	0.18	0.0	27.0	OK
17.001	17.1	12	66.763	-0.194	0.000	0.47	0.0	51.8	OK
17.002	17.2	12	66.675	-0.142	0.000	0.70	0.0	62.0	OK
17.003	17.3	12	66.596	-0.131	0.000	0.75	0.0	69.8	OK
16.004	16.4	14	65.981	-0.039	0.000	0.77	0.0	157.4	OK
18.000	18.0	16	66.213	-0.387	0.000	0.27	0.0	123.0	OK
18.001	18.1	14	65.973	-0.182	0.000	0.47	0.0	123.0	OK
16.005	16.5	9	65.971	0.184	0.000	0.42	0.0	323.8	SURCHARGED
16.006	16.6	6	65.967	0.384	0.000	0.44	0.0	317.0	SURCHARGED

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Summary Wizard of 360 minute 100 year Winter I+30% for Storm

PN	US/MH		Water		Flooded		Pipe		Status
	Name	Rank	Level (m)	Surch'd Depth (m)	Volume (m <sup>3</sup> )	Flow / O'flow Cap. (l/s)	Flow (l/s)		
16.007	16.7	5	65.965	0.537	0.000	0.25	0.0	307.3	SURCHARGED
16.008	16.8	5	65.963	1.738	0.000	0.78	0.0	22.3	SURCHARGED
16.009	16.9	5	63.851	-0.074	0.000	0.78	0.0	22.3	OK
16.010	16.10	5	63.551	-0.449	0.000	0.01	0.0	22.3	OK
16.011	16.11	5	63.012	-0.149	0.000	0.09	0.0	22.3	FLOOD RISK*
16.012	16.12	5	62.463	-0.157	0.000	0.10	0.0	22.3	FLOOD RISK

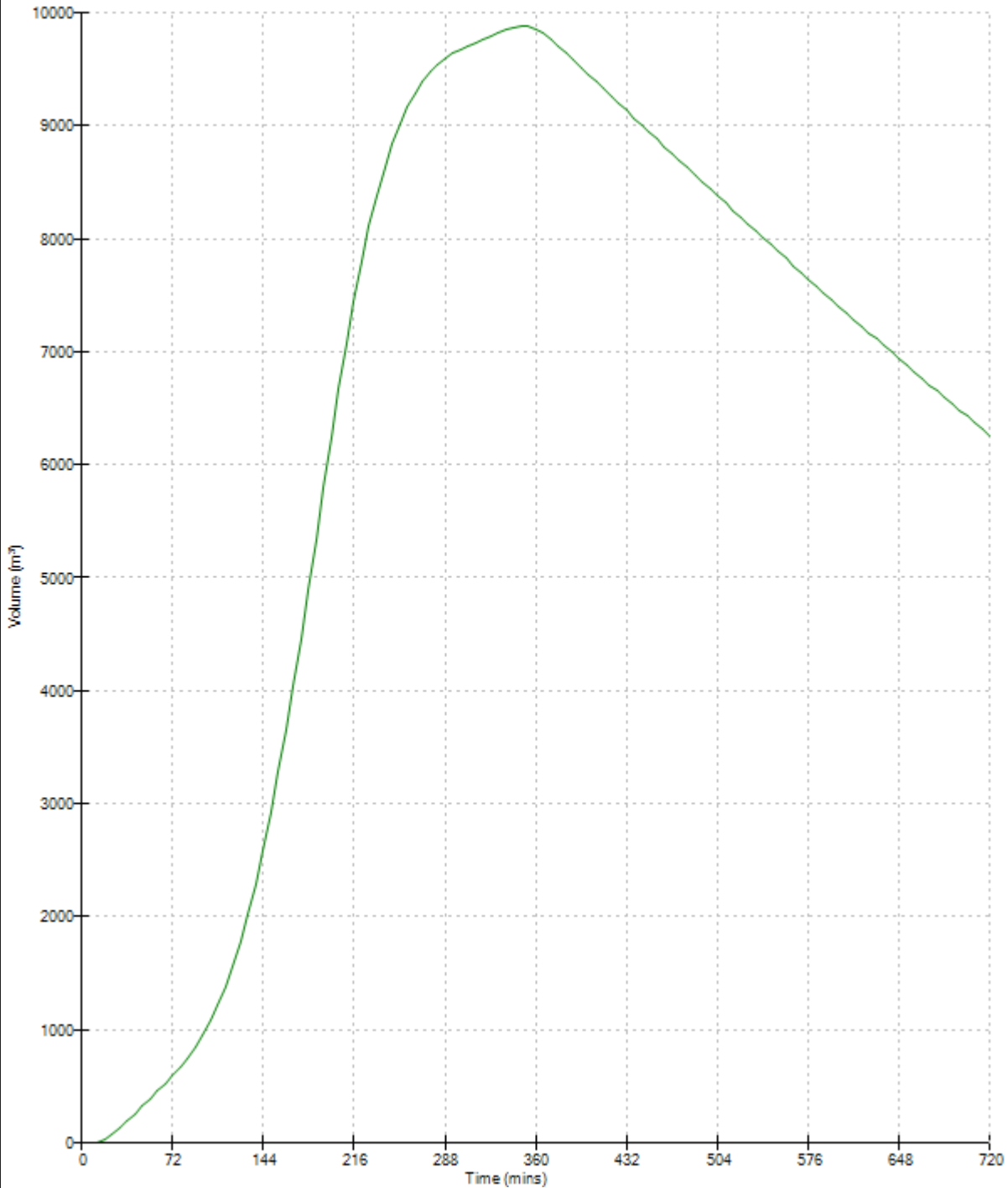
Rainfall Hyetograph for 360 minute 100 year Winter I+30% (Storm)

<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>	<b>Time (mins)</b>	<b>Rain (mm/hr)</b>
6	1.192	78	8.326	150	32.145	222	29.174	294	7.831
12	3.427	84	8.998	156	34.675	228	26.509	300	7.588
18	5.068	90	9.892	162	37.034	234	23.883	306	7.474
24	6.281	96	11.203	168	39.351	240	21.050	312	7.457
30	6.924	102	12.648	174	40.993	246	18.695	318	7.473
36	7.291	108	14.329	180	42.178	252	16.515	324	7.453
42	7.453	114	16.515	186	42.178	258	14.329	330	7.291
48	7.473	120	18.695	192	40.993	264	12.648	336	6.924
54	7.457	126	21.050	198	39.351	270	11.203	342	6.281
60	7.474	132	23.883	204	37.034	276	9.892	348	5.068
66	7.588	138	26.509	210	34.675	282	8.999	354	3.427
72	7.831	144	29.174	216	32.145	288	8.326	360	1.192




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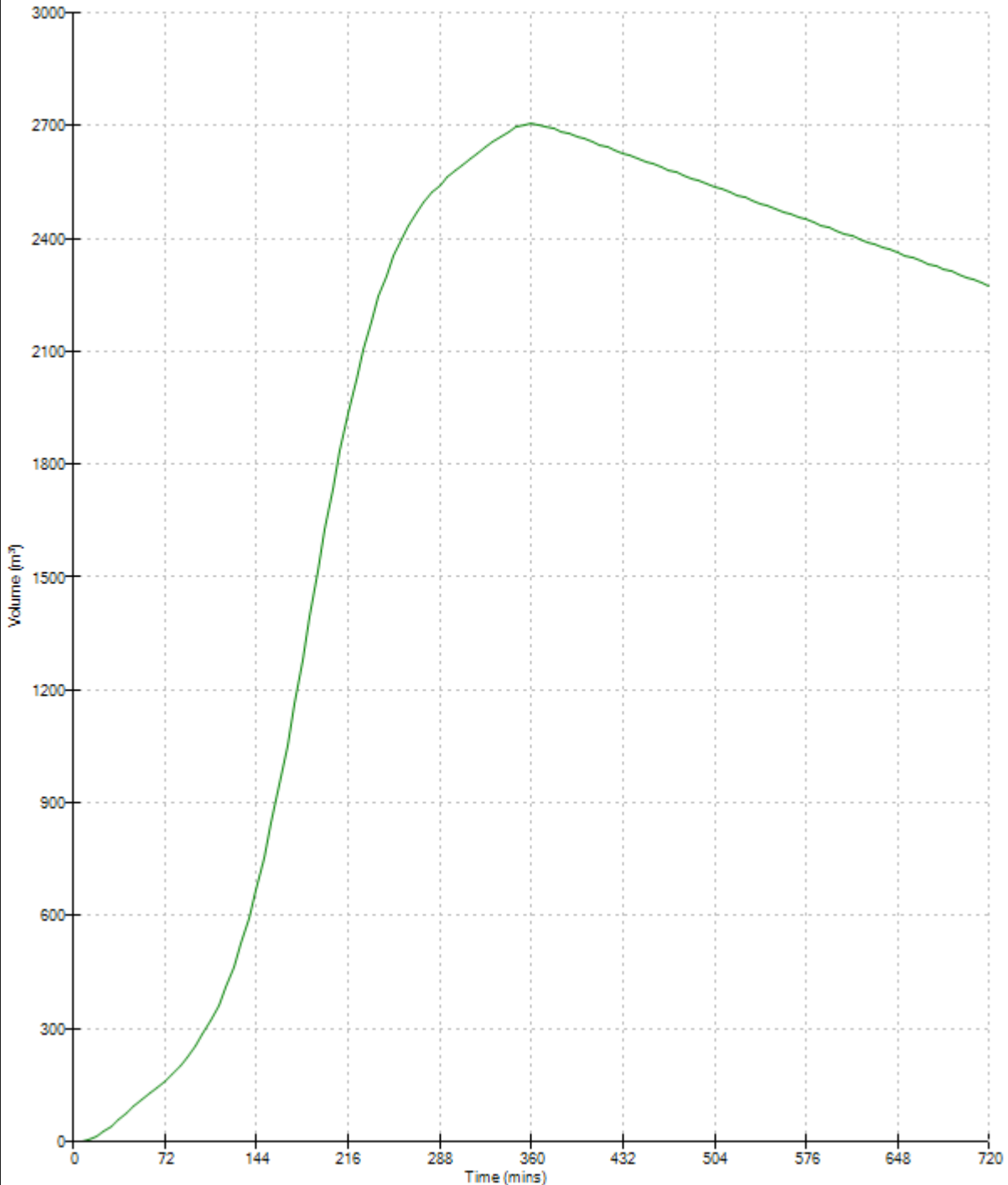
Graphs for Pipe 1.010 US/MH 1.10 (Storm)  
360 minute 100 year Winter I+30%  
Status: SURCHARGED



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Graphs for Pipe 16.008 US/MH 16.8 (Storm)  
360 minute 100 year Winter I+30%  
Status: SURCHARGED



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