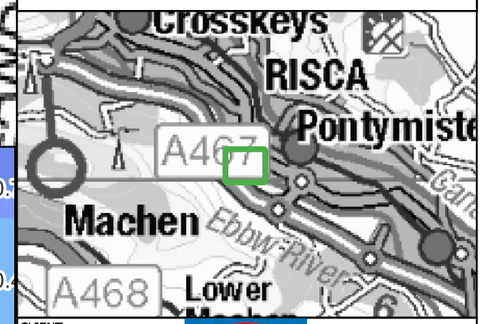
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary

Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Normal Conditions

PLOT STATUS:			DATE:
FINAL			14-01-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:1500

PLOT NAME: 16295_EBBW_Q1000_DEF_EXG_NC_023_dMax

REVISION: -

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Maximum Water Level (m AOD)

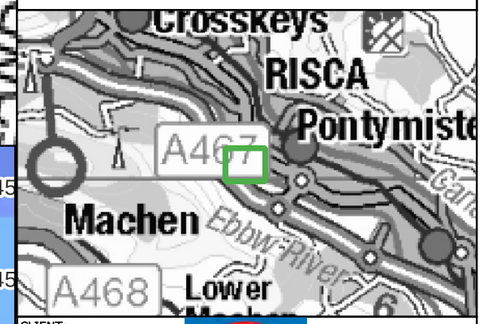
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 25 50 75 100 m

0 10 20 m



CLIENT: LIDL

waterco
www.waterco.co.uk

SCHEME: Commercial Street, Risca

PLOT TITLE: Maximum Water Level
0.1% AEP Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Normal Conditions

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:1500

PLOT NAME:	REVISION:
16295_EBBW_Q1000_DEF_EXG_NC_023_hMax	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Blockage Location (BL1) - B4591 Bridge

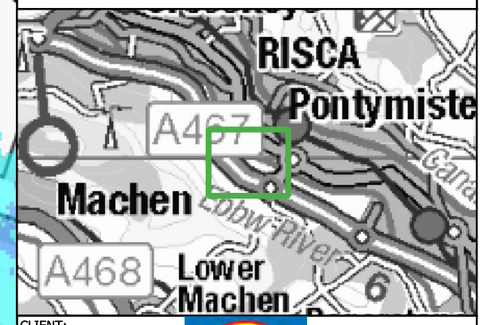
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 10 20 m

0 50 100 150 200 m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE: Maximum Flood Depth
1% AEP Plus 25% Climate Change Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Blockage Location 1 (BL1)

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:3000

PLOT NAME:	REVISION:
16295_EBBW_Q100CC25_DEF_EXG_BL1-25_023_dMax	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Blockage Location (BL1) - B4591 Bridge

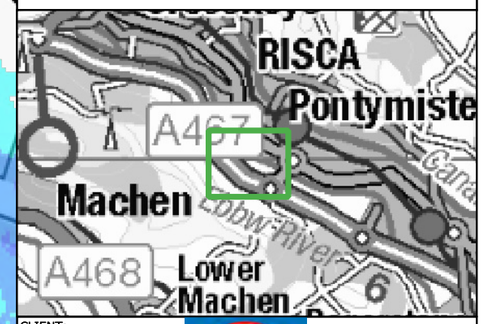
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 10 20 m

0 50 100 150 200 m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE:
Maximum Flood Depth
1% AEP Plus 70% Climate Change Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Blockage Location 1 (BL1)

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:3000

PLOT NAME:	REVISION:
16295_EBBW_Q100CC70_DEF_EXG_BL1-25_023_dMax	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Blockage Location (BL1) - B4591 Bridge
- Maximum Water Level (m AOD)

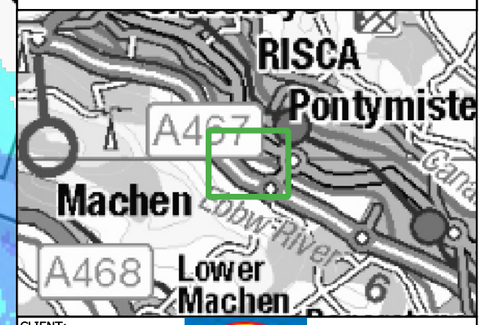
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 10 20 m

0 50 100 150 200 m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE: Maximum Water Level (m AOD)
1% AEP Plus 70% Climate Change Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Blockage Location 1 (BL1)

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:3000

PLOT NAME:	REVISION:
16295_EBBW_Q100CC70_DEF_EXG_BL1-25_023_hMax	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Blockage Location (BL1) - B4591 Bridge

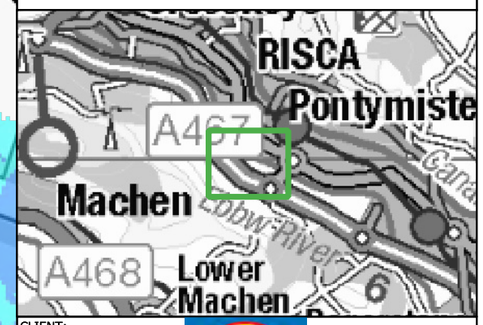
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 10 20 m

0 50 100 150 200 m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Blockage Location 1 (BL1)

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:3000

PLOT NAME:	REVISION:
16295_EBBW_Q1000_DEF_EXG_BL1-25_023_dMax	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Blockage Location (BL1) - B4591 Bridge
- Maximum Water Level (m AOD)

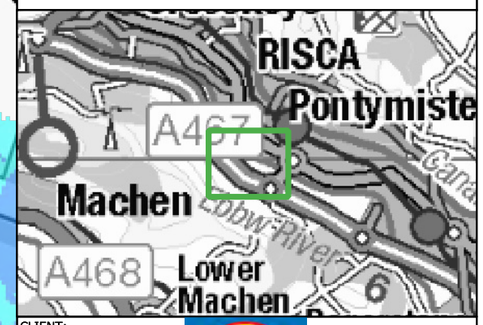
Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m

Plot Scale at A3: 1:1000

0 10 20 m

0 50 100 150 200 m



CLIENT:

www.waterco.co.uk

SCHEME:

Commercial Street, Risca

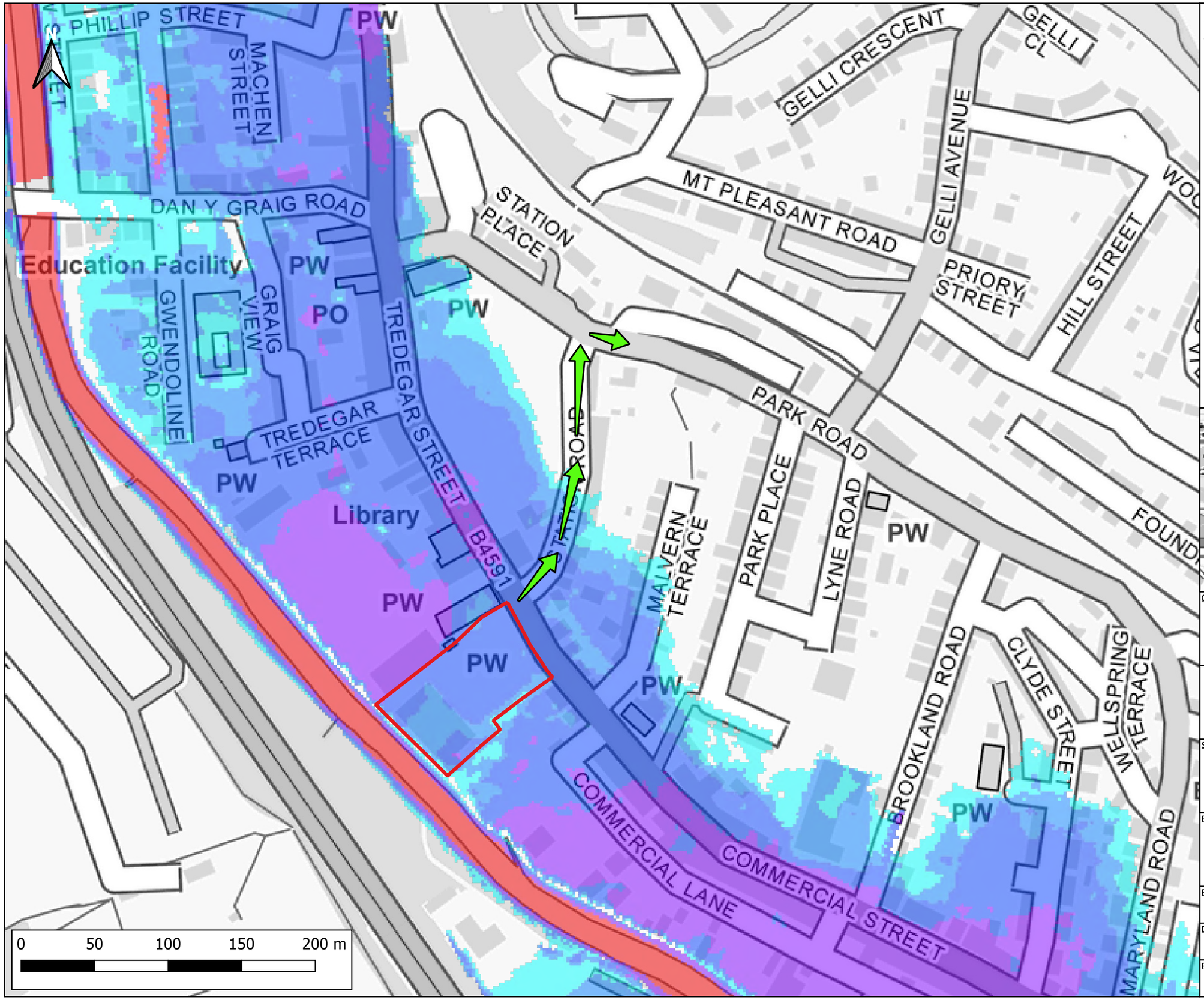
PLOT TITLE: Maximum Water Level (m AOD)
0.1% AEP Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Blockage Location 1 (BL1)

PLOT STATUS:	DATE:
FINAL	14-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:3000

PLOT NAME:	REVISION:
16295_EBBW_Q1000_DEF_EXG_BL1-25_023_hMax	-

Appendix J Flood Evacuation Route Plan



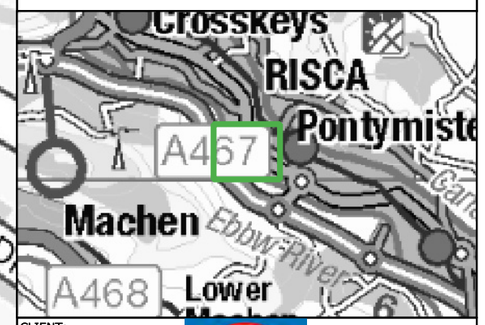
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Flood Evacuation Route

Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT: LIDL

waterco
www.waterco.co.uk

SCHEME: Commercial Street, Risca

PLOT TITLE: Flood Evacuation Route Plan
1% AEP Plus 70% Climate Change Fluvial Event
Existing Scenario (EXG)
Defended Scenario
Normal Conditions

PLOT STATUS:	DATE:
FINAL	30-01-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:2500

PLOT NAME:	REVISION:
16295_Flood_Evacuation_Route_Plan	-

Appendix K ICP SuDS Greenfield Runoff Rates

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.400
Area (ha)	0.678	Urban	0.000
SAAR (mm)	1299	Region Number	Region 9

Results l/s

QBAR Rural	4.8
QBAR Urban	4.8
Q100 years	10.4
Q1 year	4.2
Q30 years	8.4
Q100 years	10.4

Appendix L Drainage Area Plan

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Drainage Area Split

CLIENT:

Lidl Great Britain Limited

waterco

www.waterco.uk

SCHEME:

Commercial Street, Risca

PLOT TITLE:

Drainage Area Plan

PLOT STATUS:			DATE:
FINAL			13-02-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:400
PLOT NAME:			REVISION:
16295_Drainage_Area_Plan			-

Appendix M MicroDrainage Storage Estimates

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.313	0.313	0.8	32.6	O K
30 min Summer	9.438	0.438	0.8	45.5	O K
60 min Summer	9.582	0.582	0.8	60.6	O K
120 min Summer	9.706	0.706	0.9	73.4	Flood Risk
180 min Summer	9.787	0.787	0.9	81.9	Flood Risk
240 min Summer	9.845	0.845	0.9	87.9	Flood Risk
360 min Summer	9.919	0.919	1.0	95.6	Flood Risk
480 min Summer	9.959	0.959	1.0	99.7	Flood Risk
600 min Summer	9.980	0.980	1.0	101.9	Flood Risk
720 min Summer	9.988	0.988	1.0	102.7	Flood Risk
960 min Summer	9.986	0.986	1.0	102.6	Flood Risk
1440 min Summer	9.968	0.968	1.0	100.7	Flood Risk
2160 min Summer	9.923	0.923	1.0	96.0	Flood Risk
2880 min Summer	9.884	0.884	0.9	92.0	Flood Risk
4320 min Summer	9.835	0.835	0.9	86.9	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	120.455	0.0	33.1	16
30 min Summer	84.738	0.0	46.3	31
60 min Summer	57.197	0.0	62.9	62
120 min Summer	35.658	0.0	78.4	122
180 min Summer	27.173	0.0	89.6	182
240 min Summer	22.399	0.0	98.5	242
360 min Summer	16.974	0.0	111.8	360
480 min Summer	13.871	0.0	121.6	480
600 min Summer	11.823	0.0	129.1	600
720 min Summer	10.356	0.0	134.8	720
960 min Summer	8.368	0.0	139.4	834
1440 min Summer	6.171	0.0	137.0	1082
2160 min Summer	4.518	0.0	178.9	1492
2880 min Summer	3.638	0.0	192.0	1904
4320 min Summer	2.743	0.0	216.8	2728

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
5760 min Summer	9.801	0.801	0.9	83.3	Flood Risk
7200 min Summer	9.780	0.780	0.9	81.1	Flood Risk
8640 min Summer	9.765	0.765	0.9	79.6	Flood Risk
10080 min Summer	9.756	0.756	0.9	78.6	Flood Risk
15 min Winter	9.313	0.313	0.8	32.6	O K
30 min Winter	9.438	0.438	0.8	45.5	O K
60 min Winter	9.582	0.582	0.8	60.6	O K
120 min Winter	9.707	0.707	0.9	73.5	Flood Risk
180 min Winter	9.789	0.789	0.9	82.1	Flood Risk
240 min Winter	9.848	0.848	0.9	88.2	Flood Risk
360 min Winter	9.923	0.923	1.0	96.0	Flood Risk
480 min Winter	9.966	0.966	1.0	100.4	Flood Risk
600 min Winter	9.989	0.989	1.0	102.8	Flood Risk
720 min Winter	10.000	1.000	1.0	104.0	Flood Risk
960 min Winter	9.999	0.999	1.0	103.9	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
5760 min Summer	2.283	0.0	241.0	3576
7200 min Summer	2.008	0.0	265.0	4392
8640 min Summer	1.825	0.0	289.1	5192
10080 min Summer	1.696	0.0	313.3	5960
15 min Winter	120.455	0.0	33.1	16
30 min Winter	84.738	0.0	46.3	31
60 min Winter	57.197	0.0	62.9	62
120 min Winter	35.658	0.0	78.4	120
180 min Winter	27.173	0.0	89.6	178
240 min Winter	22.399	0.0	98.5	238
360 min Winter	16.974	0.0	111.8	352
480 min Winter	13.871	0.0	121.5	468
600 min Winter	11.823	0.0	129.0	578
720 min Winter	10.356	0.0	134.7	690
960 min Winter	8.368	0.0	139.1	902

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
1440 min Winter	9.972	0.972	1.0	101.1	Flood Risk
2160 min Winter	9.912	0.912	1.0	94.9	Flood Risk
2880 min Winter	9.854	0.854	0.9	88.8	Flood Risk
4320 min Winter	9.767	0.767	0.9	79.7	Flood Risk
5760 min Winter	9.698	0.698	0.9	72.6	O K
7200 min Winter	9.645	0.645	0.8	67.1	O K
8640 min Winter	9.603	0.603	0.8	62.7	O K
10080 min Winter	9.567	0.567	0.8	59.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
1440 min Winter	6.171	0.0	136.6	1124
2160 min Winter	4.518	0.0	178.9	1596
2880 min Winter	3.638	0.0	192.0	2048
4320 min Winter	2.743	0.0	216.9	2940
5760 min Winter	2.283	0.0	241.0	3808
7200 min Winter	2.008	0.0	265.0	4680
8640 min Winter	1.825	0.0	289.1	5536
10080 min Winter	1.696	0.0	313.3	6360

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 323920 190200 ST 23920 90200
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.110

Time (mins) From:	To:	Area (ha)
0	1	0.110

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	104.0	1.000	104.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0047-1000-1000-1000
Design Head (m)	1.000
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	47
Invert Level (m)	8.995
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.0
Flush-Flo™	0.205	0.8
Kick-Flo®	0.415	0.7
Mean Flow over Head Range	-	0.8

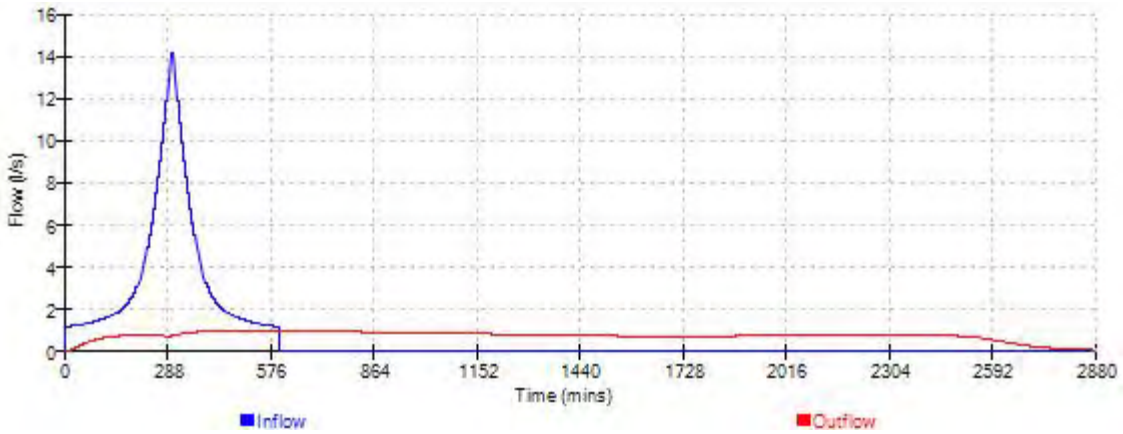
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

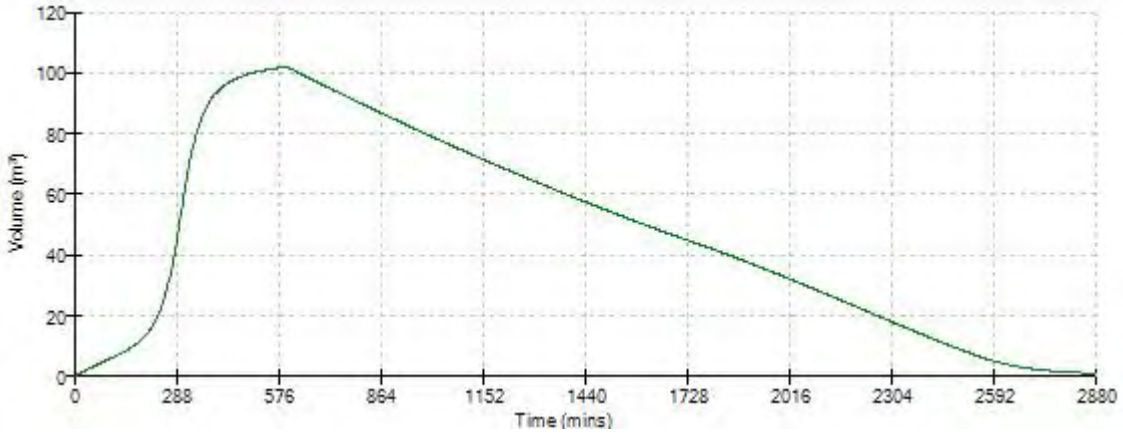
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	0.400	0.7	0.800	0.9	1.400	1.2
0.200	0.8	0.500	0.7	1.000	1.0	1.600	1.2
0.300	0.8	0.600	0.8	1.200	1.1	1.800	1.3

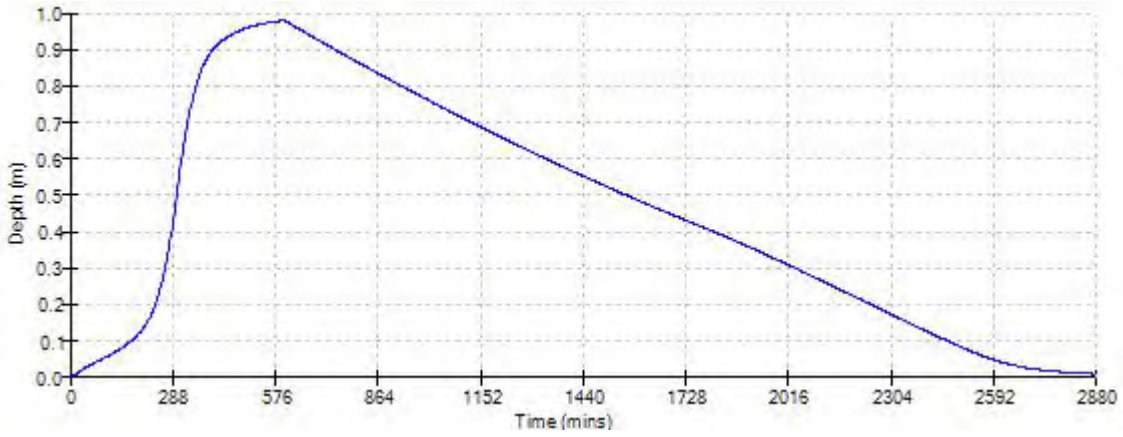
Hydro-Brake® Optimum Outflow Control

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
2.000	1.4	3.500	1.8	6.000	2.3	8.500	2.7
2.200	1.4	4.000	1.9	6.500	2.3	9.000	2.7
2.400	1.5	4.500	2.0	7.000	2.4	9.500	2.8
2.600	1.5	5.000	2.1	7.500	2.5		
3.000	1.6	5.500	2.2	8.000	2.6		

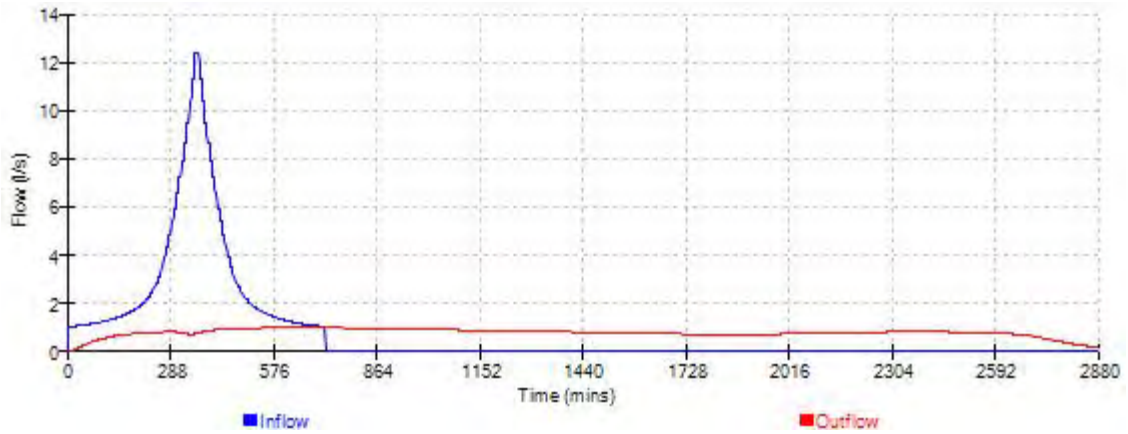
Event: 600 min Summer

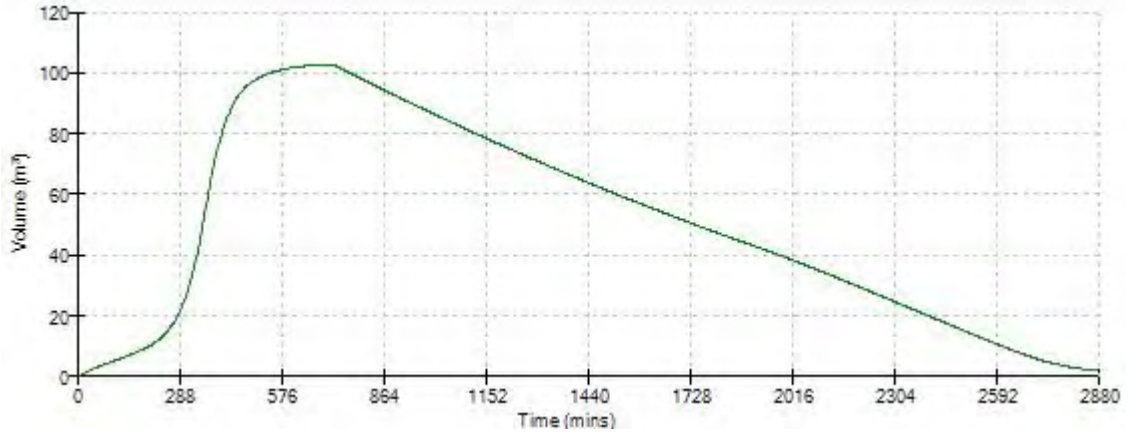


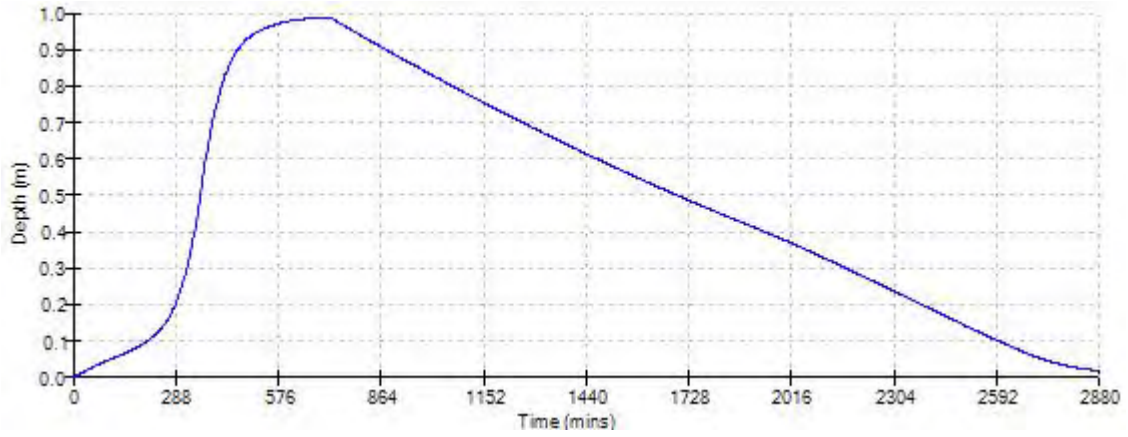




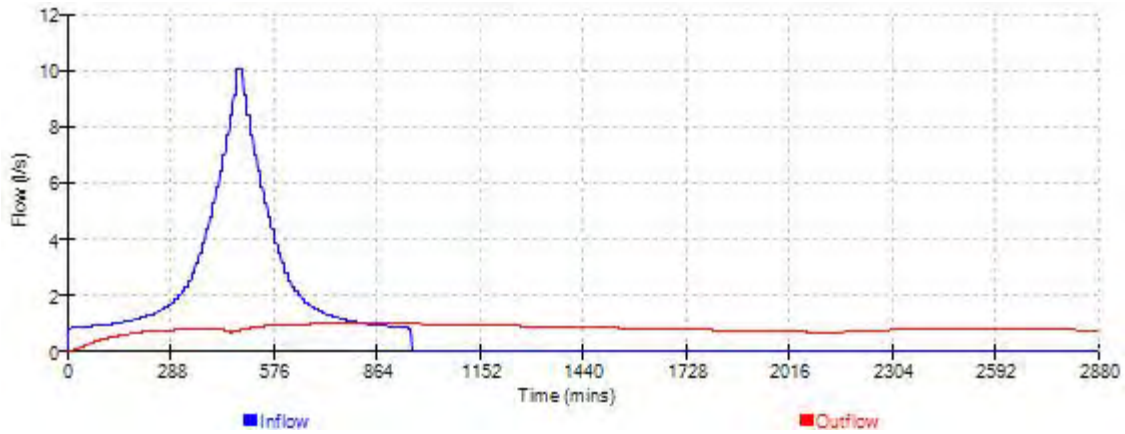
Event: 720 min Summer

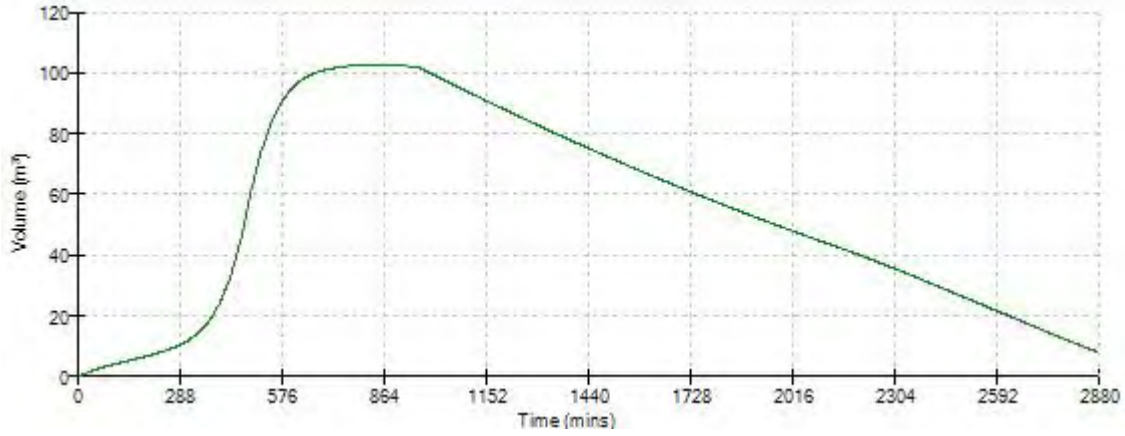


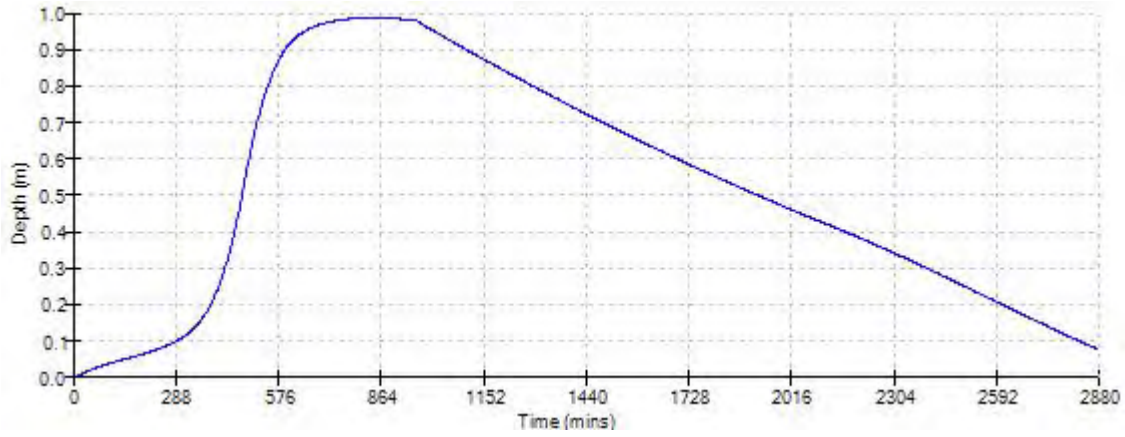




Event: 960 min Summer







Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.312	0.312	3.2	109.4	O K
30 min Summer	9.435	0.435	3.2	152.7	O K
60 min Summer	9.579	0.579	3.2	203.2	O K
120 min Summer	9.705	0.705	3.2	247.4	Flood Risk
180 min Summer	9.787	0.787	3.2	276.1	Flood Risk
240 min Summer	9.845	0.845	3.2	296.6	Flood Risk
360 min Summer	9.920	0.920	3.2	322.8	Flood Risk
480 min Summer	9.961	0.961	3.2	337.2	Flood Risk
600 min Summer	9.982	0.982	3.2	344.8	Flood Risk
720 min Summer	9.992	0.992	3.2	348.0	Flood Risk
960 min Summer	9.989	0.989	3.2	347.3	Flood Risk
1440 min Summer	9.970	0.970	3.2	340.4	Flood Risk
2160 min Summer	9.923	0.923	3.2	323.8	Flood Risk
2880 min Summer	9.880	0.880	3.2	309.0	Flood Risk
4320 min Summer	9.823	0.823	3.2	289.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	120.455	0.0	109.3	16
30 min Summer	84.738	0.0	153.5	31
60 min Summer	57.197	0.0	211.3	62
120 min Summer	35.658	0.0	263.1	122
180 min Summer	27.173	0.0	300.4	182
240 min Summer	22.399	0.0	329.9	242
360 min Summer	16.974	0.0	374.2	360
480 min Summer	13.871	0.0	406.7	480
600 min Summer	11.823	0.0	432.1	600
720 min Summer	10.356	0.0	452.3	720
960 min Summer	8.368	0.0	479.3	858
1440 min Summer	6.171	0.0	476.3	1110
2160 min Summer	4.518	0.0	601.6	1512
2880 min Summer	3.638	0.0	645.5	1932
4320 min Summer	2.743	0.0	727.5	2768

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
5760 min Summer	9.781	0.781	3.2	274.0	Flood Risk
7200 min Summer	9.751	0.751	3.2	263.6	Flood Risk
8640 min Summer	9.729	0.729	3.2	255.8	Flood Risk
10080 min Summer	9.713	0.713	3.2	250.1	Flood Risk
15 min Winter	9.312	0.312	3.2	109.4	O K
30 min Winter	9.435	0.435	3.2	152.6	O K
60 min Winter	9.579	0.579	3.2	203.2	O K
120 min Winter	9.705	0.705	3.2	247.3	Flood Risk
180 min Winter	9.787	0.787	3.2	276.2	Flood Risk
240 min Winter	9.846	0.846	3.2	297.0	Flood Risk
360 min Winter	9.922	0.922	3.2	323.7	Flood Risk
480 min Winter	9.965	0.965	3.2	338.7	Flood Risk
600 min Winter	9.989	0.989	3.2	347.0	Flood Risk
720 min Winter	10.000	1.000	3.2	351.0	Flood Risk
960 min Winter	10.000	1.000	3.2	350.9	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
5760 min Summer	2.283	0.0	810.7	3624
7200 min Summer	2.008	0.0	891.4	4400
8640 min Summer	1.825	0.0	972.3	5272
10080 min Summer	1.696	0.0	1053.5	6056
15 min Winter	120.455	0.0	109.3	16
30 min Winter	84.738	0.0	153.5	31
60 min Winter	57.197	0.0	211.3	62
120 min Winter	35.658	0.0	263.1	120
180 min Winter	27.173	0.0	300.4	178
240 min Winter	22.399	0.0	329.9	238
360 min Winter	16.974	0.0	374.2	354
480 min Winter	13.871	0.0	406.7	468
600 min Winter	11.823	0.0	432.1	582
720 min Winter	10.356	0.0	452.2	692
960 min Winter	8.368	0.0	479.2	904

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
1440 min Winter	9.969	0.969	3.2	340.0	Flood Risk
2160 min Winter	9.904	0.904	3.2	317.4	Flood Risk
2880 min Winter	9.839	0.839	3.2	294.4	Flood Risk
4320 min Winter	9.731	0.731	3.2	256.7	Flood Risk
5760 min Winter	9.629	0.629	3.2	220.9	O K
7200 min Winter	9.523	0.523	3.2	183.4	O K
8640 min Winter	9.448	0.448	3.2	157.2	O K
10080 min Winter	9.390	0.390	3.2	137.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
1440 min Winter	6.171	0.0	476.6	1138
2160 min Winter	4.518	0.0	601.6	1604
2880 min Winter	3.638	0.0	645.6	2076
4320 min Winter	2.743	0.0	728.0	2984
5760 min Winter	2.283	0.0	810.7	3912
7200 min Winter	2.008	0.0	891.6	4616
8640 min Winter	1.825	0.0	972.5	5360
10080 min Winter	1.696	0.0	1053.7	6056

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 323920 190200 ST 23920 90200
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.370

Time (mins) From:	To:	Area (ha)
0	1	0.370

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	351.0	1.000	351.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0085-3200-1000-3200
Design Head (m)	1.000
Design Flow (l/s)	3.2
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	85
Invert Level (m)	8.995
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	3.2
Flush-Flo™	0.296	3.2
Kick-Flo®	0.624	2.6
Mean Flow over Head Range	-	2.8

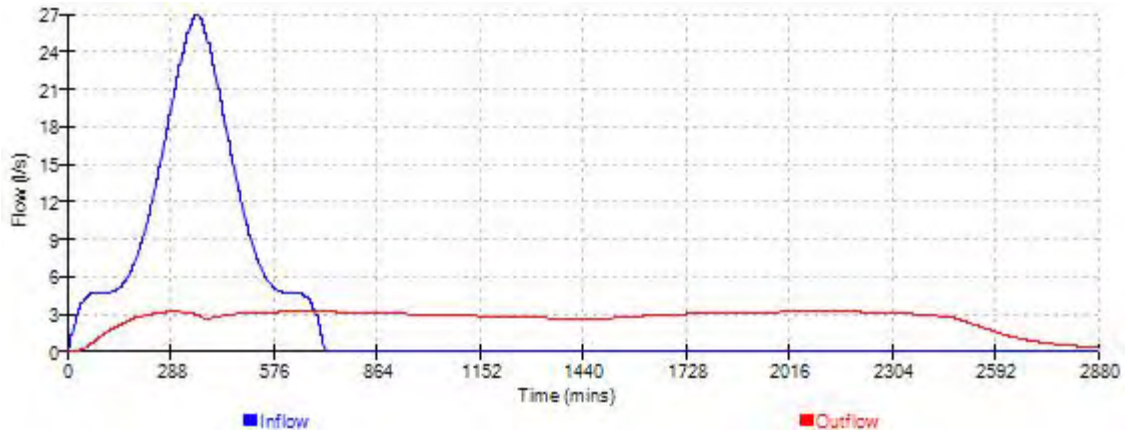
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

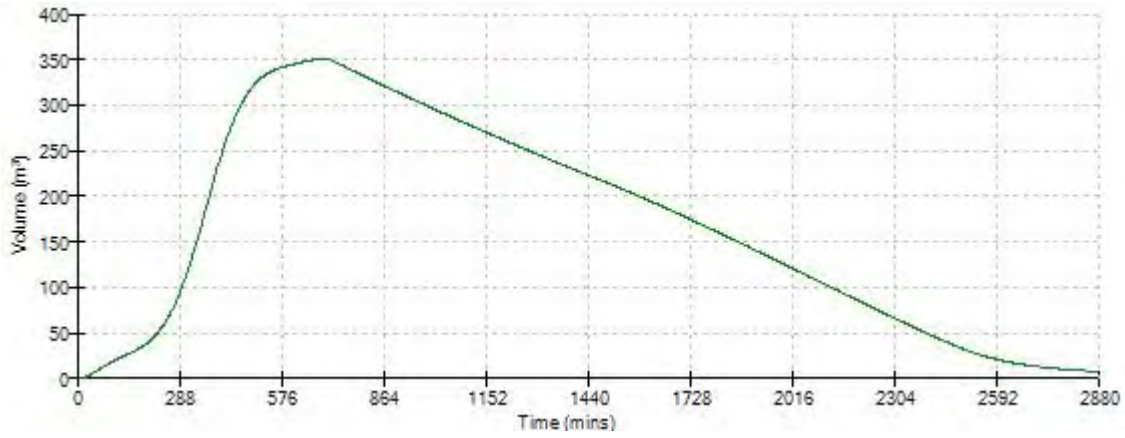
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.6	0.400	3.1	0.800	2.9	1.400	3.7
0.200	3.1	0.500	3.0	1.000	3.2	1.600	4.0
0.300	3.2	0.600	2.7	1.200	3.5	1.800	4.2

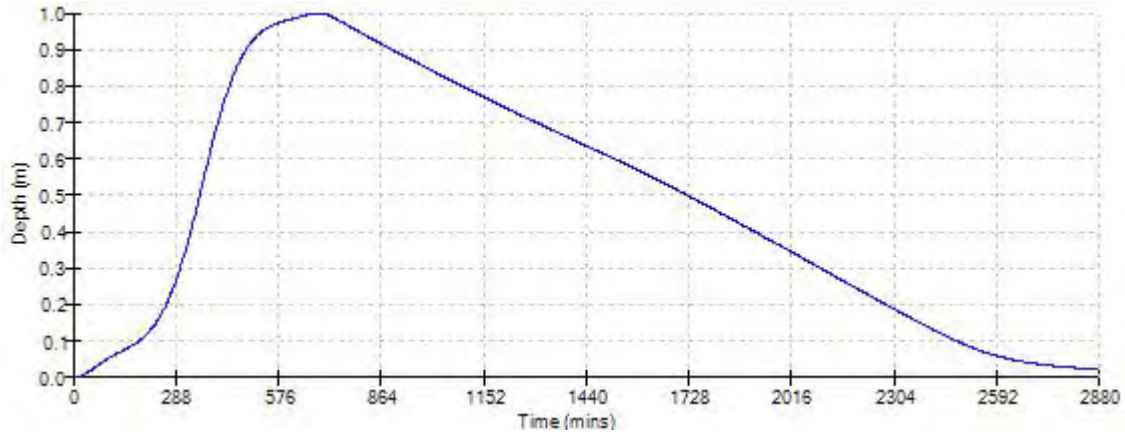
Hydro-Brake® Optimum Outflow Control

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
2.000	4.4	3.500	5.7	6.000	7.4	8.500	8.7
2.200	4.6	4.000	6.1	6.500	7.7	9.000	8.9
2.400	4.8	4.500	6.4	7.000	7.9	9.500	9.2
2.600	5.0	5.000	6.8	7.500	8.2		
3.000	5.3	5.500	7.1	8.000	8.5		

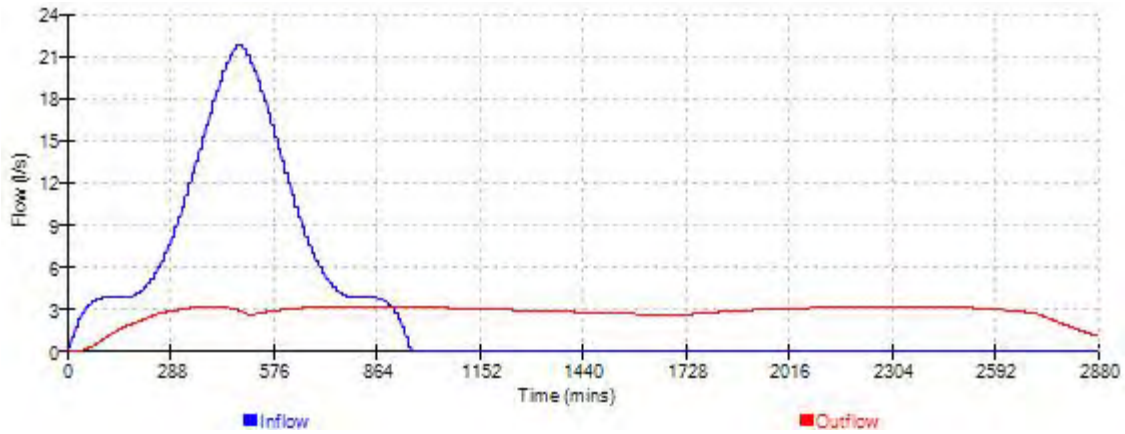
Event: 720 min Winter

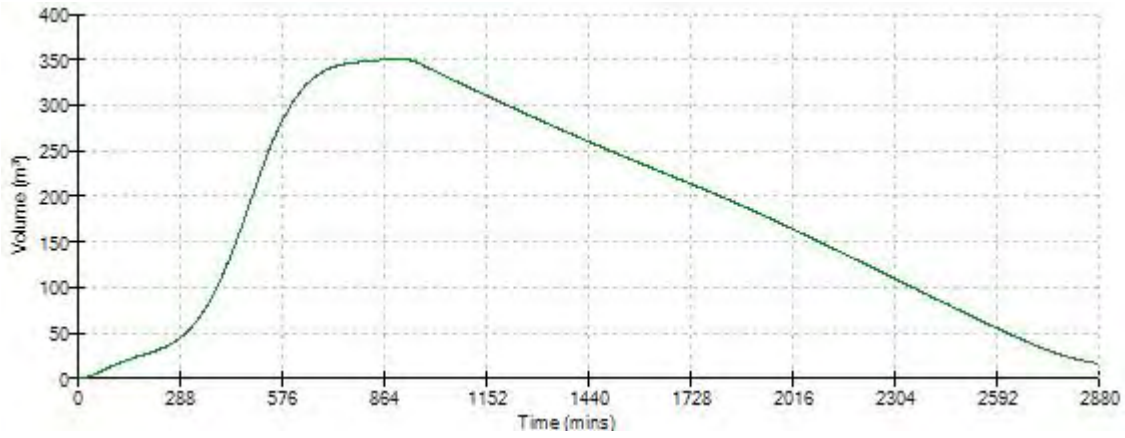


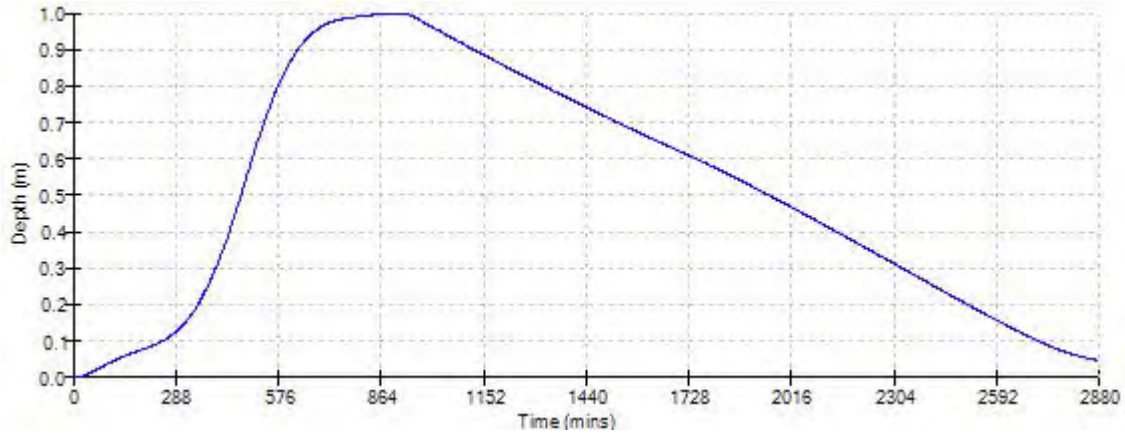




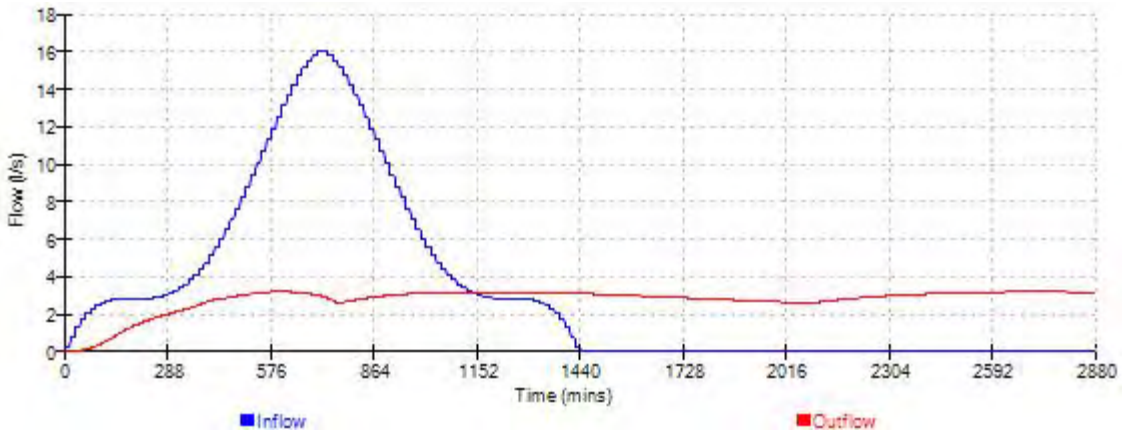
Event: 960 min Winter

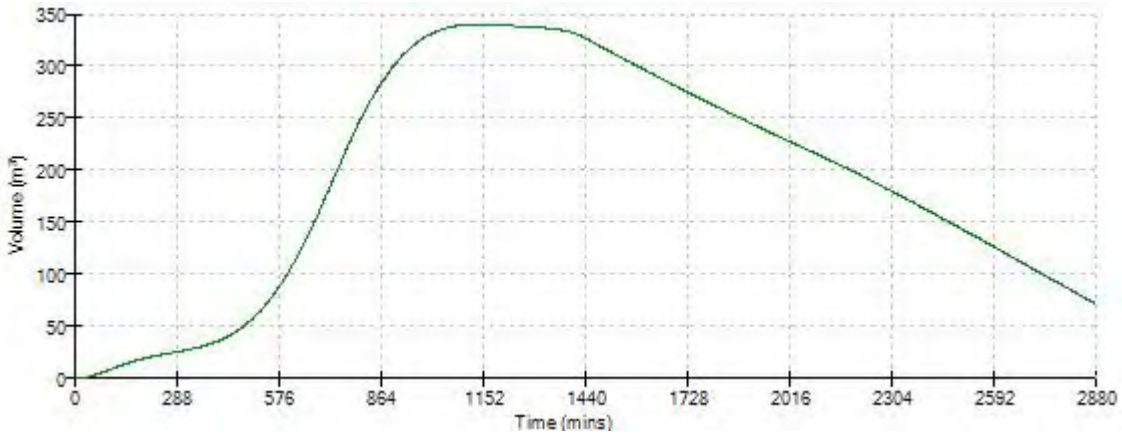


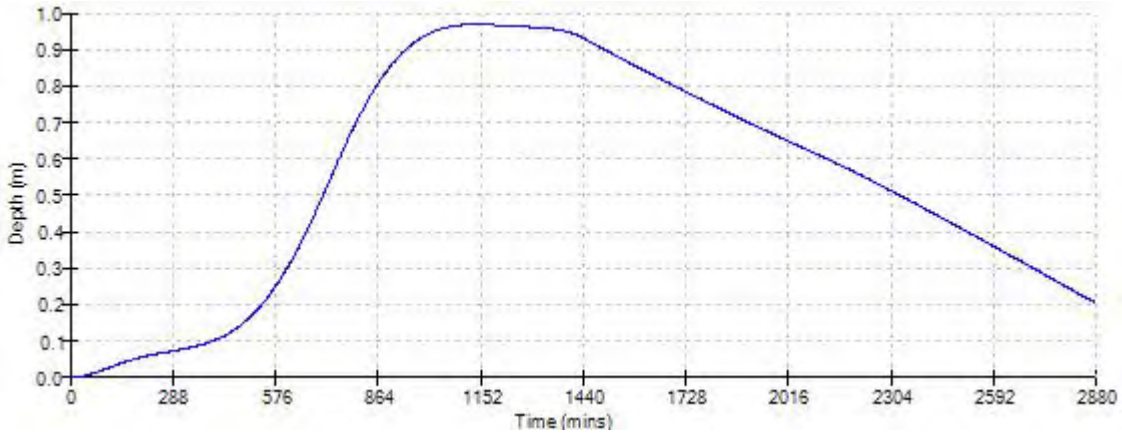




Event: 1440 min Winter







Appendix N Concept Drainage Sketch

A 28m long x 5m wide x 0.8m deep attenuation tank with a 95% void ratio will provide 106.4m3 of storage.

A 23m long x 7m wide x 0.8m deep attenuation tank with a 95% void ratio will provide 122.36m3 of storage.

Hydro-Brake chamber restricting flow to 1 l/s.

Hydro-Brake chamber restricting flow to 4.2 l/s.

A 0.8m deep attenuation pond with an invert (base) area of 40m2, 1 in 3 side slopes and a total surface area of 112m2 would provide 60.76m3 of storage

A 29m long x 4m wide x 0.8m deep attenuation tank with a 95% void ratio will provide 88.16m3 of storage.

A 12.5m long x 8.5m wide x 0.8m deep attenuation tank with a 95% void ratio will provide 80.75m3 of storage.

0 10 20 30 40 m

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Drainage Area Split
- Surface Water Drain
- Flow Control Chamber
- Surface Water Inspection Chamber
- Attenuation Tank

CLIENT:
Lidl Great Britain Limited

waterco
www.waterco.co.uk

SCHEME:
Commercial Street, Risca

PLOT TITLE:
Concept Drainage Sketch

PLOT STATUS:	DATE:
FINAL	17-02-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:400

PLOT NAME:	REVISION:
16295_Concept_Drainage_Sketch	-

Appendix O SuDS Maintenance Schedules

Operation and Maintenance Requirements for Ponds and Wetlands

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season), or as required
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage, and / or physical damage.	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options.	Half yearly
	Check any mechanical devices e.g. penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Remove sediment from any forebay	Every 1 – 5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, e.g. 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate of Inlets, outlets and overflows	As required

Ref. Table 23.1 CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Attenuation Storage Tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove If necessary	Every 5 years or as required

Ref. Table 21.3, CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Appendix P Concept Designers Risk Assessment (cDRA)

Commercial Street, Risca	16295
Lidl Great Britain Limited	
16295-FCA & Drainage Strategy-01	

Adam McCulloch	12/02/2025
Aled Williams	12/02/2025
Nigel Jones	12/02/2025

The Construction (Design and Management) Regulations 2015 (CDM 2015) place an obligation on the Designer to take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under CDM. The Designer has undertaken this assessment to identify any extra-ordinary risks, or those that would not be expected on this particular project by an experienced and competent Contractor. The aim is to avoid needless paperwork and bureaucracy and ensure the assessment is project specific, relevant and proportionate to the risk.

Each of the following risk areas has been considered using the question below. Is a risk present which is considered to be in this instance?

If - A detailed risk assessment is required at design stage
If - Insufficient information has been provided at concept design stage and the risks are unknown. Further consideration must be given at design stage(s)
If - No further action is required.

		or	
1	Ground Conditions		To be considered at detailed design
2	Hazardous Environment		To be considered at detailed design
3	Existing Working Environment		Existing Lidl Store on site
4	Existing Services		Combined sewer overflow and other buried services on site
5	Proximity to Other Structure(s)		NRW flood defence on site boundary
6	Near Waterbody / flood risk		Ebbw River borders the site
7	Proximity to Other Activities		To be considered at detailed design
8	Sequence of Construction		To be considered at detailed design
9	Access		Acces from Commercial Street
10	Interfaces		To be considered at detailed design
11	Confined Space Working		Proposed underground attenuation tanks
12	Maintenance Considerations		Maintenance of attenuation tanks and pond
13	Working at Height		To be considered at detailed design
14	Steep Slopes		
15	Demolition / Refurbishment / Repair		To be considered at detailed design
16	Welfare		To be considered at detailed design
17	Occupational Health		To be considered at detailed design
18	Environmental Issues		To be considered at detailed design
19	Other Significant Hazards not Identified Above		To be considered at detailed design
20	Residual Risk to Future Users		To be considered at detailed design