

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.003	SW.10	0.000	0.14			3.3	FLOOD RISK	
1.004	Swale + Tank	0.000	0.23			3.0	FLOOD RISK	
1.005	SW.12	0.000	0.23			3.0	SURCHARGED	
2.000	SW.14	0.000	0.02			4.0	SURCHARGED	
1.006	SW.13	0.000	0.11			6.8	SURCHARGED	
3.000	SW.22	0.000	0.08			2.8	SURCHARGED	
3.001	SW.21	0.000	0.06			2.8	FLOOD RISK	
3.002	Wetland 2	0.000	0.09		758	2.8	FLOOD RISK	
3.003	SW.20	0.000	0.09			2.8	SURCHARGED	
3.004	SW19	0.000	0.11			2.8	FLOOD RISK	
3.005	SW.18	0.000	0.09			2.8	FLOOD RISK	
4.000	SW.15	0.000	0.01			1.2	SURCHARGED	
5.000	SW.16	0.000	0.01			2.1	FLOOD RISK	
3.006	SW.17	0.000	0.03			5.8	FLOOD RISK	
1.007	RWH+Storage	0.000	0.10			9.0	FLOOD RISK	
1.008	SWPC	0.000	0.01			1.0	SURCHARGED	

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.20

Type : Catchment Area

Area (ha)	0.005
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.21

Type : Catchment Area

Area (ha)	0.039
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.02

Type : Catchment Area

Area (ha)	0.047
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.18

Type : Catchment Area

Area (ha)	0.043
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.23

Type : Catchment Area

Area (ha)	0.021
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.19

Type : Catchment Area

Area (ha)	0.014
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.17

Type : Catchment Area

Area (ha)	0.039
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.01

Type : Catchment Area

Area (ha)	0.02
-----------	------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.03

Type : Catchment Area

Area (ha)	0.029
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.04

Type : Catchment Area

Area (ha)	0.017
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.05

Type : Catchment Area

Area (ha)	0.025
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.06

Type : Catchment Area

Area (ha)	0.01
-----------	------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.07

Type : Catchment Area

Area (ha)	0.067
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.13

Type : Catchment Area

Area (ha)	0.031
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



HS.11

Type : Catchment Area

Area (ha)	0.075
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.10

Type : Catchment Area

Area (ha)	0.028
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.09

Type : Catchment Area

Area (ha)	0.059
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.08

Type : Catchment Area

Area (ha)	0.02
-----------	------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



HS.15

Type : Catchment Area

Area (ha)	0.038
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



HS.16

Type : Catchment Area

Area (ha)	0.034
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Inflows Storm Phase: Catchment 1 (Car Park)	Company: BDP			



HS.22

Type : Catchment Area

Area (ha)	0.024
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	95



HS.12

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024		
	Designed by: LJ	Checked by: SR	Approved By: JT
Report Details: Type: Junctions Storm Phase: Catchment 1 (Car Park)	Company: BDP		



Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW.07	Inlet	HS.22	(None)	No Restriction
SW.06	Inlet	1.000 HS.20	(None)	No Restriction
SW.05	Inlet	1.001 2.000	(None)	No Restriction
SW.04	Inlet	HS.21	(None)	No Restriction
SW.03	Inlet	1.002 4.001 HS.17	(None)	No Restriction
SW.25	Inlet	HS.02	(None)	No Restriction
	Inlet (1)	Pipe (1)	(None)	No Restriction
SW.01	Inlet	HS.23	(None)	No Restriction
SW.02	Inlet	4.000 HS.19	(None)	No Restriction
SW.32	Inlet	S1.012	(None)	No Restriction
ExSWMH	Inlet	S1.013	(None)	No Restriction
SW.24	Inlet	3.000	(None)	No Restriction
	Inlet (1)	4.002	(None)	No Restriction
SW.27	Inlet	S1.000	(None)	No Restriction
SW.28	Inlet	S1.003 (1)	(None)	No Restriction
SW.29	Inlet	S1.008 Pipe (23)	(None)	No Restriction
SW.31	Inlet	S1.011	(None)	No Restriction
	Inlet (1)	S3.000	(None)	No Restriction
SW.30	Inlet	S1.009 S2.002	(None)	No Restriction
Simple Junction	Inlet	Pipe (6)	(None)	No Restriction
Simple Junction (1)	Inlet	S2.000 Pipe (7)	(None)	No Restriction
	Inlet	S2.001	(None)	No Restriction
Simple Junction (2)	Inlet (1)	Pipe (8)	(None)	No Restriction
	Inlet	Pipe (11)	(None)	No Restriction
Simple Junction (4)	Inlet	Pipe (11)	(None)	No Restriction
Simple Junction (3)	Inlet	S1.001	(None)	No Restriction
	Inlet (1)	Pipe (12)	(None)	No Restriction
Simple Junction (5)	Inlet	S1.002 Pipe (3)	(None)	No Restriction
Simple Junction (6)	Inlet	S1.004 Pipe (14)	(None)	No Restriction
Simple Junction (7)	Inlet	S1.005 Pipe (15)	(None)	No Restriction
Simple Junction (8)	Inlet	S1.006 Pipe (16)	(None)	No Restriction
Simple Junction (9)	Inlet	S1.007 Pipe (17)	(None)	No Restriction
Simple Junction (10)	Inlet	6.000	(None)	No Restriction
Simple Junction (11)	Inlet	S1.003 Pipe (2)	(None)	No Restriction

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024		
	Designed by: LJ	Checked by: SR	Approved By: JT
Report Details: Type: Junctions Storm Phase: Catchment 1 (Car Park)	Company: BDP		



Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
SW.07	Outlet	1.000	Free Discharge
SW.06	Outlet	1.001	Free Discharge
SW.05	Outlet	1.002	Free Discharge
SW.04	Outlet	2.000	Free Discharge
SW.03	Outlet	4.002	Free Discharge
SW.25	Outlet	3.000	Free Discharge
SW.01	Outlet	4.000	Free Discharge
SW.02	Outlet	4.001	Free Discharge
SW.32	Outlet	S1.013	Hydro-Brake®
	Invert Level (m)	65.070	
	Design Depth (m)	1.136	
	Design Flow (L/s)	6.2	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0115-6200-1136-6200	
SW.24	Outlet	Pipe (23)	Free Discharge
SW.27	Outlet	S1.001	Free Discharge
SW.28	Outlet	S1.004	Free Discharge
SW.29	Outlet	S1.009	Free Discharge
SW.31	Outlet	S1.012	Free Discharge
SW.30	Outlet	S1.010	Free Discharge
Simple Junction	Outlet	S2.000	Free Discharge
Simple Junction (1)	Outlet	S2.001	Free Discharge
Simple Junction (2)	Outlet	S2.002	Free Discharge
Simple Junction (4)	Outlet	S1.000	Free Discharge
Simple Junction (3)	Outlet	S1.002	Free Discharge
Simple Junction (5)	Outlet	S1.003	Free Discharge
Simple Junction (6)	Outlet	S1.005	Free Discharge
Simple Junction (7)	Outlet	S1.006	Free Discharge
Simple Junction (8)	Outlet	S1.007	Free Discharge
Simple Junction (9)	Outlet	S1.008	Free Discharge
Simple Junction (10)	Outlet	S3.000	Free Discharge
Simple Junction (11)	Outlet	S1.003 (1)	Free Discharge

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP9

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.630
Depth (m)	0.595
Base Level (m)	66.035
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	41.260
Long. Slope (1:X)	1000.00
Width (m)	5.816
Total Volume (m³)	23.548

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0



PP5.2

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.878
Depth (m)	0.900
Base Level (m)	65.978
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	52.973
Long. Slope (1:X)	10000.00
Width (m)	3.413
Total Volume (m³)	34.553

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP1

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.600
Depth (m)	0.625
Base Level (m)	65.975
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	17.449
Long. Slope (1:X)	10000.00
Width (m)	4.810
Total Volume (m³)	9.029

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0



PP2

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.550
Depth (m)	0.542
Base Level (m)	66.008
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	24.426
Long. Slope (1:X)	10000.00
Width (m)	8.459
Total Volume (m³)	16.853

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP3.1

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.679
Depth (m)	0.700
Base Level (m)	65.979
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	100000.0
Porosity (%)	30
Length (m)	21.148
Long. Slope (1:X)	10000.00
Width (m)	3.328
Total Volume (m³)	9.236

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0



PP.8

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.770
Depth (m)	0.775
Base Level (m)	65.995
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	1000.0
Porosity (%)	30
Length (m)	37.706
Long. Slope (1:X)	200.00
Width (m)	5.000
Total Volume (m³)	28.746

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP4.1

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.706
Depth (m)	0.800
Base Level (m)	65.906
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	23.569
Long. Slope (1:X)	10000.00
Width (m)	3.603
Total Volume (m³)	13.665

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0



PP4.2

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.735
Depth (m)	0.800
Base Level (m)	65.935
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	60.584
Long. Slope (1:X)	10000.00
Width (m)	4.406
Total Volume (m³)	42.794

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP5.1

Type : Porous Paving

Dimensions

Exceedance Level (m)	66.840
Depth (m)	0.900
Base Level (m)	65.940
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	1000.0
Porosity (%)	30
Length (m)	53.189
Long. Slope (1:X)	10000.00
Width (m)	3.564
Total Volume (m³)	36.200

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced

Conductivity (m/hr)	200.0
---------------------	-------



PP6.1

Type : Porous Paving

Dimensions

Exceedance Level (m)	66.826
Depth (m)	0.900
Base Level (m)	65.926
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	54.098
Long. Slope (1:X)	10000.00
Width (m)	4.415
Total Volume (m³)	45.079

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced

Conductivity (m/hr)	200.0
---------------------	-------

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.763
Depth (m)	0.900
Base Level (m)	65.863
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	54.085
Long. Slope (1:X)	10000.00
Width (m)	4.262
Total Volume (m³)	43.889

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0



Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.834
Depth (m)	0.855
Base Level (m)	65.979
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	62.392
Long. Slope (1:X)	10000.00
Width (m)	5.076
Total Volume (m³)	55.875

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



PP3.2

Type : Porous Paving

Dimensions	
Exceedance Level (m)	66.711
Depth (m)	0.700
Base Level (m)	66.011
Paving Layer Depth (mm)	275
Membrane Percolation (m/hr)	10000.0
Porosity (%)	30
Length (m)	20.997
Long. Slope (1:X)	10000.00
Width (m)	3.450
Total Volume (m³)	9.495

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Colebrook-White Roughness
Roughness (mm)	0.6

Advanced	
Conductivity (m/hr)	200.0

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Cellular Storage

Type : Cellular Storage

Dimensions	
Exceedance Level (m)	66.833
Depth (m)	0.400
Base Level (m)	65.154
Number of Crates Long	10
Number of Crates Wide	8
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	16.479

ECMWF: Proposed SW Drainage Network Car Park Catchment		Date: 16/09/2024			
		Designed by: LJ	Checked by: SR		
Report Details: Type: Inflow Summary Storm Phase: Catchment 1 (Car Park)		Company: BDP			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
HS.01	PP1		Time of Concentration	0.020	95	0	95	0.019
HS.02	SW.25		Time of Concentration	0.047	95	0	95	0.044
HS.03	PP2		Time of Concentration	0.029	95	0	95	0.028
HS.04	PP3.1		Time of Concentration	0.017	95	0	95	0.016
HS.05	PP3.2		Time of Concentration	0.025	95	0	95	0.024
HS.06	PP4.1		Time of Concentration	0.010	95	0	95	0.009
HS.07	PP4.2		Time of Concentration	0.067	95	0	95	0.064
HS.08	PP5.1		Time of Concentration	0.020	100	0	100	0.020
HS.09	PP5.2		Time of Concentration	0.059	95	0	95	0.057
HS.10	PP6.1		Time of Concentration	0.028	100	0	100	0.028
HS.11	PP6.2		Time of Concentration	0.075	95	0	95	0.071
HS.12	PP4.1		Time of Concentration	0.002	100	0	100	0.002
HS.13	PP7		Time of Concentration	0.031	100	0	100	0.031
HS.15	PP.8		Time of Concentration	0.038	100	0	100	0.038
HS.16	PP9		Time of Concentration	0.034	95	0	95	0.033
HS.17	SW.03		Time of Concentration	0.039	95	0	95	0.037
HS.18	PP9		Time of Concentration	0.043	100	0	100	0.043
HS.19	SW.02		Time of Concentration	0.014	95	0	95	0.014
HS.20	SW.06		Time of Concentration	0.005	95	0	95	0.005
HS.21	SW.04		Time of Concentration	0.039	95	0	95	0.037
HS.22	SW.07		Time of Concentration	0.024	95	0	95	0.023
HS.23	SW.01		Time of Concentration	0.021	95	0	95	0.020
TOTAL		0.0		0.689				0.662

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Title: Rainfall Analysis Criteria	Company: BDP			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	0
Prefill Manhole Sumps	☐
Perform No Discharge Analysis	☐

Rainfall	
Design Criteria FSR	Type: FSR
Region	England And Wales
M5-60 (mm)	18.8
Ratio R	0.400
Summer	☒
Winter	☒

Return Period	
Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	40.000

Storm Durations	
Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW.07	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	66.95 6	65.94 0	65.991	0.051	3.9	0.058	0.000	3.8	1.811	OK
SW.06	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.91 7	65.89 0	65.982	0.092	1.1	0.104	0.000	1.1	4.941	OK
SW.05	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.79 9	65.83 6	65.982	0.146	2.6	0.041	0.000	2.6	11.466	OK
SW.04	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.65 2	65.90 8	65.982	0.074	1.5	0.021	0.000	1.5	6.445	OK
SW.03	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.83 6	65.69 3	65.982	0.289	5.4	0.327	0.000	5.4	23.825	Surcharged
SW.25	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.70 3	65.86 2	65.982	0.120	5.1	0.136	0.000	5.1	17.462	OK
SW.01	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	66.70 4	66.02 5	66.072	0.047	3.5	0.013	0.000	3.3	1.592	OK
SW.02	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.59 7	65.90 9	65.982	0.073	1.4	0.021	0.000	1.4	6.026	OK
SW.32	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.79 3	65.07 0	65.980	0.910	7.2	1.609	0.000	6.2	97.299	Surcharged
ExSWMH	Design Criteria FSR: 2 years: +0 %: 600 mins: Winter	66.06 8	64.95 1	65.019	0.068	6.2	0.000	0.000	6.2	154.346	OK
SW.24	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.94 5	65.53 3	65.982	0.449	9.5	0.507	0.000	9.5	43.487	Surcharged
SW.27	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.52 8	65.70 2	65.982	0.280	1.1	0.079	0.000	0.9	3.216	Surcharged
SW.28	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.71 9	65.54 9	65.982	0.433	3.6	0.123	0.000	3.6	12.730	Surcharged
SW.29	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.85 9	65.31 5	65.982	0.667	19.1	0.754	0.000	17.0	68.932	Surcharged
SW.31	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.87 5	65.12 5	65.980	0.856	9.3	0.968	0.000	7.9	68.797	Surcharged
SW.30	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	66.85 9	65.27 2	65.982	0.710	20.6	0.803	0.000	19.3	84.934	Surcharged
Simple Junction	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter		65.62 8	65.981	0.353	0.6			0.6	4.355	Surcharged
Simple Junction (1)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter		65.55 4	65.981	0.427	5.7			4.3	24.775	Surcharged
Simple Junction (2)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter		65.52 1	65.981	0.460	6.3			4.1	25.325	Surcharged
Simple Junction (4)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter		65.70 2	65.982	0.280	0.9			0.9	2.800	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			

Simple Junction (3)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.66 7	65.982	0.315	1.9	1.9	7.106	Surcharged
Simple Junction (5)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.60 5	65.982	0.377	2.7	2.5	9.323	Surcharged
Simple Junction (6)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.51 6	65.982	0.466	4.0	4.0	15.139	Surcharged
Simple Junction (7)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.50 5	65.982	0.477	5.4	5.4	22.399	Surcharged
Simple Junction (8)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.44 0	65.982	0.542	5.8	5.4	24.222	Surcharged
Simple Junction (9)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	65.42 1	65.982	0.561	6.3	6.0	36.534	Surcharged
Simple Junction (10)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	65.48 9	65.981	0.492	1.5	1.3	6.853	Surcharged
Simple Junction (11)	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.57 5	65.982	0.407	3.6	3.6	12.708	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW.07	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.956	65.940	66.113	0.173	3.6	0.196	0.000	3.5	5.361	OK
SW.06	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.917	65.890	66.113	0.223	4.3	0.252	0.000	4.2	6.161	OK
SW.05	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.799	65.836	66.112	0.276	9.9	0.078	0.000	9.6	13.879	Surcharged
SW.04	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.652	65.908	66.113	0.205	5.8	0.058	0.000	5.7	8.728	OK
SW.03	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.836	65.693	66.107	0.414	20.5	0.469	0.000	19.9	28.394	Surcharged
SW.25	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.703	65.862	66.119	0.257	13.8	0.291	0.000	11.5	26.257	Surcharged
SW.01	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.704	66.025	66.111	0.086	3.2	0.024	0.000	3.2	4.888	OK
SW.02	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.597	65.909	66.109	0.200	5.5	0.057	0.000	5.1	7.648	OK
SW.32	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.793	65.070	66.097	1.027	7.0	1.815	0.000	6.2	145.512	Surcharged
ExSWMH	Design Criteria FSR: 30 years: +0 %: 480 mins: Summer	66.068	64.951	65.019	0.068	6.2	0.000	0.000	6.2	209.470	OK
SW.24	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.945	65.533	66.101	0.568	20.6	0.643	0.000	20.5	65.883	Surcharged
SW.27	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.528	65.702	66.104	0.402	1.2	0.114	0.000	1.1	5.305	Surcharged
SW.28	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.719	65.549	66.103	0.554	3.8	0.157	0.000	3.8	19.604	Surcharged
SW.29	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.859	65.315	66.100	0.785	22.0	0.887	0.000	20.7	108.379	Surcharged
SW.31	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.875	65.125	66.097	0.973	10.0	1.100	0.000	7.0	148.738	Surcharged
SW.30	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.859	65.272	66.098	0.826	17.8	0.935	0.000	16.8	191.581	Surcharged
Simple Junction	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter		65.628	66.098	0.470	4.5			1.0	22.512	Surcharged
Simple Junction (1)	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter		65.554	66.099	0.545	9.6			3.3	51.417	Surcharged
Simple Junction (2)	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter		65.521	66.098	0.577	13.2			5.0	79.567	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			

Simple Junction (4)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.70 2	66.104	0.402	1.5	1.2	5.423	Surcharged
Simple Junction (3)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.66 7	66.104	0.437	2.6	2.5	13.416	Surcharged
Simple Junction (5)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.60 5	66.104	0.499	3.7	3.8	17.245	Surcharged
Simple Junction (6)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.51 6	66.103	0.587	4.1	4.1	23.347	Surcharged
Simple Junction (7)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.50 5	66.103	0.598	5.5	5.4	32.789	Surcharged
Simple Junction (8)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.44 0	66.102	0.662	5.7	5.6	37.404	Surcharged
Simple Junction (9)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.42 1	66.101	0.680	7.4	7.3	47.582	Surcharged
Simple Junction (10)	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	65.48 9	66.098	0.609	2.0	1.9	14.490	Surcharged
Simple Junction (11)	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	65.57 5	66.104	0.529	5.5	3.8	21.455	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW.07	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.95 6	65.94 0	66.477	0.537	8.9	0.608	0.000	8.6	7.797	Surcharged
SW.06	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.91 7	65.89 0	66.474	0.584	10.6	0.660	0.000	10.0	8.979	Surcharged
SW.05	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.79 9	65.83 6	66.469	0.633	23.9	0.179	0.000	22.6	20.612	Surcharged
SW.04	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.65 2	65.90 8	66.482	0.574	14.2	0.162	0.000	13.9	12.801	Surcharged
SW.03	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.83 6	65.69 3	66.416	0.723	49.1	0.818	0.000	45.4	42.361	Surcharged
SW.25	Design Criteria FSR: 100 years: +40 %: 60 mins: Winter	66.70 3	65.86 2	66.317	0.455	16.2	0.515	0.000	15.3	37.793	Surcharged
SW.01	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.70 4	66.02 5	66.434	0.409	7.8	0.116	0.000	7.6	6.947	Surcharged
SW.02	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.59 7	65.90 9	66.429	0.520	12.8	0.147	0.000	12.4	10.940	Surcharged
SW.32	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.79 3	65.07 0	66.265	1.195	7.8	2.112	0.000	6.2	240.717	Surcharged
ExSWMH	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter	66.06 8	64.95 1	65.019	0.068	6.2	0.000	0.000	6.2	318.516	OK
SW.24	Design Criteria FSR: 100 years: +40 %: 60 mins: Winter	66.94 5	65.53 3	66.277	0.744	49.3	0.841	0.000	48.9	89.384	Surcharged
SW.27	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.52 8	65.70 2	66.267	0.565	1.0	0.160	0.000	0.7	11.471	Surcharged
SW.28	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.71 9	65.54 9	66.267	0.718	3.1	0.203	0.000	2.5	51.764	Surcharged
SW.29	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter	66.85 9	65.31 5	66.268	0.953	15.9	1.077	0.000	15.9	321.586	Surcharged
SW.31	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter	66.87 5	65.12 5	66.275	1.150	12.2	1.301	0.000	7.8	321.961	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024						
				Designed by:	Checked by:	Approved By:				
Report Details: Type: Junctions Summary Storm Phase: Catchment 1 (Car Park)				LJ	SR	JT				
				Company: BDP						

SW.30	Design Criteria FSR: 100 years: +40 %: 600 mins: Winter	66.85 9	65.27 2	66.297	1.025	14.2	1.160	0.000	11.1	456.111	Surcharged
Simple Junction	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.62 8	66.266	0.638	9.5			1.1	64.331	Surcharged
Simple Junction (1)	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter		65.55 4	66.268	0.714	8.2			2.1	110.894	Surcharged
Simple Junction (2)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.52 1	66.269	0.748	13.1			7.6	138.206	Surcharged
Simple Junction (4)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.70 2	66.267	0.565	0.8			0.8	11.821	Surcharged
Simple Junction (3)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.66 7	66.267	0.600	4.2			1.4	35.891	Surcharged
Simple Junction (5)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.60 5	66.267	0.662	3.9			1.9	42.427	Surcharged
Simple Junction (6)	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter		65.51 6	66.267	0.751	2.6			3.6	73.299	Surcharged
Simple Junction (7)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.50 5	66.267	0.762	5.3			3.8	83.265	Surcharged
Simple Junction (8)	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter		65.44 0	66.267	0.828	3.9			3.9	118.782	Surcharged
Simple Junction (9)	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter		65.42 1	66.269	0.848	5.8			4.6	152.069	Surcharged
Simple Junction (10)	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter		65.48 9	66.266	0.777	1.8			2.1	31.674	Surcharged
Simple Junction (11)	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter		65.57 5	66.267	0.692	3.8			2.7	54.955	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item:
Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
PP9	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	66.136	66.110	0.060	0.075	8.4	5.105	0.000	0.000	3.7	5.839	78.320	OK
PP5.2	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	66.058	66.032	0.075	0.054	4.6	3.801	0.000	0.000	2.6	5.994	89.001	OK
PP1	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	66.021	66.008	0.044	0.033	2.1	1.006	0.000	0.000	1.2	1.576	88.861	OK
PP2	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	66.050	66.020	0.039	0.011	2.3	1.875	0.000	0.000	1.2	2.721	88.876	OK
PP3.1	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	66.021	65.992	0.039	0.012	1.8	0.666	0.000	0.000	1.3	1.402	92.785	OK
PP.8	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	66.209	66.052	0.025	0.057	4.2	2.167	0.000	0.000	2.8	3.421	92.462	OK
PP4.1	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.983	65.982	0.075	0.076	1.0	1.917	0.000	0.000	0.7	2.417	85.970	OK
PP4.2	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	66.010	65.983	0.069	0.048	5.2	5.112	0.000	0.000	2.1	5.944	88.054	OK
PP5.1	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.983	65.982	0.037	0.042	1.1	2.263	0.000	0.000	0.5	2.281	93.747	OK
PP6.1	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	65.982	65.981	0.050	0.055	1.8	3.760	0.000	0.000	2.1	4.905	91.660	OK
PP6.2	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	65.982	65.981	0.114	0.118	7.3	8.010	0.000	0.000	3.3	11.271	81.749	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			

PP7	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	66.023	65.988	0.037	0.009	1.3	3.093	0.000	0.000	0.5	4.121	94.465	OK
Cellular Storage	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	65.982	65.982	0.828	0.828	16.0	15.621	0.000	0.000	15.4	90.808	5.209	OK
PP3.2	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	66.068	66.053	0.055	0.042	2.7	1.113	0.000	0.000	1.8	2.149	88.273	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment		Date: 16/09/2024			
		Designed by: LJ	Checked by: SR		Approved By: JT
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)		Company: BDP			



Design Criteria FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item:
Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
PP9	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	66.186	66.161	0.110	0.126	16.0	8.758	0.000	0.000	7.7	12.085	62.809	OK
PP5.2	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	66.106	66.098	0.123	0.120	8.8	6.679	0.000	0.000	5.2	9.675	80.671	OK
PP1	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.104	66.105	0.127	0.130	2.1	3.243	0.000	0.000	1.5	5.973	64.083	OK
PP2	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.105	66.104	0.094	0.096	4.6	5.884	0.000	0.000	1.8	6.749	65.086	OK
PP3.1	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.104	66.104	0.122	0.125	4.1	2.604	0.000	0.000	1.5	3.814	71.804	OK
PP.8	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	66.218	66.092	0.034	0.096	12.3	3.460	0.000	0.000	6.3	4.577	87.964	OK
PP4.1	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.104	66.104	0.195	0.198	2.2	5.003	0.000	0.000	1.1	4.057	63.389	OK
PP4.2	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.106	66.104	0.164	0.169	6.4	13.343	0.000	0.000	3.0	11.189	68.821	OK
PP5.1	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.102	66.102	0.157	0.162	4.0	9.060	0.000	0.000	0.9	5.433	74.973	OK
PP6.1	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.099	66.099	0.167	0.173	7.0	12.161	0.000	0.000	5.4	12.822	73.024	OK
PP6.2	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.099	66.099	0.231	0.236	13.5	16.118	0.000	0.000	3.1	21.840	63.276	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			

PP7	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.098	66.099	0.113	0.119	5.7	11.041	0.000	0.000	1.3	10.921	80.240	OK
Cellular Storage	Design Criteria FSR: 30 years: +0 %: 240 mins: Winter	66.098	66.098	0.944	0.944	16.8	15.731	0.000	0.000	9.2	136.291	4.541	OK
PP3.2	Design Criteria FSR: 30 years: +0 %: 120 mins: Winter	66.104	66.104	0.091	0.093	2.4	1.999	0.000	0.000	2.2	6.589	78.949	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
PP9	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	66.374	66.355	0.298	0.320	31.9	22.465	0.013	0.000	10.4	18.488	4.599	Flood Risk
PP5.2	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.284	0.289	4.6	15.552	0.000	0.000	2.4	32.033	54.992	OK
PP1	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.290	0.292	1.8	7.331	0.000	0.000	1.6	12.935	18.804	OK
PP2	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.268	66.267	0.257	0.259	6.5	15.985	0.000	0.000	1.2	16.280	5.149	OK
PP3.1	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.285	0.288	1.7	6.050	0.000	0.000	0.8	8.626	34.496	OK
PP.8	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.269	66.265	0.085	0.270	3.1	9.987	0.000	0.000	2.0	27.815	65.256	OK
PP4.1	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.359	0.361	1.5	9.160	0.000	0.000	1.8	8.493	32.967	OK
PP4.2	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.268	66.267	0.327	0.332	5.2	26.355	0.000	0.000	1.9	27.627	38.416	OK
PP5.1	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.321	0.327	2.0	18.426	0.000	0.000	1.1	11.869	49.099	OK
PP6.1	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.335	0.341	8.7	24.191	0.000	0.000	6.2	17.282	46.338	OK
PP6.2	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.399	0.404	12.8	27.738	0.000	0.000	2.7	36.176	36.801	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment		Date: 16/09/2024				
		Designed by: LJ	Checked by: SR	Approved By: JT		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 1 (Car Park)		Company: BDP				

PP7	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.266	66.266	0.281	0.287	11.9	26.987	0.000	0.000	1.3	18.319	51.702	OK
Cellular Storage	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter	66.310	66.310	1.156	1.156	16.6	15.933	0.000	0.000	11.6	293.395	3.317	OK
PP3.2	Design Criteria FSR: 100 years: +40 %: 360 mins: Winter	66.267	66.267	0.254	0.256	2.0	5.544	0.000	0.000	1.4	17.619	41.609	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.07	SW.06	66.956	65.991	0.052	1.811	0.5	0.1	3.8	OK
1.001	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.06	SW.05	66.917	65.942	0.066	2.197	0.5	0.12	4.4	OK
2.000	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.04	SW.05	66.652	65.972	0.072	2.909	0.6	0.17	6.1	OK
1.002	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.05	SW.03	66.799	65.915	0.093	5.090	0.6	0.27	9.8	OK
4.000	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.01	SW.02	66.704	66.072	0.047	1.592	0.6	0.09	3.3	OK
4.001	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.02	SW.03	66.597	65.956	0.076	2.662	0.5	0.1	5.4	OK
S1.013	Design Criteria FSR: 2 years: +0 %: 600 mins: Winter	Pipe	SW.32	ExSWM H	66.793	65.911	0.070	154.346	0.8	0.43	6.2	Surcharged
3.000	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	SW.25	SW.24	66.703	65.931	0.184	9.944	0.7	0.2	7.2	OK
4.002	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.03	SW.24	66.836	65.799	0.105	10.621	1.1	0.39	19.9	OK
S1.012	Design Criteria FSR: 2 years: +0 %: 180 mins: Summer	Pipe	SW.31	SW.32	66.875	65.957	0.300	89.807	0.2	0.15	9.5	Surcharged
S1.009	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	SW.29	SW.30	66.859	65.918	0.300	28.325	0.8	0.47	30.0	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024								
				Designed by:	Checked by:	Approved By:						
				LJ	SR	JT						
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)				Company: BDP								

S2.000	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	Pipe	Simple Junction	Simple Junction (1)	66.777	65.981	0.225	3.216	0.1	0.03	1.0	Surcharged
S2.001	Design Criteria FSR: 2 years: +0 %: 120 mins: Winter	Pipe	Simple Junction (1)	Simple Junction (2)	66.843	65.981	0.225	6.096	0.8	0.13	4.8	Surcharged
S2.002	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	Simple Junction (2)	SW.30	66.832	65.981	0.225	11.821	1.1	0.06	7.2	Surcharged
Pipe (8)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	PP6.1	Simple Junction (2)	66.832	65.979	0.150	3.431	0.4	0.02	2.1	OK
S1.000	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	Simple Junction (4)	SW.27	66.498	65.919	0.193	1.332	0.4	0.03	1.2	OK
Pipe (11)	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	PP1	Simple Junction (4)	66.498	66.015	0.111	1.571	0.3	0.01	1.2	OK
S1.001	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	SW.27	Simple Junction (3)	66.528	65.919	0.225	0.955	0.3	0.03	1.2	OK
Pipe (12)	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	Pipe	PP2	Simple Junction (3)	66.574	66.038	0.150	2.721	0.6	0.01	1.2	OK
S1.002	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	Simple Junction (3)	Simple Junction (5)	66.581	65.919	0.225	2.324	0.4	0.06	2.4	Surcharged
S1.004	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	SW.28	Simple Junction (6)	66.719	65.919	0.225	4.517	0.5	0.14	5.3	Surcharged
S1.005	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (6)	Simple Junction (7)	66.729	65.653	0.142	4.042	0.5	0.15	5.5	OK
Pipe (14)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	PP4.1	Simple Junction (6)	66.724	65.981	0.150	2.221	0.1	0.01	0.7	OK
Pipe (15)	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	Pipe	PP4.2	Simple Junction (7)	66.744	65.999	0.150	5.853	0.4	0.02	2.1	OK
S1.006	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (7)	Simple Junction (8)	66.742	65.653	0.180	5.435	0.6	0.2	7.2	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment					Date: 16/09/2024							
					Designed by:	Checked by:	Approved By:					
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)					LJ	SR	JT					
					Company: BDP							

S1.007	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (8)	Simple Junction (9)	66.860	65.652	0.222	5.468	0.5	0.21	7.7	OK
S1.008	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (9)	SW.29	66.882	65.652	0.225	7.276	0.7	0.27	9.8	Surcharged
Pipe (16)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	PP5.1	Simple Junction (8)	66.862	65.979	0.150	2.550	0.2	0.01	0.9	OK
Pipe (17)	Design Criteria FSR: 2 years: +0 %: 60 mins: Winter	Pipe	PP5.2	Simple Junction (9)	66.879	66.048	0.150	5.944	0.5	0.02	2.6	OK
6.000	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	PP.8	Simple Junction (10)	66.868	66.034	0.150	3.416	1.5	0.03	2.9	OK
S3.000	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (10)	SW.31	66.886	65.651	0.150	1.879	0.7	0.07	2.3	Surcharged
S1.010	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	SW.30	Cellular Storage	66.859	65.918	0.300	31.445	0.9	0.54	34.3	Surcharged
S1.011	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	Cellular Storage	SW.31	66.859	65.982	0.300	90.586	0.4	0.24	15.4	Surcharged
S1.003	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	Simple Junction (5)	Simple Junction (11)	66.694	65.919	0.225	3.241	0.4	0.1	3.5	Surcharged
S1.003 (1)	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	Simple Junction (11)	SW.28	66.730	65.919	0.225	4.984	0.6	0.14	5.3	Surcharged
Pipe (2)	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	PP3.2	Simple Junction (11)	66.730	66.062	0.042	1.392	0.8	0.02	1.8	OK
Pipe (6)	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	PP7	Simple Junction	66.778	66.006	0.147	1.028	0.7	0.01	0.7	OK
Pipe (7)	Design Criteria FSR: 2 years: +0 %: 180 mins: Winter	Pipe	PP6.2	Simple Junction (1)	66.841	65.979	0.150	5.124	1.0	0.05	4.4	OK
Pipe (3)	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	PP3.1	Simple Junction (5)	66.693	66.011	0.150	1.402	0.5	0.01	1.3	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024									
				Designed by: LJ		Checked by: SR		Approved By: JT					
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)				Company: BDP									
Pipe (23)	Design Criteria FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.24	SW.29	66.945	65.652	0.228	16.193	0.9	0.25	25.9	OK	
Pipe (1)	Design Criteria FSR: 2 years: +0 %: 30 mins: Winter	Pipe	PP9	SW.25	66.550	66.106	0.040	5.818	1.0	0.14	3.7	OK	

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.07	SW.06	66.956	66.027	0.112	3.288	0.6	0.2	7.2	OK
1.001	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.06	SW.05	66.917	66.027	0.164	3.663	0.5	0.23	8.3	OK
2.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.04	SW.05	66.652	66.028	0.156	5.346	0.7	0.32	11.7	OK
1.002	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.05	SW.03	66.799	66.028	0.225	8.116	0.7	0.51	18.8	OK
4.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.01	SW.02	66.704	66.091	0.066	3.038	0.7	0.17	6.3	OK
4.001	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.02	SW.03	66.597	66.029	0.225	4.660	0.5	0.19	10.3	OK
S1.013	Design Criteria FSR: 30 years: +0 %: 480 mins: Summer	Pipe	SW.32	ExSWM H	66.793	66.063	0.070	209.470	0.8	0.43	6.2	Surcharged
3.000	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SW.25	SW.24	66.703	66.105	0.225	19.277	0.8	0.44	16.0	Surcharged
4.002	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.03	SW.24	66.836	66.029	0.225	16.351	1.3	0.76	38.1	Surcharged
S1.012	Design Criteria FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW.31	SW.32	66.875	65.999	0.300	9.218	0.3	0.23	14.4	Surcharged
S1.009	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.29	SW.30	66.859	66.030	0.300	33.381	0.9	0.86	55.1	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024								
				Designed by:	Checked by:	Approved By:						
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)				LJ	SR	JT						

S2.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Simple Junction	Simple Junction (1)	66.777	65.994	0.225	0.628	0.2	0.06	2.1	Surcharged
S2.001	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (1)	Simple Junction (2)	66.843	66.017	0.225	2.182	1.0	0.18	6.8	Surcharged
S2.002	Design Criteria FSR: 30 years: +0 %: 480 mins: Winter	Pipe	Simple Junction (2)	SW.30	66.832	66.087	0.225	19.466	1.0	0.07	8.6	Surcharged
Pipe (8)	Design Criteria FSR: 30 years: +0 %: 600 mins: Summer	Pipe	PP6.1	Simple Junction (2)	66.832	66.056	0.150	2.391	0.7	0.06	6.2	OK
S1.000	Design Criteria FSR: 30 years: +0 %: 30 mins: Summer	Pipe	Simple Junction (4)	SW.27	66.498	66.054	0.225	1.731	0.5	0.07	2.4	Surcharged
Pipe (11)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP1	Simple Junction (4)	66.498	66.075	0.150	2.209	0.4	0.03	2.8	OK
S1.001	Design Criteria FSR: 30 years: +0 %: 30 mins: Summer	Pipe	SW.27	Simple Junction (3)	66.528	66.053	0.225	1.222	0.4	0.07	2.4	Surcharged
Pipe (12)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP2	Simple Junction (3)	66.574	66.076	0.150	2.631	0.7	0.03	3.3	OK
S1.002	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	Simple Junction (3)	Simple Junction (5)	66.581	66.097	0.225	4.871	0.4	0.11	3.9	Surcharged
S1.004	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	SW.28	Simple Junction (6)	66.719	66.096	0.225	9.209	0.6	0.2	7.3	Surcharged
S1.005	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	Simple Junction (6)	Simple Junction (7)	66.729	66.096	0.225	9.976	0.6	0.21	7.9	Surcharged
Pipe (14)	Design Criteria FSR: 30 years: +0 %: 240 mins: Summer	Pipe	PP4.1	Simple Junction (6)	66.724	66.075	0.150	5.369	0.1	0.01	1.2	Surcharged
Pipe (15)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP4.2	Simple Junction (7)	66.744	66.077	0.150	4.277	0.4	0.04	4.1	OK
S1.006	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	Simple Junction (7)	Simple Junction (8)	66.742	66.096	0.225	16.329	0.5	0.27	9.9	Surcharged

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024								
				Designed by:	Checked by:	Approved By:						
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)				LJ	SR	JT						
				Company: BDP								

S1.007	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	Simple Junction (8)	Simple Junction (9)	66.860	66.094	0.225	17.975	0.5	0.24	8.8	Surcharged
S1.008	Design Criteria FSR: 30 years: +0 %: 60 mins: Winter	Pipe	Simple Junction (9)	SW.29	66.882	66.094	0.225	26.815	0.6	0.3	11.1	Surcharged
Pipe (16)	Design Criteria FSR: 30 years: +0 %: 600 mins: Summer	Pipe	PP5.1	Simple Junction (8)	66.862	66.056	0.150	8.811	0.2	0.01	1.7	OK
Pipe (17)	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	PP5.2	Simple Junction (9)	66.879	66.086	0.150	4.858	0.7	0.04	5.6	OK
6.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	PP.8	Simple Junction (10)	66.868	66.056	0.150	4.534	1.5	0.06	6.3	OK
S3.000	Design Criteria FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Simple Junction (10)	SW.31	66.886	66.003	0.150	3.438	0.9	0.18	5.6	Surcharged
S1.010	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.30	Cellular Storage	66.859	66.026	0.300	23.232	1.1	0.95	60.4	Surcharged
S1.011	Design Criteria FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Cellular Storage	SW.31	66.859	66.000	0.300	7.784	0.5	0.3	19.2	Surcharged
S1.003	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (5)	Simple Junction (11)	66.694	66.034	0.225	3.039	0.5	0.15	5.3	Surcharged
S1.003 (1)	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	Simple Junction (11)	SW.28	66.730	66.034	0.225	5.481	0.6	0.21	7.7	Surcharged
Pipe (2)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP3.2	Simple Junction (11)	66.730	66.092	0.150	3.891	0.5	0.04	4.1	OK
Pipe (6)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP7	Simple Junction	66.778	66.045	0.150	0.625	0.8	0.02	1.8	OK
Pipe (7)	Design Criteria FSR: 30 years: +0 %: 30 mins: Summer	Pipe	PP6.2	Simple Junction (1)	66.841	66.027	0.150	2.441	1.1	0.1	9.5	Surcharged
Pipe (3)	Design Criteria FSR: 30 years: +0 %: 30 mins: Summer	Pipe	PP3.1	Simple Junction (5)	66.693	66.053	0.150	1.375	0.6	0.03	3.1	OK

ECMWF: Proposed SW Drainage Network Car Park Catchment				Date: 16/09/2024									
				Designed by: LJ		Checked by: SR		Approved By: JT					
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)				Company: BDP									
Pipe (23)	Design Criteria FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.24	SW.29	66.945	66.030	0.300	25.857	1.0	0.49	51.1	Surcharged	
Pipe (1)	Design Criteria FSR: 30 years: +0 %: 30 mins: Winter	Pipe	PP9	SW.25	66.550	66.157	0.122	11.975	1.2	0.31	7.8	OK	

ECMWF: Proposed SW Drainage Network Car Park Catchment	Date: 16/09/2024			
	Designed by: LJ	Checked by: SR	Approved By: JT	
Report Details: Type: Connections Summary Storm Phase: Catchment 1 (Car Park)	Company: BDP			



Design Criteria FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Design Criteria FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW.07	SW.06	66.956	66.263	0.225	5.223	0.5	0.28	10.2	Surcharged
1.001	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	Pipe	SW.06	SW.05	66.917	66.474	0.225	8.855	0.5	0.27	10.0	Surcharged
2.000	Design Criteria FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW.04	SW.05	66.652	66.262	0.225	8.620	0.5	0.51	18.9	Surcharged
1.002	Design Criteria FSR: 100 years: +40 %: 30 mins: Winter	Pipe	SW.05	SW.03	66.799	66.469	0.225	20.459	0.7	0.62	22.6	Surcharged
4.000	Design Criteria FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW.01	SW.02	66.704	66.313	0.225	5.267	0.6	0.32	11.8	Surcharged
4.001	Design Criteria FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW.02	SW.03	66.597	66.240	0.225	7.242	0.4	0.25	13.6	Surcharged
S1.013	Design Criteria FSR: 100 years: +40 %: 480 mins: Winter	Pipe	SW.32	ExSWMH	66.793	66.265	0.070	318.516	0.8	0.43	6.2	Surcharged
3.000	Design Criteria FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW.25	SW.24	66.703	66.265	0.225	19.757	0.8	0.86	31.6	Surcharged
4.002	Design Criteria FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW.03	SW.24	66.836	66.238	0.225	27.294	1.3	1.03	51.8	Surcharged
S1.012	Design Criteria FSR: 100 years: +40 %: 60 mins: Winter	Pipe	SW.31	SW.32	66.875	66.237	0.300	40.686	0.5	0.21	13.3	Surcharged
S1.009	Design Criteria FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW.29	SW.30	66.859	66.177	0.300	47.456	1.2	1.33	84.7	Surcharged