

Job Title Hardwick House, Eastbourne			Date Aug 2023
Item Drainage Note	Revision B	Job No. E8731	Report No. RE003



## Introduction

This note has been produced for Beford Park Developments by Stephen Wilson Partnership (SWP). The aim of the note is to summarise the outstanding information required raised by East Sussex County Council (ESCC) as the LLFA.

## Condition 4

ESCC comments are as follows:

*“Condition 4 relates to the detailed design of the surface water drainage system. Whilst detailed drawings have been provided, it was requested as part of the Condition to provide hydraulic calculations. It is noted that these are referenced within the covering email but these do not appear to have been submitted to ourselves as LLFA. We request that the applicant provides hydraulic calculations which correlate with the proposed drawings and is inclusive of hydraulic connectivity of the network. Additionally, evidence that the additional phase of the development has been considered within the network design should be provided.”*

The drainage calculations proving that the proposed drainage layout is suitable was missed from the planning portal. Please find the calculations as an appendix to this note.

The additional concern raised by ESCC was that the proposed drainage system has considered the additional phase of the development. We can confirm that the proposed drainage system has been designed to accommodate additional phase of the development. The additional phase area has been treated as 100% impermeable for the sake of these calculations.

Additional comments were received following submission of revision A of this note. They are as follows:

*“Condition 4 relates to the detailed design of the surface water drainage system. Hydraulic calculations have been provided but impermeable area stated within the document is not consistent. We request the applicant provides a catchment plan shown the impermeable area which is entering the network at which manhole to clarify the design and enable a clear cross-reference between the drawing and calculations.”*

Following the comments, a drainage catchment area plan has been produced. This can be found in Appendix 2. This shows the impermeable areas being collected by each manhole as shown in the proposed drainage layout.

The error in the hydraulic calculations has been corrected and updated.

## Condition 5

ESCC comments are as follows:

*“Condition 5 relates to the management and maintenance of the proposed drainage network and, whilst the measures proposed are acceptable the document fails to satisfy part (a) and part (b) of the Condition as it is not made clear who is responsible for undertaking the activities. We request that the applicant provides clear indication of the parties responsible for the maintenance of the drainage system in an updated Management and Maintenance Plan.”*

ESCC request the applicant provides the details of the parties responsible for the maintenance of the

drainage system.

The onsite drainage will remain private and solely under the ownership of Bedford Park Developments. They will be responsible for the upkeep and maintenance of the existing and proposed drainage on site. A copy of the latest drainage and maintenance plan has been provided to them. The details of Bedford Park Developments are as follows:

Bedford Park Developments  
Chalk House Vineyard  
Ditchling  
East Sussex  
BN6 8XB

ben@bedfordparkdevelopments.co.uk

+44 (0) 7393 765 846

Prepared By		Seen By	Date
Craig Searle Civil Engineer		James Maddin Civil Engineers	15-08-2023
Copies to	Ben Ellis (Bedford Park Developments)		

Appendix 1 – Drainage Calculations

Appendix 2 – Drainage Catchment Area

Title	Hardwick House, Eastbourne	Job No:	E8731
Description :	Surface Water Calculations	By:	CRS
		Date:	Aug-23
		Sheet No:	1

#### Design Data

M5-60(mm) = 19.600

Ratio R = 0.351

#### Design Criteria

Design Storm = 100Yr + 45% Climate Change

Discharge Point = Existing private combined drainage

Discharge Rate = 50%+ betterment on existing flows

Total Impermeable Area = 410m<sup>2</sup>

#### Results

Please refer to attached sheets

Title	Hardwick House, Eastbourne	Job No:	E8731
Decription :	Estimate of Existing and Proposed Peak	By:	CRS
	Run-Off Rate using the Modified Rational Method	Date:	Apr-23
		Sheet No:	2

#### Existing Site

Pre-Developed Site: Estimate Surface Water Run-Off Using the Modified Rational Method

Site Area = 410 M<sup>2</sup>

Existing Impermeable Area = 410 M<sup>2</sup>

#### Average Rate of Rainfall

2 Year 15 Minute Event (M2-15D) = 37.583 mm/hr (i)

30 Year 15 Minute Event (M30-15D) = 71.211 mm/hr (i)

100 Year 15 Minute Event (M100-15D) = 92.206 mm/hr (i)

Average Rainfall Values from FSR Data taken from the MicroDrainage Software

#### Peak Rate of Run-Off (Q<sub>p</sub>)

$Q_p = C \cdot A_p \cdot i$  Where  $C = C_v \cdot C_R$

$C_v = 0.75$  (Volumetric Co-efficient)

$C_R = 1.3$  (Routing Co-efficient)

$Q_{p2} = 4.173$  l/s

$Q_{p30} = 7.907$  l/s

$Q_{p100} = 10.239$  l/s

Title	Hardwick House, Eastbourne	Job No:	E8731
Decription :	Estimate of Existing and Proposed Peak	By:	CRS
	Run-Off Rate using the Modified Rational Method	Date:	Apr-23
		Sheet No:	3

#### Proposed Development

Total Impermeable Area = 410 M<sup>2</sup>

Adjust Average Rainfall for Climate Change in Accordance with the Requirements of the NPPF Technical Guidance, +45% with FSR Data

M2-15D +40% = 54.495 mm/hr (i)

M30-15D +40% = 103.256 mm/hr (i)


M100 - 15D +40% = 133.699 mm/hr (i)

#### Proposed Peak Rate of Run-Off (Q<sub>p</sub>)

Q<sub>p2</sub> = 6.051 l/s

Q<sub>p30</sub> = 11.466 l/s

Q<sub>p100</sub> = 14.846 l/s


Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.032	4-8	0.009









Total Area Contributing (ha) = 0.041

Total Pipe Volume (m<sup>3</sup>) = 0.462

Stephen Wilson Partnership Ltd		Page 5
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions		Network 2020.1.3


STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	2.962	1.050	2.8	0.004	6.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	12.259	0.155	79.1	0.005	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	2.090	0.025	83.6	0.015	6.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	0.500	0.005	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	13.400	0.340	39.4	0.003	6.00	0.0	0.600	o	100	Pipe/Conduit	
1.003	0.650	0.015	43.3	0.014	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	3.584	0.065	55.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	6.600	0.130	50.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	6.01	5.770	0.004	0.0	0.0	0.0	4.64	36.4	0.5
1.001	50.00	6.25	4.720	0.009	0.0	0.0	0.0	0.87	6.8	1.2
2.000	50.00	6.03	4.590	0.015	0.0	0.0	0.0	1.10	19.4	2.0
1.002	50.00	6.25	4.565	0.024	0.0	0.0	0.0	1.00	17.8	3.2
3.000	50.00	6.18	5.200	0.003	0.0	0.0	0.0	1.23	9.7	0.4
1.003	50.00	6.26	4.560	0.041	0.0	0.0	0.0	1.53	27.1	5.6
1.004	50.00	6.31	4.545	0.041	0.0	0.0	0.0	1.36	24.0	5.6
1.005	50.00	6.38	4.480	0.041	0.0	0.0	0.0	1.42	25.0	5.6


Stephen Wilson Partnership Ltd		Page 6
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:26 File E8731 Surface Water Calcs.MDX	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
RE1	6.370	0.600	Open Manhole	100	1.000	5.770	100				
S1	5.320	0.600	Open Manhole	450	1.001	4.720	100	1.000	4.720	100	
Phase 2	5.900	1.310	Open Manhole	1200	2.000	4.590	150				
S2	5.820	1.255	Open Manhole	600 x 450	1.002	4.565	150	1.001	4.565	100	
								2.000	4.565	150	
RE2	5.900	0.700	Open Manhole	100	3.000	5.200	100				
TANK	5.600	1.040	Junction		1.003	4.560	150	1.002	4.560	150	
								3.000	4.860	100	250
S3	5.600	1.055	Open Manhole	600 x 450	1.004	4.545	150	1.003	4.545	150	
IC7	5.610	1.130	Open Manhole	600 x 450	1.005	4.480	150	1.004	4.480	150	
IC2	5.870	1.520	Open Manhole	1200 x 600		OUTFALL		1.005	4.350	150	

No coordinates have been specified, layout information cannot be produced.



Stephen Wilson Partnership Ltd		Page 7
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	


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	100	RE1	6.370	5.770	0.500	Open Manhole	100
1.001	o	100	S1	5.320	4.720	0.500	Open Manhole	450
2.000	o	150	Phase 2	5.900	4.590	1.160	Open Manhole	1200
1.002	o	150	S2	5.820	4.565	1.105	Open Manhole	600 x 450
3.000	o	100	RE2	5.900	5.200	0.600	Open Manhole	100
1.003	o	150	TANK	5.600	4.560	0.890	Junction	
1.004	o	150	S3	5.600	4.545	0.905	Open Manhole	600 x 450
1.005	o	150	IC7	5.610	4.480	0.980	Open Manhole	600 x 450

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	2.962	2.8	S1	5.320	4.720	0.500	Open Manhole	450
1.001	12.259	79.1	S2	5.820	4.565	1.155	Open Manhole	600 x 450
2.000	2.090	83.6	S2	5.820	4.565	1.105	Open Manhole	600 x 450
1.002	0.500	100.0	TANK	5.600	4.560	0.890	Junction	
3.000	13.400	39.4	TANK	5.600	4.860	0.640	Junction	
1.003	0.650	43.3	S3	5.600	4.545	0.905	Open Manhole	600 x 450
1.004	3.584	55.1	IC7	5.610	4.480	0.980	Open Manhole	600 x 450
1.005	6.600	50.8	IC2	5.870	4.350	1.370	Open Manhole	1200 x 600

Stephen Wilson Partnership Ltd		Page 8
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

### Online Controls for Storm


Hydro-Brake® Optimum Manhole: S3, DS/PN: 1.004, Volume (m³): 0.3

Unit Reference	MD-SHE-0094-3000-0150-3000
Design Head (m)	0.150
Design Flow (l/s)	3.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	94
Invert Level (m)	4.545
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.150	3.0
Flush-Flo™	0.120	3.0
Kick-Flo®	0.145	2.9
Mean Flow over Head Range	-	1.8

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	3.0	1.200	7.9	3.000	12.3	7.000	18.8
0.200	3.4	1.400	8.5	3.500	13.3	7.500	19.5
0.300	4.1	1.600	8.9	4.000	14.2	8.000	20.2
0.400	4.7	1.800	9.5	4.500	15.1	8.500	20.8
0.500	5.2	2.000	10.0	5.000	15.9	9.000	21.4
0.600	5.7	2.200	10.5	5.500	16.7	9.500	22.0
0.800	6.5	2.400	11.0	6.000	17.4		
1.000	7.2	2.600	11.4	6.500	18.2		

Stephen Wilson Partnership Ltd		Page 9
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

### Storage Structures for Storm

Complex Manhole: TANK, DS/PN: 1.003

#### Cellular Storage


Invert Level (m) 4.560 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	26.0	26.0	0.401	0.0	38.0
0.400	26.0	38.0			

#### Cellular Storage

Invert Level (m) 4.560 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	3.5	3.5	0.401	0.0	7.1
0.400	3.5	7.1			

Stephen Wilson Partnership Ltd		Page 10
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

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

Simulation Criteria

Areal Reduction Factor 1.000      Additional Flow - % of Total Flow 0.000  
 Hot Start (mins) 0      MADD Factor \* 10m<sup>3</sup>/ha Storage 2.000  
 Hot Start Level (mm) 0      Inlet Coefficient 0.800  
 Manhole Headloss Coeff (Global) 0.500      Flow per Person per Day (l/per/day) 0.000  
 Foul Sewage per hectare (l/s) 0.000

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

Synthetic Rainfall Details


Rainfall Model FSR      Ratio R 0.351  
 Region England and Wales Cv (Summer) 1.000  
 M5-60 (mm) 19.600 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 150.0  
 Analysis Timestep 2.5 Second Increment (Extended)  
 DTS Status ON  
 DVD Status ON  
 Inertia Status ON

Profile(s) Summer and Winter  
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440  
 Return Period(s) (years) 2, 30, 100  
 Climate Change (%) 0, 0, 45

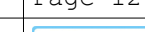
								Water
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Level
							Act.	(m)
1.000	RE1	15 Summer	2	+0%				5.781
1.001	S1	15 Summer	2	+0%	100/15 Summer			4.755
2.000	Phase 2	30 Summer	2	+0%	30/30 Summer			4.655
1.002	S2	30 Summer	2	+0%	30/15 Summer			4.654
3.000	RE2	15 Summer	2	+0%				5.216
1.003	TANK	30 Summer	2	+0%	30/15 Summer			4.654
1.004	S3	30 Summer	2	+0%	30/15 Winter			4.673
1.005	IC7	60 Summer	2	+0%				4.517

Surcharged Flooded					Half Drain	Pipe		
PN	US/MH Name	Depth (m)	Volume (m <sup>3</sup> )	Flow / Cap.	Time (mins)	Flow (l/s)	Status	Level Exceeded
				(l/s)				
1.000	RE1	-0.089	0.000	0.03		0.8	OK	
1.001	S1	-0.065	0.000	0.26		1.7	OK	
2.000	Phase 2	-0.085	0.000	0.25		2.8	OK	
1.002	S2	-0.061	0.000	0.40		4.3	OK	
3.000	RE2	-0.084	0.000	0.06		0.6	OK	

Stephen Wilson Partnership Ltd		Page 11
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

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

PN	US/MH Name	Surcharged Flooded		Flow / Overflow		Half Drain	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m <sup>3</sup> )	Cap.	(l/s)	Time (mins)	Flow (l/s)		
1.003	TANK	-0.056	0.000	0.27		18	3.0	OK*	
1.004	S3	-0.022	0.000	0.18			2.8	OK	
1.005	IC7	-0.113	0.000	0.14			2.9	OK	

Stephen Wilson Partnership Ltd		Page 12
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

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

## Simulation Criteria

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


## Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	150.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 45


											Water
	US/MH			Return	Climate	First (X)		First (Y)	First (Z)	Overflow	Level
PN	Name	Storm	Period		Change	Surcharge		Flood	Overflow	Act.	(m)
1.000	RE1	15	Summer	30	+0%						5.784
1.001	S1	15	Summer	30	+0%	100/15	Summer				4.775
2.000	Phase 2	60	Summer	30	+0%	30/30	Summer				4.767
1.002	S2	60	Summer	30	+0%	30/15	Summer				4.766
3.000	RE2	15	Summer	30	+0%						5.223
1.003	TANK	60	Summer	30	+0%	30/15	Summer				4.765
1.004	S3	30	Winter	30	+0%	30/15	Winter				4.795
1.005	IC7	60	Summer	30	+0%						4.521

PN	US/MH Name	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)		
1.000	RE1	-0.086	0.000	0.05			1.5		OK
1.001	S1	-0.045	0.000	0.58			3.7		OK
2.000	Phase 2	0.027	0.000	0.35			3.8	SURCHARGED	
1.002	S2	0.051	0.000	0.56			6.1	SURCHARGED	
3.000	RE2	-0.077	0.000	0.12			1.1		OK

Stephen Wilson Partnership Ltd		Page 13
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

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

PN	US/MH Name	Surcharged		Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)				
1.003	TANK	0.055	0.000	0.32		30	3.5	SURCHARGED*	
1.004	S3	0.100	0.000	0.21			3.4	SURCHARGED	
1.005	IC7	-0.109	0.000	0.16			3.4	OK	

Stephen Wilson Partnership Ltd		Page 14
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

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

Simulation Criteria

Areal Reduction Factor 1.000      Additional Flow - % of Total Flow 0.000  
 Hot Start (mins) 0      MADD Factor \* 10m³/ha Storage 2.000  
 Hot Start Level (mm) 0      Inlet Coefficient 0.800  
 Manhole Headloss Coeff (Global) 0.500      Flow per Person per Day (l/per/day) 0.000  
 Foul Sewage per hectare (l/s) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR      Ratio R 0.351  
 Region England and Wales Cv (Summer) 1.000  
 M5-60 (mm) 19.600 Cv (Winter) 1.000


Margin for Flood Risk Warning (mm) 150.0  
 Analysis Timestep 2.5 Second Increment (Extended)  
 DTS Status ON  
 DVD Status ON  
 Inertia Status ON

Profile(s) Summer and Winter  
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440  
 Return Period(s) (years) 2, 30, 100  
 Climate Change (%) 0, 0, 45

									Water
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
1.000	RE1	15 Summer	100	+45%					5.791
1.001	S1	60 Summer	100	+45%	100/15 Summer				5.217
2.000	Phase 2	60 Summer	100	+45%	30/30 Summer				5.207
1.002	S2	60 Summer	100	+45%	30/15 Summer				5.204
3.000	RE2	15 Summer	100	+45%					5.232
1.003	TANK	60 Summer	100	+45%	30/15 Summer				5.203
1.004	S3	60 Summer	100	+45%	30/15 Winter				5.201
1.005	IC7	60 Summer	100	+45%					4.534

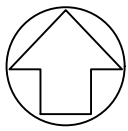
Surcharged Flooded					Half Drain	Pipe			
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
1.000	RE1	-0.079	0.000	0.10			2.7	OK	
1.001	S1	0.397	0.000	0.72			4.6	FLOOD RISK	
2.000	Phase 2	0.467	0.000	0.65			7.1	SURCHARGED	
1.002	S2	0.489	0.000	1.06			11.5	SURCHARGED	
3.000	RE2	-0.068	0.000	0.22			2.1	OK	



Stephen Wilson Partnership Ltd		Page 15
99 South Street Eastbourne, East Sussex BN21 4LU	E8731 Hardwick House Eastbourne	
Date 15/08/2023 12:53 File E8731 Surface Water Cal...	Designed by CRS Checked by	
XP Solutions	Network 2020.1.3	

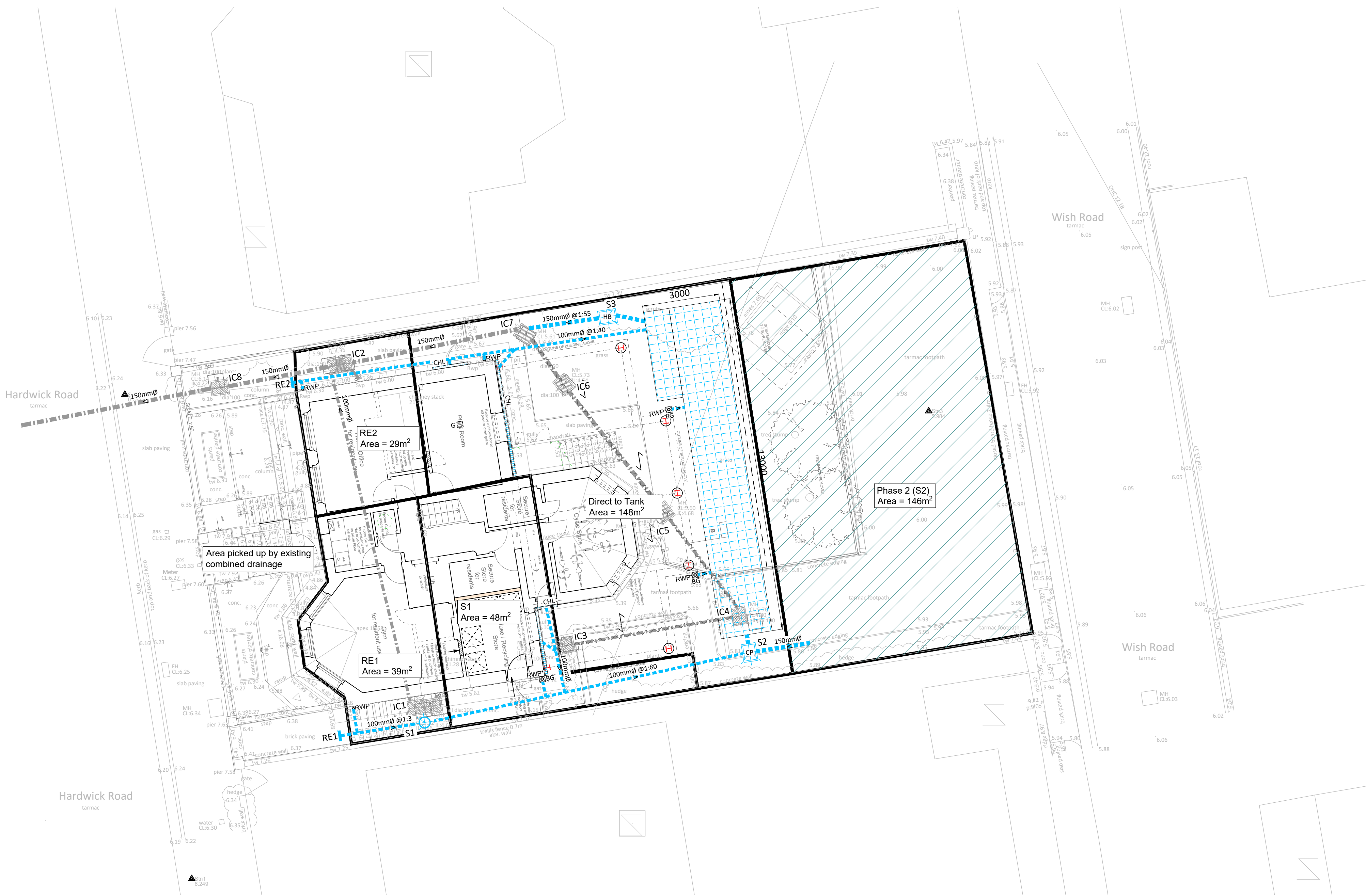
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow		
1.003	TANK	0.493	0.000	0.55		43	5.9		SURCHARGED*	
1.004	S3	0.506	0.000	0.37			5.9		SURCHARGED	
1.005	IC7	-0.096	0.000	0.28			5.9		OK	



Drawing Legend	
Drainage Catchment Areas	
	Phase 2 development area
	Drainage Catchment Area. Size and manhole as noted.
Drainage Layout	
	Existing Surface Water Drainage
	Existing Surface Water Drainage to be removed
	Proposed Surface Water Drainage
	Type D inspection chamber Flexible Construction
	Type D inspection chamber Rigid Construction
	Rodding Eye
	Geocellular attenuation tank
	Rainwater downpipe location. * denotes discharge to gully
	Bottle Gully
	Channel Drain
	Catchpit
	Hydrobrake by Hydro International

- NOTES:
- This drawing is to be read in conjunction with all other SWP drawings, and with all relevant architect's and engineer's drawings and specification and any discrepancies found are to be reported immediately to the engineer.
  - No dimensions are to be scaled from this drawing, unless noted otherwise all dimensions are in millimeters and all levels are in metres from the site datum.
  - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
  - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. figured dimensions must be used for setting out and detailing. swp logos and company information must be removed from copies if information is re-used.
  - The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
  - The main contractor is responsible for all occurrences of ground water during the construction period.
  - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care and attention whilst undertaking the works.
  - The contractor must comply with all current legislation relating to health & safety.
  - All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any swp drawings, the manufacturers instructions must be used.




Proposed Foul Drainage not shown for clarity.

COLOURED  
DRAWING  
REQUEST A COLOURED COPY IF  
THIS STAMP IS NOT RED

#### FOR INFORMATION ONLY

CLIENT	BEDFORD PARK DEVELOPMENTS		
ARCHITECT	GARRICK ARCHITECTS		
JOB TITLE	6 HARDWICK HOUSE, HARDWICK ROAD EASTBOURNE, BN21 4NY		
DRAWING TITLE	DRAINAGE CATCHMENT PLAN		
SCALE AT A1	DATE	DRAWN	CRS
1-100	AUGUST 2023	CHECKED	DG
ENG.	CRS		

P1	15.08.2023	PRELIMINARY ISSUE	
REV.	DATE	DESCRIPTION	
			
<b>STEPHEN WILSON PARTNERSHIP LTD</b>			
Chalvington Barn, Dittons Business Park, Dittons Road, POLEGATE, BN26 6HY Telephone: 01323 412020 E-mail: info@swpeast.co.uk • Website: www.swpeast.co.uk			
JOB No.	E8731	DRAWING No.	202
REV.			P1

