CAPITA

18th November 2013

Wellesley Development Aldershot

Review of Environment Agency letter dated 09 October 2013

Environment Agency letter reference WA/2013/114014/06-L01 dated 09 October 2013, requested further clarification on information contained in the Flood Risk Assessment, FRA, and Utility Report submitted for the Wellesley development. The letter is in Appendix A for reference, and text from the letter is highlighted in blue italic font within this document.

This document is intended to respond to the EA letter regarding the comments and is a further addition to the clarifications previously issued to EA regarding the FRA and the Utility Strategy.

Discrepancies between FRA and Utility Strategy - MAIDA – Phase 1:

"The Utility Strategy implies that the development zone area is smaller and will result in a decrease in impermeable area compared to the existing scenario. Under this scenario surface water discharge volumes will be decreasing and so no mitigation for discharge volumes will be needed for this phase. Conversely according to the FRA the development zone is larger and will result in an increase in discharge volumes (due to an increase in impermeable area) and so mitigation volumes will be needed. We require confirmation of which document contains the correct information about Maida Phase 1."

The impermeable area will be increasing in Zone A (Maida) as indicated on Table 2.S1, contained in Appendix B , which accords with the Flood Risk Assessment. This is summarised for Maida as follows:

MAIDA PHASE 1	Existing Scenario	Proposed Scenario
Total Area	7.58 ha	7.58 ha
Impermeable Area	1.55 ha	3.34 ha
Impermeable Proportion	20%	44%
Permeable Area	6.03 ha	4.24 ha
Permeable Proportion	80%	56%

There is a discrepancy between the impermeable area provided in the Flood Risk Assessment (summarised above) and the Utilities Report. This discrepancy arose due an expansion of the red-line boundary for Maida in order to include an existing peripheral road within the detailed Planning Application for Maida. There was also a typographic error in the utilities report that transposed the existing and impermeable areas. The information in the Utilities report shall be discarded in favour of the FRA.

Appropriate Application of Long term volume storage (trickle rate methodology):

"While the clarification to the FRA stated that the trickle rate methodology would be used to manage any increase in discharge volume, the details of the calculations were not provided. Section 7.10 (page 20) of the Utility Strategy has provided some of this information and this shows that the trickle rate allowance has been added to the existing discharge rate to result in a higher overall discharge

rate. This is incorrect. To mitigate volumes appropriately the extra volume due to the development must be trickled off separately at 2 l/s/ha. Research has shown that trickling the extra volume in this way has a negligible impact on the receiving watercourse. If the trickle rate allowance is added to the existing rates, the extra volume is simply released at a higher rate, increasing flood risk elsewhere. ***This should be revised so that the volume to be trickled is discharge separately at 2 l/s/ha."***

It is confirmed that the trickle volume has been calculated as a separate volume based on 2l/s/ha, and would be detailed discharging via a separate control in the detailed design. The discharge volumes provided in the Utilities Report shall be discarded in favour of those provided in Table 2.S1 (Appendix B), as reported in the FRA. The method of calculation is included within this table and the main attenuation and long term storage discharge rates are calculated using the methodology proposed in 3.S1 to 3.S6 (Appendix B).

Summary Comments:

"Missing information that must be provided either upfront or in a condition:
Maida Phase 1

- *Clarify whether the impermeable area is increasing within the Maida Phase 1 area and by how much.*
  See clarification above, which addresses this point.
- *Demonstrate that where impermeable area is increasing that the method used for managing the increase in runoff volumes has been correctly applied. i.e. that the extra discharge volume is being trickled off separately.*
  See clarification above and supporting calculations in Appendix B, which address this point.
- *Submit the calculations behind the discharge volumes being quoted within the Utility Strategy (page 21).*
  The utility strategy volumes are superseded by the calculations in Appendix B.

All other development zones

- *Existing discharge rates and discharge volumes for the 1 in 1, 1 in 30, 1 in 100 storm event*
  See Calculations in Appendices B. The depth of rainfall (d) has been derived from the FEH CD-rom V3. The 1 yr event assessment has not been considered as the FEH CD-rom advises that the 1 year event is subject to instabilities. In lieu of the 1 year event, the 2 year event has been considered. We propose to submit the 1 in 2 year discharge rate,
- *Proposed discharge rates and volumes for the 1 in 1, 1 in 30, 1 in 100 plus climate change storm event. Proposed rates and volume should be no higher than existing*
  See Calculations in Appendix B. These demonstrate that the proposed discharge rate is no higher than existing for the 1 in 2 (see above), 1 in 30 & 1 in 100 plus climate change storm events, and the main attenuation volume is no higher, subject to the comments on long term storage below. The discharge rate for all events greater than the 1 in 30 year return period are restricted to the 1 in 30 year rate.
- *Calculations showing how the existing and proposed discharge rates and volumes were determined.*
  See previous comments and calculations in Appendix B.
- ***Demonstrate that where impermeable area is increasing the increase in discharge volume is being appropriately mitigated for** by either*
  a) infiltration,
  Infiltration testing with regards to groundwater levels shall be undertaken prior to the implementation of each development area in line with Building Control requirements. Initial testing on site from December 2004 can be found within Appendix C. These

suggested poor infiltration ($1.5x10^{-8}$ to $8.3x10^{-6}$m/s), and there are additional concerns relating to groundwater level. At this stage a worst case nil infiltration scenario has been considered to estimate maximum attenuation requirement.

b) *discharging up to the 1 in 100 plus climate change storm event at the Greenfield QBAR rate*

This methodology has not been assumed for the outline strategy.

c) *discharge existing runoff volumes at existing rates and the extra volume discharge separately at 2 l/s/ha."*

This is the methodology assumed for the outline strategy. As stated above, it is confirmed that the equivalent existing run-off volume is attenuated via the main control and the extra volume associated with increase in impermeable area has been calculated as a separate volume based on 2l/s/ha, discharging via a separate control. See Calculations in Appendix B

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Appendix A – Environment Agency Correspondence dated 9th October 2013

creating a better place

Environment Agency

Mr John Thorne
Rushmoor Borough Council
Development Control
Council Offices Farnborough Road
Farnborough
Hampshire
GU14 7JU

Our ref: WA/2013/114014/06-L01
Your ref: 12/00958/OUT

Date: 09 October 2013

Dear Mr Thorne

ALDERSHOT URBAN EXTENSION.

Further to our meeting of the 17th September we wish to provide the following clarification on our outstanding concerns.

The formal Flood Risk Assessment (FRA)

Having reviewed the Utility Strategy, we do not consider that this document should be counted as part of the formal Flood Risk Assessment and Drainage Strategy. While it provides some extra information on Maida Phase 1, there is much less information in the 9 pages of the surface water management chapter then in the main Flood Risk Assessment and Surface Water Drainage Strategy. This is particularly important as there are sections of the Utility Strategy that contradict the Flood Risk Assessment. The Flood Risk Assessment submission should consist of Flood Risk Assessment and Surface Water Drainage Strategy Feb 2012 and the Clarifications on Flood Risk Assessment May 2013. Any additional information only contained in the Utility Strategy should be added to the clarification of the FRA document.

The following clarifications are needed:

Discrepancies between the Utility Strategy and The Flood Risk Assessment and Surface water Drainage Strategy dated Feb 2012 The table below compares the statements that both these documents make about Maida Zone –Phase 1.

Cont/d..

Comparison of the statistics quoted about Maida Phase 1 by the Utility Strategy and the Flood Risk Assessment and Surface Water Drainage Strategy Feb 2012

Maida Area Statistics	**Utility Strategy (para 7.9)**	**FRA** Summary Table: Comparison of Estimated Existing with Projected Permeable/Impermeable Areas (page 25)
Existing permeable area	25%	80%
Existing impermeable area	75%	20%
Proposed permeable area	44%	56%
Proposed impermeable area	56%	44%
Development Zone area	5.7 Ha	7.58

As you can see from the table the split between permeable /impermeable areas have been switched between the Utility Strategy and the FRA. The Utility Strategy implies that the development zone area is smaller and will result in a decrease in impermeable area compared to the existing scenario. Under this scenario surface water discharge volumes will be decreasing and so no mitigation for discharge volumes will be needed for this phase. Conversely according to the FRA the development zone is larger and will result in an increase in discharge volumes (due to an increase in impermeable area) and so mitigation volumes will be needed. We require confirmation of which document contains the correct information about Maida Phase 1.

Demonstrate that the trickle rate methodology has been employed correctly Discharge Volumes not dealt with appropriately

While the clarification to the FRA stated that the trickle rate methodology would be used to manage any increase in discharge volume, the details of the calculations were not provided. Section 7.10 (page 20) of the Utility Strategy has provided some of this information and this shows that the trickle rate allowance has been added to the existing discharge rate to result in a higher overall discharge rate. This is incorrect. To mitigate volumes appropriately the extra volume due to the development must be trickled off separately at 2 l/s/ha. Research has shown that trickling the extra volume in this way has a negligible impact on the receiving watercourse. If the trickle rate allowance is added to the existing rates, the extra volume is simply released at a higher rate, increasing flood risk elsewhere. **This should be revises so that the volume to be trickled is discharge separately at 2 l/s/ha.**

Discharge rates

We understand and are pleased to see that overall discharge rates from the Maida Zone will be below existing rates. This is because the calculation in the Utility Strategy applied a blanket 2l/s/ha discharge rate to all existing Greenfield areas that are to be built on. i.e. the existing Greenfield runoff from these areas that are to be built on has been ignored (PRRM allows for this to be taken account of) as a result the overall discharge rates from the site are lower than the current rates.

Impact on the Basingstoke Canal

Section 7.1 on page 13, 6th paragraph of the Utility Strategy incorrectly states that providing extra attenuation on site (that would reduce runoff rates) would detrimentally affect the canal ecology. This is incorrect. As explained previously, the canal is short of

water during dry summer periods when there would be no runoff coming off from the site anyway. As long as discharge volumes to the canal are retained as existing, reducing runoff rates below existing will extend the amount of time that the canal is receiving runoff from the site, it may also reduce the frequency that water in the canal has to over top the control weir into the River Blackwater as the runoff peak into the canal is spread out, reduce turbulence at the site outfall locations and increase the amount of time pollutants wash from the site have to degrade.

Missing information that must be provided either upfront or in a condition:
Maida Phase 1

- Clarify whether the impermeable area is increasing within the Maida Phase 1 area and by how much.
- Demonstrate that where impermeable area is increasing that the method used for managing the increase in runoff volumes has been correctly applied. i.e. that the extra discharge volume is being trickled off separately.
- Submit the calculations behind the discharge volumes being quoted within the Utility Strategy (page 21).

All other development zones

- Existing discharge rates and discharge volumes for the 1 in 1, 1 in 30, 1 in 100 storm event
- Proposed discharge rates and volumes for the 1 in 1, 1 in 30, 1 in 100 plus climate change storm event. Proposed rates and volume should be no higher than existing
- Calculations showing how the existing and proposed discharge rates and volumes were determined.
- **Demonstrate that where impermeable area is increasing the increase in discharge volume is being appropriately mitigated for** by either a) infiltration, b) discharging up to the 1 in 100 plus climate change storm event at the Greenfield QBAR rate c) discharge existing runoff volumes at existing rates and the extra volume discharge **separately** at 2 l/s/ha.

We hope our comments above are helpful, if you require any further clarification please contact me.

Yours sincerely

Mrs Katie Newton
Technical Specialist

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Appendix B – Tables Demonstrating Calculated Run-off Rates and Volumes

		Existing Situation						Estimated Post-Development Scenario								
Zone Ref.	**Zone Name**	**Estimated Area (ha)**	**Measured Impermeable Area (ha)**	**% Impermeable area**	**Calculated Permeable Area (ha)**	**% Permeable area**	**"Estimated"" Storage for Existing Impermeable Area (m^3) [1]**	**Estimated change to impermeable area from Masterplan**	**% Impermeable area**	**Impermeable Area (ha)**	**Change in Impermeable Area (ha)**	**Estimated Storage Volume 100+cc @30 yr RP -existing impermeable**	**Estimated Storage Volume 100+cc @ 2l/s/ha GfR (m^3)**	**Total Volume of Attenuation (m^3)**	**Reduced Imp Area Vol (Not accounted) (m^3)**	**Volume of Runoff NO ATTENUATION (m^3)**
A_O	Maida (outline)	7.58	1.55	20%	6.03	80%	618	Estimated increase of 24% to total 44%	44%	3.34	1.79	617.56	1,572	2190		3058
B	Coruna	16.28	10.30	63%	5.98	37%	4786	Estimated reduction of 10% to 53%	53%	8.63	-1.67	3448.69		3449	1337.2	7911
C	CMH	6.93	3.21	46%	3.72	54%	1284	To remain unchanged	46%	3.21	0.00	1284.04	0	1284	0.0	2945
D	McGrigor	3.43	2.12	62%	1.31	38%	849	Most likely to remain unchanged; increase from 62% to 75% allowed	75%	2.57	0.45	849.18	393	1242		2359
E	Gunhill	3.01	0.79	26%	2.22	74%	316	Estimated increase of 15% to 41%	41%	1.23	0.44	315.84	390	706		1131
F	Knollys	2.26	0.53	23%	1.73	77%	211	Estimated increase of 15% to 38%	38%	0.86	0.33	210.96	291	502		787
G	Pennefathers	4.01	0.85	21%	3.16	79%	340	Estimated increase of 23% to 44%	44%	1.76	0.91	340.46	801	1142		1618
H	Stanhope Lines West	7.62	4.53	59%	3.09	41%	1809	Most likely to remain unchanged but possible small reduction	59%	4.53	0.00	1809.12	0	1809	0.0	4150
I	School End	8.7	3.10	36%	5.60	64%	1239	Most likely to remain unchanged	36%	3.10	0.00	1239.04	0	1239		2842
J	Browning	13.14	6.18	47%	6.96	53%	2468	Estimated increase of 10% to total 57%	57%	7.49	1.31	2468.49	1,154	3622		6867
K	Stanhope Lines East	10.74	3.86	36%	6.88	64%	1542	Estimated increase of 15% to total 51%	51%	5.48	1.62	1542.00	1,422	2964		5022
L	Neighbourhood Centre	2.98	1.23	41%	1.75	59%	491	To remain unchanged	41%	1.23	0.00	491.50	0	491	0.0	1127
M	Buller	6.1	2.21	36%	3.89	64%	883	Estimated increase of 20% to total 56%	56%	3.42	1.21	883.31	1,059	1942		3132
N	God's Acre	10.15	3.62	36%	6.53	64%	1445	Essentially unchanged; increase from 36% to 39% allowed	39%	3.96	0.34	1444.96	301	1746		3629
O	Mandora	4.81	3.22	67%	1.59	33%	1287	Essentially unchanged	67%	3.22	0.00	1286.80	0	1287	0.0	2952
P	Peaked Hill	2.03	0.30	15%	1.73	85%	119	Estimated increase of 10% to total 25%	25%	0.51	0.21	118.51	185	304		465
Q	Clayton	8.77	2.62	30%	6.15	70%	1047	Estimated increase of 20% to total 50%	50%	4.39	1.77	1046.75	1,551	2598		4020
R	Abro	3.23	2.39	74%	0.84	26%	956	Unchanged	74%	2.39	0.00	955.82	0	956	0.0	2193
S	Reme	8.25	0.23	3%	8.02	97%	92	Estimated increase of 57% to total 60%	60%	4.95	4.72	91.57	4,146	4237		4538
T	Parsons	2.75	1.03	37%	1.72	63%	410	Essentially unchanged	37%	1.03	0.00	410.32	0	410	0.0	941
	TOTAL	132.77	53.85	41%		59%	22192		51%	67.28		20854.90	13265.03	34,120		61688

Estimated Storage Volume 100+cc @30 yr RP -existing impermeable = $Cv \cdot$Existing Impermeable Area retained$\cdot 10^4 \cdot (d_{100+30\%CC\ @\ 6hr} - d_{30\ @\ 6hr})/1000$

Estimated Storage Volume 100+cc @ 2l/s/ha GfR (m^3) = $Cv \cdot$Existing Impermeable Area retained$\cdot 10^4 \cdot (d_{100+30\%CC\ @\ 6hr} - d_{2l/s/ha\ @\ 6hr})/1000$

C_V = 0.9; $d_{100+30\%CC}$ = 101.9mm; $d_{2l/s/ha\ @\ 6hrs}$ = 4.3mm; $D_{30\ @\ 6HR}$ = 57.5mm

No Change/Reduced Impermeable Area

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Table 2.S1

Comparison of Existing and Proposed Run-off Volumes
360min Storm Duration
IMPERMEABLE AREAS ONLY

		EXISTING	PROPOSED NO MITIGATION	PROPOSED WITH MITIGATION (as PROPOSED WITH MITIGATION)		
A		6.03	4.24	4.24	Permeable surfaces	
		1.55	1.55	1.55	Existing impermeable surfaces	
			1.79	1.79	New Impermeable Surfaces	
		7.58	7.58	7.58	Total	
B		5.98	7.65	7.65	Permeable surfaces	
		10.3	8.63	8.63	Existing impermeable surfaces	
					New Impermeable Surfaces	
		16.28	16.28	16.28	Total	
C		3.72	3.72	3.72	Permeable surfaces	
		3.21	3.21	3.21	Existing impermeable surfaces	
					New Impermeable Surfaces	
		6.93	6.93	6.93	Total	
D		1.31	0.86	0.86	Permeable surfaces	
		2.12	2.12	2.12	Existing impermeable surfaces	
			0.45	0.45	New Impermeable Surfaces	
					Total	
E		2.22	1.78	1.78	Permeable surfaces	
		0.79	0.79	0.79	Existing impermeable surfaces	
			0.44	0.44	New Impermeable Surfaces	
		3.01	3.01	3.01	Total	
F		1.73	1.4	1.4	Permeable surfaces	
		0.53	0.53	0.53	Existing impermeable surfaces	
			0.33	0.33	New Impermeable Surfaces	
		2.26	2.26	2.26	Total	
G		3.16	1.4	1.4	Permeable surfaces	
		0.85	0.85	0.85	Existing impermeable surfaces	
			0.91	0.91	New Impermeable Surfaces	
		4.01	3.16	3.16	Total	
H		3.09	3.09	3.09	Permeable surfaces	
		4.53	4.53	4.53	Existing impermeable surfaces	
					New Impermeable Surfaces	
		7.62	7.62	7.62	Total	
I		5.6	5.6	5.6	Permeable surfaces	
		3.1	3.1	3.1	Existing impermeable surfaces	
					New Impermeable Surfaces	
		8.7	8.7	8.7	Total	
J		6.96	5.65	5.65	Permeable surfaces	
		6.18	6.18	6.18	Existing impermeable surfaces	
			1.31	1.31	New Impermeable Surfaces	
		13.14	13.14	13.14	Total	
K		6.88	5.26	5.26	Permeable surfaces	
		3.86	3.86	3.86	Existing impermeable surfaces	
			1.62	1.62	New Impermeable Surfaces	
		10.74	10.74	10.74	Total	
L		1.75	1.75	1.75	Permeable surfaces	
		1.23	1.23	1.23	Existing impermeable surfaces	
					New Impermeable Surfaces	
		2.98	2.98	2.98	Total	
M		3.89	2.68	2.68	Permeable surfaces	
		2.21	2.21	2.21	Existing impermeable surfaces	
			1.21	1.21	New Impermeable Surfaces	
		6.1	6.1	6.1	Total	
N		6.53	6.19	6.19	Permeable surfaces	
		3.62	3.62	3.62	Existing impermeable surfaces	
			0.34	0.34	New Impermeable Surfaces	
		10.15	10.15	10.15	Total	
O		1.59	1.59	1.59	Permeable surfaces	
		3.22	3.22	3.22	Existing impermeable surfaces	
					New Impermeable Surfaces	
		4.81	4.81	4.81	Total	
P		1.73	1.52	1.52	Permeable surfaces	
		0.3	0.3	0.3	Existing impermeable surfaces	
			0.21	0.21	New Impermeable Surfaces	
		2.03	2.03	2.03	Total	
Q		6.15	4.38	4.38	Permeable surfaces	
		2.62	2.62	2.62	Existing impermeable surfaces	
			1.77	1.77	New Impermeable Surfaces	
		8.77	8.77	8.77	Total	
R		0.84	0.84	0.84	Permeable surfaces	
		2.39	2.39	2.39	Existing impermeable surfaces	
					New Impermeable Surfaces	
		3.23	3.23	3.23	Total	
S		8.02	3.3	3.3	Permeable surfaces	
		0.23	0.23	0.23	Existing impermeable surfaces	
			4.72	4.72	New Impermeable Surfaces	
		8.25	8.25	8.25	Total	
T		1.72	1.72	1.72	Permeable surfaces	
		1.03	1.03	1.03	Existing impermeable surfaces	
					New Impermeable Surfaces	**Wellesley Aldershot**
		2.75	2.75	2.75	Total	
		78.9	64.62	64.62	Permeable surfaces	**Table 3.S1**
		53.87	52.2	52.2	Existing impermeable surfaces	
		0	15.1	15.1	New Impermeable Surfaces	**Catchment Areas**
		53.87	67.3	67.3	Combined Impermeable Surfaces	
		132.77	131.92	131.92	Total	

	FEH V3	I (mm/hr)	I_{PEAK} (mm/hr); C_r 1.3		
$d_{15\ 2YR}$	10.52	42.08	54.704		
2l/s/ha		0.7	0.7		
Zone Ref		Existing @ 2 yr; 15 min	Proposed @ 2 yr; 15 min NO MITIGATION	Proposed @ 2yr; 15 min WITH MITIGATION	
A		0.28	0.19	0.193	Permeable surfaces (C_V 0.3)
		0.21	0.21	0.212	Existing impermeable surfaces (CV 0.9), Q 30
			0.24	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.49	0.65	0.409	Total (m^3/s)
B		0.27	0.35	0.349	Permeable surfaces (C_V 0.3)
		1.41	1.18	1.181	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.68	1.53	1.530	Total (m^3/s)
C		0.17	0.17	0.170	Permeable surfaces (C_V 0.3)
		0.44	0.44	0.439	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.61	0.61	0.609	Total (m^3/s)
D		0.06	0.04	0.039	Permeable surfaces (C_V 0.3)
		0.29	0.29	0.290	Existing impermeable surfaces (CV 0.9), Q 30
			0.06	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.35	0.39	0.330	Total (m^3/s)
E		0.10	0.08	0.081	Permeable surfaces (C_V 0.3)
		0.11	0.11	0.108	Existing impermeable surfaces (CV 0.9), Q 30
			0.06	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.21	0.25	0.190	Total (m^3/s)
F		0.08	0.06	0.064	Permeable surfaces (C_V 0.3)
		0.07	0.07	0.073	Existing impermeable surfaces (CV 0.9), Q 30
			0.05	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.15	0.18	0.137	Total (m^3/s)
G		0.14	0.06	0.064	Permeable surfaces (C_V 0.3)
		0.12	0.12	0.116	Existing impermeable surfaces (CV 0.9), Q 30
			0.12	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.26	0.30	0.182	Total (m^3/s)
H		0.14	0.14	0.141	Permeable surfaces (C_V 0.3)
		0.62	0.62	0.620	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.76	0.76	0.761	Total (m^3/s)
I		0.26	0.26	0.255	Permeable surfaces (C_V 0.3)
		0.42	0.42	0.424	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.68	0.68	0.680	Total (m^3/s)
J		0.32	0.26	0.258	Permeable surfaces (C_V 0.3)
		0.85	0.85	0.846	Existing impermeable surfaces (CV 0.9), Q 30
			0.18	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.16	1.28	1.106	Total (m^3/s)
K		0.31	0.24	0.240	Permeable surfaces (C_V 0.3)
		0.53	0.53	0.528	Existing impermeable surfaces (CV 0.9), Q 30
			0.22	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.84	0.99	0.771	Total (m^3/s)
L		0.08	0.08	0.080	Permeable surfaces (C_V 0.3)
		0.17	0.17	0.168	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.25	0.25	0.248	Total (m^3/s)
M		0.18	0.12	0.122	Permeable surfaces (C_V 0.3)
		0.30	0.30	0.302	Existing impermeable surfaces (CV 0.9), Q 30
			0.17	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.48	0.59	0.427	Total (m^3/s)
N		0.30	0.28	0.282	Permeable surfaces (C_V 0.3)
		0.50	0.50	0.495	Existing impermeable surfaces (CV 0.9), Q 30
			0.05	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.79	0.82	0.778	Total (m^3/s)
O		0.07	0.07	0.073	Permeable surfaces (C_V 0.3)
		0.44	0.44	0.441	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.51	0.51	0.513	Total (m^3/s)
P		0.08	0.07	0.069	Permeable surfaces (C_V 0.3)
		0.04	0.04	0.041	Existing impermeable surfaces (CV 0.9), Q 30
			0.03	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.12	0.14	0.111	Total (m^3/s)
Q		0.28	0.20	0.200	Permeable surfaces (C_V 0.3)
		0.36	0.36	0.359	Existing impermeable surfaces (CV 0.9), Q 30
			0.24	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.64	0.80	0.562	Total (m^3/s)
R		0.04	0.04	0.038	Permeable surfaces (C_V 0.3)
		0.33	0.33	0.327	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.37	0.37	0.365	Total (m^3/s)
S		0.37	0.15	0.151	Permeable surfaces (C_V 0.3)
		0.03	0.03	0.031	Existing impermeable surfaces (CV 0.9), Q 30
			0.65	0.008	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.40	0.83	0.190	Total (m^3/s)
T		0.08	0.08	0.078	Permeable surfaces (C_V 0.3)
		0.14	0.14	0.141	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.22	0.22	0.219	Total (m^3/s)
Total (m^3/s)		**10.97**	**12.16**	**10.12**	

Wellesley Aldershot

2Yr RP

Table 3.S2

Comparison of Peak Discharge Rates

15 min Storm Duration

	FEH V3	I (mm/hr)	I_{PEAK} (mm/hr); C_r 1.3		
$d_{15\ 10YR}$	19.76	79.04	102.752		
2l/s/ha		0.7	0.7		
Zone Ref		Existing @ 10yr; 15 min	Proposed @ 10yr; 15 min NO MITIGATION	Proposed @ 10yr; 15 min WITH MITIGATION	
A		0.52	0.36	0.363	Permeable surfaces (C_V 0.3)
		0.40	0.40	0.398	Existing impermeable surfaces (CV 0.9), Q 30
			0.46	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.92	1.22	0.765	Total (m^3/s)
B		0.51	0.66	0.656	Permeable surfaces (C_V 0.3)
		2.65	2.22	2.219	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		3.16	2.87	2.874	Total (m^3/s)
C		0.32	0.32	0.319	Permeable surfaces (C_V 0.3)
		0.83	0.83	0.825	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.14	1.14	1.144	Total (m^3/s)
D		0.11	0.07	0.074	Permeable surfaces (C_V 0.3)
		0.55	0.55	0.545	Existing impermeable surfaces (CV 0.9), Q 30
			0.12	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.66	0.73	0.620	Total (m^3/s)
E		0.19	0.15	0.153	Permeable surfaces (C_V 0.3)
		0.20	0.20	0.203	Existing impermeable surfaces (CV 0.9), Q 30
			0.11	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.39	0.47	0.356	Total (m^3/s)
F		0.15	0.12	0.120	Permeable surfaces (C_V 0.3)
		0.14	0.14	0.136	Existing impermeable surfaces (CV 0.9), Q 30
			0.08	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.28	0.34	0.257	Total (m^3/s)
G		0.27	0.12	0.120	Permeable surfaces (C_V 0.3)
		0.22	0.22	0.219	Existing impermeable surfaces (CV 0.9), Q 30
			0.23	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.49	0.57	0.340	Total (m^3/s)
H		0.26	0.26	0.265	Permeable surfaces (C_V 0.3)
		1.16	1.16	1.165	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.43	1.43	1.429	Total (m^3/s)
I		0.48	0.48	0.480	Permeable surfaces (C_V 0.3)
		0.80	0.80	0.797	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.28	1.28	1.277	Total (m^3/s)
J		0.60	0.48	0.484	Permeable surfaces (C_V 0.3)
		1.59	1.59	1.589	Existing impermeable surfaces (CV 0.9), Q 30
			0.34	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		2.19	2.41	2.075	Total (m^3/s)
K		0.59	0.45	0.451	Permeable surfaces (C_V 0.3)
		0.99	0.99	0.992	Existing impermeable surfaces (CV 0.9), Q 30
			0.42	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.58	1.86	1.446	Total (m^3/s)
L		0.15	0.15	0.150	Permeable surfaces (C_V 0.3)
		0.32	0.32	0.316	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.47	0.47	0.466	Total (m^3/s)
M		0.33	0.23	0.230	Permeable surfaces (C_V 0.3)
		0.57	0.57	0.568	Existing impermeable surfaces (CV 0.9), Q 30
			0.31	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.90	1.11	0.800	Total (m^3/s)
N		0.56	0.53	0.530	Permeable surfaces (C_V 0.3)
		0.93	0.93	0.931	Existing impermeable surfaces (CV 0.9), Q 30
			0.09	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.49	1.55	1.462	Total (m^3/s)
O		0.14	0.14	0.136	Permeable surfaces (C_V 0.3)
		0.83	0.83	0.828	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.96	0.96	0.964	Total (m^3/s)
P		0.15	0.13	0.130	Permeable surfaces (C_V 0.3)
		0.08	0.08	0.077	Existing impermeable surfaces (CV 0.9), Q 30
			0.05	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.23	0.26	0.208	Total (m^3/s)
Q		0.53	0.38	0.375	Permeable surfaces (C_V 0.3)
		0.67	0.67	0.674	Existing impermeable surfaces (CV 0.9), Q 30
			0.46	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.20	1.50	1.052	Total (m^3/s)
R		0.07	0.07	0.072	Permeable surfaces (C_V 0.3)
		0.61	0.61	0.614	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.69	0.69	0.686	Total (m^3/s)
S		0.69	0.28	0.283	Permeable surfaces (C_V 0.3)
		0.06	0.06	0.059	Existing impermeable surfaces (CV 0.9), Q 30
			1.21	0.008	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.75	1.56	0.350	Total (m^3/s)
T		0.15	0.15	0.147	Permeable surfaces (C_V 0.3)
		0.26	0.26	0.265	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.41	0.41	0.412	Total (m^3/s)
Total (m^3/s)		**20.61**	**22.84**	**18.99**	

Wellesley Aldershot

10Yr RP

Table 3.S3

Comparison of Peak Discharge Rates

15 min Storm Duration

	FEH V3	I (mm/hr)	I_{PEAK} (mm/hr); C_r 1.3		
d 15 30YR	28.88	115.52	150.176		
2l/s/ha		0.7	0.7		
Zone Ref		Existing @ 30yr; 15 min	Proposed @ 30yr; 15 min NO MITIGATION	Proposed @ 30yr; 15 min WITH MITIGATION	
A		0.76	0.53	0.531	Permeable surfaces (C_V 0.3)
		0.58	0.58	0.582	Existing impermeable surfaces (CV 0.9), Q 30
			0.67	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.34	1.79	1.117	Total (m^3/s)
B		0.75	0.96	0.958	Permeable surfaces (C_V 0.3)
		3.87	3.24	3.243	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		4.62	4.20	4.201	Total (m^3/s)
C		0.47	0.47	0.466	Permeable surfaces (C_V 0.3)
		1.21	1.21	1.206	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.67	1.67	1.672	Total (m^3/s)
D		0.16	0.11	0.108	Permeable surfaces (C_V 0.3)
		0.80	0.80	0.797	Existing impermeable surfaces (CV 0.9), Q 30
			0.17	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.96	1.07	0.905	Total (m^3/s)
E		0.28	0.22	0.223	Permeable surfaces (C_V 0.3)
		0.30	0.30	0.297	Existing impermeable surfaces (CV 0.9), Q 30
			0.17	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.57	0.69	0.521	Total (m^3/s)
F		0.22	0.18	0.175	Permeable surfaces (C_V 0.3)
		0.20	0.20	0.199	Existing impermeable surfaces (CV 0.9), Q 30
			0.12	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.42	0.50	0.375	Total (m^3/s)
G		0.40	0.18	0.175	Permeable surfaces (C_V 0.3)
		0.32	0.32	0.319	Existing impermeable surfaces (CV 0.9), Q 30
			0.34	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.72	0.84	0.496	Total (m^3/s)
H		0.39	0.39	0.387	Permeable surfaces (C_V 0.3)
		1.70	1.70	1.702	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		2.09	2.09	2.089	Total (m^3/s)
I		0.70	0.70	0.701	Permeable surfaces (C_V 0.3)
		1.16	1.16	1.165	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.87	1.87	1.866	Total (m^3/s)
J		0.87	0.71	0.708	Permeable surfaces (C_V 0.3)
		2.32	2.32	2.322	Existing impermeable surfaces (CV 0.9), Q 30
			0.49	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		3.19	3.52	3.032	Total (m^3/s)
K		0.86	0.66	0.659	Permeable surfaces (C_V 0.3)
		1.45	1.45	1.450	Existing impermeable surfaces (CV 0.9), Q 30
			0.61	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		2.31	2.72	2.112	Total (m^3/s)
L		0.22	0.22	0.219	Permeable surfaces (C_V 0.3)
		0.46	0.46	0.462	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.68	0.68	0.681	Total (m^3/s)
M		0.49	0.34	0.336	Permeable surfaces (C_V 0.3)
		0.83	0.83	0.830	Existing impermeable surfaces (CV 0.9), Q 30
			0.45	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.32	1.62	1.168	Total (m^3/s)
N		0.82	0.78	0.775	Permeable surfaces (C_V 0.3)
		1.36	1.36	1.360	Existing impermeable surfaces (CV 0.9), Q 30
			0.13	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		2.18	2.26	2.136	Total (m^3/s)
O		0.20	0.20	0.199	Permeable surfaces (C_V 0.3)
		1.21	1.21	1.210	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.41	1.41	1.409	Total (m^3/s)
P		0.22	0.19	0.190	Permeable surfaces (C_V 0.3)
		0.11	0.11	0.113	Existing impermeable surfaces (CV 0.9), Q 30
			0.08	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.33	0.38	0.303	Total (m^3/s)
Q		0.77	0.55	0.549	Permeable surfaces (C_V 0.3)
		0.98	0.98	0.984	Existing impermeable surfaces (CV 0.9), Q 30
			0.67	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.75	2.20	1.536	Total (m^3/s)
R		0.11	0.11	0.105	Permeable surfaces (C_V 0.3)
		0.90	0.90	0.898	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.00	1.00	1.003	Total (m^3/s)
S		1.00	0.41	0.413	Permeable surfaces (C_V 0.3)
		0.09	0.09	0.086	Existing impermeable surfaces (CV 0.9), Q 30
			1.77	0.008	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		1.09	2.27	0.508	Total (m^3/s)
T		0.22	0.22	0.215	Permeable surfaces (C_V 0.3)
		0.39	0.39	0.387	Existing impermeable surfaces (CV 0.9), Q 30
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha
		0.60	0.60	0.602	Total (m^3/s)
Total (m^3/s)		**30.12**	**33.38**	**27.73**	

Wellesley Aldershot

30Yr RP

Table 3.S4

Comparison of Peak Discharge Rates

15 min Storm Duration

$I_{15\ 100YR}$	43.39	173.56	225.628			
2l/s/ha		0.7	0.7			
Zone Ref		Existing @ 100yr; 15 min	Proposed @ 100yr; 15 min NO MITIGATION	Proposed @ 100yr; 15 min WITH MITIGATION		
A		1.13	0.80	0.798	Permeable surfaces (C_V 0.3)	
		0.88	0.88	0.582	Existing impermeable surfaces (CV 0.9), Q 30	
			1.01	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.01	2.68	1.383	Total (m^3/s)	
B		1.13	1.44	1.440	Permeable surfaces (C_V 0.3)	
		5.81	4.87	3.243	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		6.94	6.31	4.682	Total (m^3/s)	
C		0.70	0.70	0.700	Permeable surfaces (C_V 0.3)	
		1.81	1.81	1.812	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.51	2.51	2.512	Total (m^3/s)	
D		0.25	0.16	0.162	Permeable surfaces (C_V 0.3)	
		1.20	1.20	0.797	Existing impermeable surfaces (CV 0.9), Q 30	
			0.25	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.44	1.61	0.959	Total (m^3/s)	
E		0.42	0.33	0.335	Permeable surfaces (C_V 0.3)	
		0.45	0.45	0.297	Existing impermeable surfaces (CV 0.9), Q 30	
			0.25	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		0.86	1.03	0.633	Total (m^3/s)	
F		0.33	0.26	0.263	Permeable surfaces (C_V 0.3)	
		0.30	0.30	0.199	Existing impermeable surfaces (CV 0.9), Q 30	
			0.19	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		0.62	0.75	0.463	Total (m^3/s)	
G		0.59	0.26	0.263	Permeable surfaces (C_V 0.3)	
		0.48	0.48	0.319	Existing impermeable surfaces (CV 0.9), Q 30	
			0.51	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.07	1.26	0.584	Total (m^3/s)	
H		0.58	0.58	0.581	Permeable surfaces (C_V 0.3)	
		2.56	2.56	1.702	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.14	3.14	2.284	Total (m^3/s)	
I		1.05	1.05	1.054	Permeable surfaces (C_V 0.3)	
		1.75	1.75	1.165	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.80	2.80	2.219	Total (m^3/s)	
J		1.31	1.06	1.063	Permeable surfaces (C_V 0.3)	
		3.49	3.49	2.322	Existing impermeable surfaces (CV 0.9), Q 30	
			0.74	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		4.80	5.29	3.388	Total (m^3/s)	
K		1.29	0.99	0.990	Permeable surfaces (C_V 0.3)	
		2.18	2.18	1.450	Existing impermeable surfaces (CV 0.9), Q 30	
			0.91	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.47	4.08	2.443	Total (m^3/s)	
L		0.33	0.33	0.329	Permeable surfaces (C_V 0.3)	
		0.69	0.69	0.462	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.02	1.02	0.791	Total (m^3/s)	
M		0.73	0.50	0.504	Permeable surfaces (C_V 0.3)	
		1.25	1.25	0.830	Existing impermeable surfaces (CV 0.9), Q 30	
			0.68	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.98	2.43	1.337	Total (m^3/s)	
N		1.23	1.16	1.165	Permeable surfaces (C_V 0.3)	
		2.04	2.04	1.360	Existing impermeable surfaces (CV 0.9), Q 30	
			0.19	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.27	3.40	2.526	Total (m^3/s)	
O		0.30	0.30	0.299	Permeable surfaces (C_V 0.3)	
		1.82	1.82	1.210	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.12	2.12	1.509	Total (m^3/s)	
P		0.33	0.29	0.286	Permeable surfaces (C_V 0.3)	
		0.17	0.17	0.113	Existing impermeable surfaces (CV 0.9), Q 30	
			0.12	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		0.49	0.57	0.399	Total (m^3/s)	
Q		1.16	0.82	0.824	Permeable surfaces (C_V 0.3)	
		1.48	1.48	0.984	Existing impermeable surfaces (CV 0.9), Q 30	
			1.00	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.64	3.30	1.812	Total (m^3/s)	
R		0.16	0.16	0.158	Permeable surfaces (C_V 0.3)	
		1.35	1.35	0.898	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	**Wellesley Aldershot**
		1.51	1.51	1.056	Total (m^3/s)	
S		1.51	0.62	0.621	Permeable surfaces (C_V 0.3)	**100Yr RP**
		0.13	0.13	0.086	Existing impermeable surfaces (CV 0.9), Q 30	
			2.66	0.008	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.64	3.42	0.716	Total (m^3/s)	**Table 3.S5**
T		0.32	0.32	0.324	Permeable surfaces (C_V 0.3)	
		0.58	0.58	0.387	Existing impermeable surfaces (CV 0.9), Q 30	**Comparison of Peak Discharge Rates**
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	**15 min Storm Duration**
		0.91	0.91	0.711	Total (m^3/s)	
Total (m^3/s)		**45.26**	**50.15**	**32.41**		

$I_{15\ 100YR\ +\ 30\%}$	59.33	237.32	308.516			
2l/s/ha		0.7	0.7			
Zone Ref		Existing @ 100yr + 30%CC; 15 min	Proposed @ 100yr + 30%CC; 15 min NO MITIGATION	Proposed @ 100yr + 30%CC; 15 min WITH MITIGATION		
A		1.55	1.09	1.091	Permeable surfaces (C_V 0.3)	
		1.20	1.20	0.582	Existing impermeable surfaces (CV 0.9), Q 30	
			1.38	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.75	3.67	1.676	Total (m^3/s)	
B		1.54	1.97	1.968	Permeable surfaces (C_V 0.3)	
		7.95	6.66	3.243	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		9.49	8.63	5.211	Total (m^3/s)	
C		0.96	0.96	0.957	Permeable surfaces (C_V 0.3)	
		2.48	2.48	2.478	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.43	3.43	3.435	Total (m^3/s)	
D		0.34	0.22	0.221	Permeable surfaces (C_V 0.3)	
		1.64	1.64	0.797	Existing impermeable surfaces (CV 0.9), Q 30	
			0.35	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.97	2.21	1.019	Total (m^3/s)	
E		0.57	0.46	0.458	Permeable surfaces (C_V 0.3)	
		0.61	0.61	0.297	Existing impermeable surfaces (CV 0.9), Q 30	
			0.34	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.18	1.41	0.756	Total (m^3/s)	
F		0.45	0.36	0.360	Permeable surfaces (C_V 0.3)	
		0.41	0.41	0.199	Existing impermeable surfaces (CV 0.9), Q 30	
			0.25	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		0.85	1.02	0.560	Total (m^3/s)	
G		0.81	0.36	0.360	Permeable surfaces (C_V 0.3)	
		0.66	0.66	0.319	Existing impermeable surfaces (CV 0.9), Q 30	
			0.70	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.47	1.72	0.681	Total (m^3/s)	
H		0.80	0.80	0.795	Permeable surfaces (C_V 0.3)	
		3.50	3.50	1.702	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		4.29	4.29	2.497	Total (m^3/s)	
I		1.44	1.44	1.441	Permeable surfaces (C_V 0.3)	
		2.39	2.39	1.165	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.83	3.83	2.606	Total (m^3/s)	
J		1.79	1.45	1.454	Permeable surfaces (C_V 0.3)	
		4.77	4.77	2.322	Existing impermeable surfaces (CV 0.9), Q 30	
			1.01	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		6.56	7.24	3.778	Total (m^3/s)	
K		1.77	1.35	1.353	Permeable surfaces (C_V 0.3)	
		2.98	2.98	1.450	Existing impermeable surfaces (CV 0.9), Q 30	
			1.25	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		4.75	5.58	2.807	Total (m^3/s)	
L		0.45	0.45	0.450	Permeable surfaces (C_V 0.3)	
		0.95	0.95	0.462	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		1.40	1.40	0.912	Total (m^3/s)	
M		1.00	0.69	0.690	Permeable surfaces (C_V 0.3)	
		1.71	1.71	0.830	Existing impermeable surfaces (CV 0.9), Q 30	
			0.93	0.002	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.71	3.33	1.522	Total (m^3/s)	
N		1.68	1.59	1.593	Permeable surfaces (C_V 0.3)	
		2.79	2.79	1.360	Existing impermeable surfaces (CV 0.9), Q 30	
			0.26	0.001	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		4.47	4.65	2.953	Total (m^3/s)	
O		0.41	0.41	0.409	Permeable surfaces (C_V 0.3)	
		2.49	2.49	1.210	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.89	2.89	1.619	Total (m^3/s)	
P		0.45	0.39	0.391	Permeable surfaces (C_V 0.3)	
		0.23	0.23	0.113	Existing impermeable surfaces (CV 0.9), Q 30	
			0.16	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		0.68	0.78	0.504	Total (m^3/s)	
Q		1.58	1.13	1.127	Permeable surfaces (C_V 0.3)	
		2.02	2.02	0.984	Existing impermeable surfaces (CV 0.9), Q 30	
			1.37	0.003	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		3.60	4.52	2.115	Total (m^3/s)	
R		0.22	0.22	0.216	Permeable surfaces (C_V 0.3)	
		1.84	1.84	0.898	Existing impermeable surfaces (CV 0.9), Q 30	
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	**Wellesley Aldershot**
		2.06	2.06	1.114	Total (m^3/s)	
S		2.06	0.85	0.849	Permeable surfaces (C_V 0.3)	**100Yr RP + 30%CC**
		0.18	0.18	0.086	Existing impermeable surfaces (CV 0.9), Q 30	
			3.64	0.008	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
		2.24	4.67	0.944	Total (m^3/s)	**Table 3.S6**
T		0.44	0.44	0.443	Permeable surfaces (C_V 0.3)	
		0.80	0.80	0.387	Existing impermeable surfaces (CV 0.9), Q 30	**Comparison of Peak Discharge Rates**
			0.00	0.000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	**15 min Storm Duration**
		1.24	1.24	0.830	Total (m^3/s)	
Total (m^3/s)		61.88	68.58	37.54		

		FEH V3	I (mm/hr)	$I_{PEAK\ (}$mm/hr); C_r 1.3			
	$d_{\ 15\ 10YR}$	19.76	d·60min/15min	$I \cdot C_r$			**Wellesley Aldershot**
	2l/s/ha		equiv 0.72mm/hr				
							Typical Flow Rate Calculation
	Zone Ref		Existing @ 100yr + 30%CC; 15 min NO MITIGATION	Proposed @ 100yr + 30%CC; 15 min NO MITIGATION	Proposed @ 100yr + 30%CC; 15 min WITH MITIGATION		**Table 3.S7**
	A		$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	Permeable surfaces (C_V 0.3)	Proposed WITH MITIGATION cross referenced to Table 3.S.4 Proposed WITH MITIGATION
			$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	$2.78 \cdot C_V \cdot I_{PEAK\ Q30} \cdot$Area/1000	Existing impermeable surfaces (CV 0.9), Q 30	
				$2.78 \cdot C_V \cdot I_{PEAK} \cdot$Area/1000	$2.78 \cdot C_V \cdot 0.72$mm/hr·Area/1000	New Impermeable Surfaces (C_V 0.9) 2l/s/ha	
						Total (m^3/s)	Areas cross-referenced to Table 3.S1

CAPITA

Appendix C – Microdrainage Calculations – Maida Phase 1

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 57 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	101.639	0.289	0.0	1.2	1.2	6.9	O K
30 min Summer	101.659	0.309	0.0	1.3	1.3	7.3	O K
60 min Summer	101.657	0.307	0.0	1.3	1.3	7.3	O K
120 min Summer	101.632	0.282	0.0	1.2	1.2	6.7	O K
180 min Summer	101.606	0.256	0.0	1.2	1.2	6.1	O K
240 min Summer	101.581	0.231	0.0	1.2	1.2	5.5	O K
360 min Summer	101.536	0.186	0.0	1.2	1.2	4.4	O K
480 min Summer	101.499	0.149	0.0	1.2	1.2	3.5	O K
600 min Summer	101.471	0.121	0.0	1.2	1.2	2.9	O K
720 min Summer	101.451	0.101	0.0	1.1	1.1	2.4	O K
960 min Summer	101.428	0.078	0.0	1.0	1.0	1.8	O K
1440 min Summer	101.407	0.057	0.0	0.8	0.8	1.4	O K
2160 min Summer	101.394	0.044	0.0	0.6	0.6	1.0	O K
2880 min Summer	101.386	0.036	0.0	0.5	0.5	0.9	O K
4320 min Summer	101.379	0.029	0.0	0.3	0.3	0.7	O K
5760 min Summer	101.375	0.025	0.0	0.3	0.3	0.6	O K
7200 min Summer	101.372	0.022	0.0	0.2	0.2	0.5	O K
8640 min Summer	101.370	0.020	0.0	0.2	0.2	0.5	O K
10080 min Summer	101.368	0.018	0.0	0.2	0.2	0.4	O K
15 min Winter	101.677	0.327	0.0	1.3	1.3	7.8	O K
30 min Winter	101.701	0.351	0.0	1.3	1.3	8.3	Flood Risk
60 min Winter	101.701	0.351	0.0	1.3	1.3	8.3	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	225.621	0.0	0.0	23
30 min Summer	128.334	0.0	0.0	34
60 min Summer	72.996	0.0	0.0	56
120 min Summer	41.520	0.0	0.0	88
180 min Summer	29.848	0.0	0.0	122
240 min Summer	23.617	0.0	0.0	156
360 min Summer	16.978	0.0	0.0	220
480 min Summer	13.433	0.0	0.0	280
600 min Summer	11.202	0.0	0.0	336
720 min Summer	9.657	0.0	0.0	392
960 min Summer	7.584	0.0	0.0	508
1440 min Summer	5.395	0.0	0.0	744
2160 min Summer	3.838	0.0	0.0	1104
2880 min Summer	3.014	0.0	0.0	1472
4320 min Summer	2.172	0.0	0.0	2204
5760 min Summer	1.721	0.0	0.0	2936
7200 min Summer	1.437	0.0	0.0	3672
8640 min Summer	1.240	0.0	0.0	4360
10080 min Summer	1.095	0.0	0.0	5136
15 min Winter	225.621	0.0	0.0	23
30 min Winter	128.334	0.0	0.0	35
60 min Winter	72.996	0.0	0.0	58

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	101.667	0.317	0.0	1.3	1.3	7.5	O K
180 min Winter	101.631	0.281	0.0	1.2	1.2	6.7	O K
240 min Winter	101.594	0.244	0.0	1.2	1.2	5.8	O K
360 min Winter	101.527	0.177	0.0	1.2	1.2	4.2	O K
480 min Winter	101.475	0.125	0.0	1.2	1.2	3.0	O K
600 min Winter	101.444	0.094	0.0	1.1	1.1	2.2	O K
720 min Winter	101.427	0.077	0.0	1.0	1.0	1.8	O K
960 min Winter	101.410	0.060	0.0	0.8	0.8	1.4	O K
1440 min Winter	101.395	0.045	0.0	0.6	0.6	1.1	O K
2160 min Winter	101.384	0.034	0.0	0.4	0.4	0.8	O K
2880 min Winter	101.379	0.029	0.0	0.3	0.3	0.7	O K
4320 min Winter	101.373	0.023	0.0	0.2	0.2	0.5	O K
5760 min Winter	101.370	0.020	0.0	0.2	0.2	0.5	O K
7200 min Winter	101.368	0.018	0.0	0.2	0.2	0.4	O K
8640 min Winter	101.366	0.016	0.0	0.1	0.1	0.4	O K
10080 min Winter	101.365	0.015	0.0	0.1	0.1	0.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
120 min Winter	41.520	0.0	0.0	94
180 min Winter	29.848	0.0	0.0	132
240 min Winter	23.617	0.0	0.0	168
360 min Winter	16.978	0.0	0.0	234
480 min Winter	13.433	0.0	0.0	288
600 min Winter	11.202	0.0	0.0	342
720 min Winter	9.657	0.0	0.0	396
960 min Winter	7.584	0.0	0.0	510
1440 min Winter	5.395	0.0	0.0	744
2160 min Winter	3.838	0.0	0.0	1112
2880 min Winter	3.014	0.0	0.0	1476
4320 min Winter	2.172	0.0	0.0	2172
5760 min Winter	1.721	0.0	0.0	2888
7200 min Winter	1.437	0.0	0.0	3656
8640 min Winter	1.240	0.0	0.0	4384
10080 min Winter	1.095	0.0	0.0	5072

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	487000 152100 SU 87000 52100
C (1km)	-0.025
D1 (1km)	0.301
D2 (1km)	0.275
D3 (1km)	0.307
E (1km)	0.300
F (1km)	2.648
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.019

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.007	4	8	0.006	8	12	0.006

Model Details

Storage is Online Cover Level (m) 102.000

Cellular Storage Structure

Invert Level (m) 101.350 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	25.0	25.0	1.300	0.0	34.0
0.100	25.0	27.0	1.400	0.0	34.0
0.200	25.0	29.0	1.500	0.0	34.0
0.300	25.0	31.0	1.600	0.0	34.0
0.400	25.0	33.0	1.700	0.0	34.0
0.500	0.0	34.0	1.800	0.0	34.0
0.600	0.0	34.0	1.900	0.0	34.0
0.700	0.0	34.0	2.000	0.0	34.0
0.800	0.0	34.0	2.100	0.0	34.0
0.900	0.0	34.0	2.200	0.0	34.0
1.000	0.0	34.0	2.300	0.0	34.0
1.100	0.0	34.0	2.400	0.0	34.0
1.200	0.0	34.0	2.500	0.0	34.0

Hydro-Brake® Outflow Control

Design Head (m) 0.400 Hydro-Brake® Type Md5 SW Only Invert Level (m) 101.350
Design Flow (l/s) 1.4 Diameter (mm) 60

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.1	1.200	2.4	3.000	3.8	7.000	5.7
0.200	1.1	1.400	2.6	3.500	4.1	7.500	5.9
0.300	1.2	1.600	2.7	4.000	4.3	8.000	6.1
0.400	1.4	1.800	2.9	4.500	4.6	8.500	6.3
0.500	1.5	2.000	3.1	5.000	4.8	9.000	6.5
0.600	1.7	2.200	3.2	5.500	5.1	9.500	6.7
0.800	1.9	2.400	3.4	6.000	5.3		
1.000	2.2	2.600	3.5	6.500	5.5		

Existing Network Details for Existing

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
E1.000	13.634	0.462	29.5	0.000	2.00	0.0	0.600	o	450
E1.001	13.634	0.318	42.9	0.000	0.00	0.0	0.600	o	450
E2.000	87.870	0.567	155.0	0.000	2.00	5.6	0.600	o	450
E2.001	20.506	0.248	82.7	0.000	0.00	0.0	0.600	o	450
E1.002	24.482	2.125	11.5	0.000	0.00	1.4	0.600	o	525
E3.000	56.476	0.600	94.1	0.042	2.00	7.0	0.600	o	375
E3.001	18.940	0.675	28.1	0.000	0.00	0.0	0.600	o	375
E1.003	44.535	2.100	21.2	0.073	0.00	2.8	0.600	o	525
E4.000	10.000	0.067	149.3	0.086	5.00	0.0	0.600	o	225
E4.001	59.070	0.400	147.7	0.043	2.00	5.6	0.600	o	450
E5.000	20.000	1.700	11.8	0.069	5.00	0.0	0.600	o	225
E5.001	37.940	2.700	14.1	0.030	2.00	5.6	0.600	o	225
E4.002	65.295	0.300	217.7	0.062	0.00	7.0	0.600	o	450
E4.003	16.292	0.425	38.3	0.000	0.00	0.0	0.600	o	450

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
E1.000	105.800	0.000	0.0	3.75	597.0
E1.001	105.338	0.000	0.0	3.11	494.9
E2.000	105.690	0.000	5.6	1.63	259.4
E2.001	105.123	0.000	5.6	2.24	355.8
E1.002	104.875	0.000	7.0	6.62	1434.1
E3.000	104.100	0.042	7.0	1.87	206.3
E3.001	103.500	0.042	7.0	3.43	379.1
E1.003	102.750	0.115	16.8	4.88	1056.3
E4.000	102.092	0.086	0.0	1.07	42.5
E4.001	101.800	0.129	5.6	1.67	265.7
E5.000	106.000	0.069	0.0	3.84	152.5
E5.001	104.300	0.099	5.6	3.51	139.5
E4.002	101.375	0.290	18.2	1.37	218.5
E4.003	101.075	0.290	18.2	3.29	523.5

Existing Network Details for Existing

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
E1.004	46.673	1.600	29.2	0.047	0.00	7.0	0.600	o	525
E6.000	127.913	1.150	111.2	0.090	2.00	16.8	0.600	o	525
E6.001	16.281	0.650	25.0	0.000	0.00	0.0	0.600	o	525
E1.005	45.880	1.786	25.7	0.053	0.00	5.6	0.600	o	525
E1.006	10.000	0.389	25.7	0.000	0.00	0.0	0.600	o	381
E7.000	155.705	2.975	52.3	0.000	2.00	7.0	0.600	o	381
E1.007	127.659	3.725	34.3	0.189	0.00	5.6	0.600	o	381
E8.000	84.835	3.100	27.4	0.153	2.00	0.0	0.600	o	300
E8.001	9.846	0.475	20.7	0.000	0.00	0.0	0.600	o	300
E9.000	76.751	0.675	113.7	0.052	2.00	11.2	0.600	o	450
E9.001	12.164	0.475	25.6	0.000	0.00	0.0	0.600	o	450
E10.000	15.264	0.400	38.2	0.155	2.00	0.0	0.600	o	225
E10.001	39.332	1.225	32.1	0.000	0.00	0.0	0.600	o	225
E11.000	37.389	1.200	31.2	0.041	2.00	5.6	0.600	o	300

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
E1.004	100.575	0.452	42.0	4.16	900.2
E6.000	100.700	0.090	16.8	2.12	459.6
E6.001	99.550	0.090	16.8	4.49	971.7
E1.005	98.900	0.595	64.4	4.43	959.5
E1.006	97.114	0.595	64.4	3.62	413.0
E7.000	99.700	0.000	7.0	2.53	289.0
E1.007	96.725	0.784	77.0	3.14	357.5
E8.000	99.300	0.153	0.0	3.02	213.3
E8.001	96.200	0.153	0.0	3.47	245.2
E9.000	100.400	0.052	11.2	1.91	303.1
E9.001	99.725	0.052	11.2	4.03	641.0
E10.000	103.200	0.155	0.0	2.12	84.5
E10.001	102.800	0.155	0.0	2.32	92.1
E11.000	102.700	0.041	5.6	2.83	199.8

Existing Network Details for Existing

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
E10.002	33.811	0.900	37.6	0.041	0.00	1.4	0.600	o	375
E10.003	46.007	1.200	38.3	0.000	0.00	5.6	0.600	o	375
E10.004	9.731	0.100	97.3	0.028	0.00	0.0	0.600	o	450
E9.002	50.352	1.675	30.1	0.028	0.00	4.2	0.600	o	450
E12.000	75.107	1.198	62.7	0.057	2.00	11.2	0.600	o	450
E12.001	14.054	0.327	43.0	0.000	0.00	0.0	0.600	o	450
E9.003	31.000	1.900	16.3	0.000	0.00	1.4	0.600	o	525
E8.002	42.353	1.950	21.7	0.067	0.00	0.0	0.600	o	525
E8.003	14.134	0.550	25.7	0.000	0.00	0.0	0.600	o	381
E1.008	28.341	0.800	35.4	0.000	0.00	0.0	0.600	o	381
E1.009	29.464	0.832	35.4	0.000	0.00	0.0	0.600	o	381

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
E10.002	101.425	0.237	7.0	2.96	327.4
E10.003	100.525	0.237	12.6	2.93	324.1
E10.004	99.250	0.265	12.6	2.06	327.8
E9.002	99.150	0.345	28.0	3.72	591.5
E12.000	99.000	0.057	11.2	2.57	408.9
E12.001	97.802	0.057	11.2	3.11	494.3
E9.003	97.400	0.402	40.6	5.56	1204.6
E8.002	95.500	0.622	40.6	4.82	1043.7
E8.003	93.550	0.622	40.6	3.62	413.0
E1.008	93.000	1.406	117.6	3.08	351.6
E1.009	92.200	1.406	117.6	3.08	351.6

Simulation Criteria for Existing

Volumetric Runoff Coeff	0.900	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	22
Number of Online Controls	12	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
Site Location	487000 152100 SU 87000 52100
C (1km)	-0.025
D1 (1km)	0.301
D2 (1km)	0.275
D3 (1km)	0.307
E (1km)	0.300
F (1km)	2.648
Summer Storms	Yes
Winter Storms	No
Cv (Summer)	0.900
Cv (Winter)	0.840
Storm Duration (mins)	30

Online Controls for Existing

Hydro-Brake® Manhole: E3, DS/PN: E2.001, Volume (m³): 16.4

Design Head (m) 0.942 Hydro-Brake® Type Md6 SW Only Invert Level (m) 105.123
Design Flow (l/s) 5.0 Diameter (mm) 94

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.8	1.200	5.5	3.000	8.7	7.000	13.3
0.200	4.1	1.400	6.0	3.500	9.4	7.500	13.8
0.300	3.9	1.600	6.4	4.000	10.1	8.000	14.3
0.400	3.8	1.800	6.8	4.500	10.7	8.500	14.7
0.500	3.8	2.000	7.1	5.000	11.3	9.000	15.1
0.600	4.0	2.200	7.5	5.500	11.8	9.500	15.5
0.800	4.5	2.400	7.8	6.000	12.3		
1.000	5.0	2.600	8.1	6.500	12.9		

Hydro-Brake® Manhole: E5, DS/PN: E3.001, Volume (m³): 9.0

Design Head (m) 0.975 Hydro-Brake® Type Md6 SW Only Invert Level (m) 103.500
Design Flow (l/s) 10.0 Diameter (mm) 132

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.3	1.200	10.9	3.000	17.2	7.000	26.3
0.200	8.8	1.400	11.8	3.500	18.6	7.500	27.2
0.300	9.5	1.600	12.6	4.000	19.9	8.000	28.1
0.400	9.2	1.800	13.3	4.500	21.1	8.500	29.0
0.500	8.9	2.000	14.1	5.000	22.2	9.000	29.8
0.600	8.8	2.200	14.7	5.500	23.3	9.500	30.6
0.800	9.2	2.400	15.4	6.000	24.4		
1.000	10.0	2.600	16.0	6.500	25.3		

Hydro-Brake® Manhole: E7, DS/PN: E4.001, Volume (m³): 2.9

Design Head (m) 1.292 Hydro-Brake® Type Md6 SW Only Invert Level (m) 101.800
Design Flow (l/s) 7.7 Diameter (mm) 108

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.4	1.200	7.3	3.000	11.5	7.000	17.6
0.200	5.7	1.400	7.9	3.500	12.4	7.500	18.2
0.300	5.7	1.600	8.4	4.000	13.3	8.000	18.8
0.400	5.4	1.800	8.9	4.500	14.1	8.500	19.4
0.500	5.3	2.000	9.4	5.000	14.9	9.000	20.0
0.600	5.5	2.200	9.9	5.500	15.6	9.500	20.5
0.800	6.0	2.400	10.3	6.000	16.3		
1.000	6.7	2.600	10.7	6.500	17.0		

Hydro-Brake® Manhole: E9, DS/PN: E4.003, Volume (m³): 13.9

Design Head (m) 1.172 Hydro-Brake® Type Md6 SW Only Invert Level (m) 101.075
Design Flow (l/s) 16.0 Diameter (mm) 159

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.3	1.200	16.0	3.000	25.0	7.000	38.2
0.200	12.3	1.400	17.1	3.500	27.0	7.500	39.5
0.300	15.0	1.600	18.3	4.000	28.8	8.000	40.8
0.400	15.1	1.800	19.4	4.500	30.6	8.500	42.1
0.500	14.6	2.000	20.4	5.000	32.3	9.000	43.3
0.600	14.1	2.200	21.4	5.500	33.8	9.500	44.5
0.800	14.1	2.400	22.3	6.000	35.3		
1.000	14.9	2.600	23.3	6.500	36.8		

Hydro-Brake® Manhole: E12, DS/PN: E6.001, Volume (m³): 30.5

Design Head (m) 1.675 Hydro-Brake® Type Md6 SW Only Invert Level (m) 99.550
Design Flow (l/s) 25.0 Diameter (mm) 183

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.1	1.200	21.5	3.000	33.1	7.000	50.6
0.200	15.2	1.400	22.8	3.500	35.7	7.500	52.3
0.300	20.7	1.600	24.3	4.000	38.2	8.000	54.0
0.400	21.6	1.800	25.7	4.500	40.5	8.500	55.7
0.500	21.3	2.000	27.0	5.000	42.7	9.000	57.3
0.600	20.6	2.200	28.3	5.500	44.8	9.500	58.9
0.800	19.8	2.400	29.6	6.000	46.8		
1.000	20.3	2.600	30.8	6.500	48.7		

Hydro-Brake® Manhole: E18, DS/PN: E8.001, Volume (m³): 8.5

Design Head (m) 3.100 Hydro-Brake® Type Md6 SW Only Invert Level (m) 96.200
Design Flow (l/s) 3.0 Diameter (mm) 54

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.0	1.200	1.8	3.000	2.9	7.000	4.4
0.200	1.0	1.400	2.0	3.500	3.1	7.500	4.6
0.300	1.0	1.600	2.1	4.000	3.3	8.000	4.7
0.400	1.1	1.800	2.2	4.500	3.5	8.500	4.9
0.500	1.2	2.000	2.4	5.000	3.7	9.000	5.0
0.600	1.3	2.200	2.5	5.500	3.9	9.500	5.1
0.800	1.5	2.400	2.6	6.000	4.1		
1.000	1.7	2.600	2.7	6.500	4.2		

Hydro-Brake® Manhole: E25, DS/PN: E9.001, Volume (m³): 14.7

Design Head (m) 0.675 Hydro-Brake® Type Md5 SW Only Invert Level (m) 99.725
Design Flow (l/s) 10.0 Diameter (mm) 140

Hydro-Brake® Manhole: E25, DS/PN: E9.001, Volume (m³): 14.7

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.6	1.200	12.9	3.000	20.4	7.000	31.2
0.200	8.5	1.400	14.0	3.500	22.1	7.500	32.3
0.300	9.2	1.600	14.9	4.000	23.6	8.000	33.4
0.400	9.1	1.800	15.8	4.500	25.0	8.500	34.4
0.500	9.2	2.000	16.7	5.000	26.4	9.000	35.4
0.600	9.5	2.200	17.5	5.500	27.7	9.500	36.4
0.800	10.6	2.400	18.3	6.000	28.9		
1.000	11.8	2.600	19.0	6.500	30.1		

Hydro-Brake® Manhole: E20, DS/PN: E10.001, Volume (m³): 3.1

Design Head (m) 1.000 Hydro-Brake® Type Md6 SW Only Invert Level (m) 102.800
Design Flow (l/s) 3.0 Diameter (mm) 72

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	3.2	3.000	5.1	7.000	7.8
0.200	2.1	1.400	3.5	3.500	5.5	7.500	8.1
0.300	1.9	1.600	3.7	4.000	5.9	8.000	8.4
0.400	2.0	1.800	4.0	4.500	6.3	8.500	8.6
0.500	2.1	2.000	4.2	5.000	6.6	9.000	8.9
0.600	2.3	2.200	4.4	5.500	6.9	9.500	9.1
0.800	2.6	2.400	4.6	6.000	7.2		
1.000	3.0	2.600	4.8	6.500	7.5		

Hydro-Brake® Manhole: E21, DS/PN: E10.002, Volume (m³): 7.0

Design Head (m) 1.500 Hydro-Brake® Type Md6 SW Only Invert Level (m) 101.425
Design Flow (l/s) 20.0 Diameter (mm) 168

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.6	1.200	17.9	3.000	27.9	7.000	42.6
0.200	13.4	1.400	19.2	3.500	30.1	7.500	44.1
0.300	17.1	1.600	20.4	4.000	32.2	8.000	45.5
0.400	17.4	1.800	21.6	4.500	34.2	8.500	46.9
0.500	16.9	2.000	22.8	5.000	36.0	9.000	48.3
0.600	16.3	2.200	23.9	5.500	37.8	9.500	49.6
0.800	16.1	2.400	24.9	6.000	39.4		
1.000	16.8	2.600	26.0	6.500	41.1		

Hydro-Brake® Manhole: E22, DS/PN: E10.003, Volume (m³): 6.6

Design Head (m) 1.275 Hydro-Brake® Type Md2 Invert Level (m) 100.525
Design Flow (l/s) 150.0 Diameter (mm) 356

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.4	0.300	72.0	0.500	128.6	0.800	138.2
0.200	36.4	0.400	105.8	0.600	141.5	1.000	136.4

Hydro-Brake® Manhole: E22, DS/PN: E10.003, Volume (m³): 6.6

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.200	145.6	2.400	204.9	5.000	295.8	8.000	374.1
1.400	156.6	2.600	213.3	5.500	310.2	8.500	385.6
1.600	167.3	3.000	229.1	6.000	324.0	9.000	396.8
1.800	177.5	3.500	247.5	6.500	337.2	9.500	407.7
2.000	187.1	4.000	264.5	7.000	350.0		
2.200	196.2	4.500	280.6	7.500	362.2		

Hydro-Brake® Manhole: E29, DS/PN: E12.001, Volume (m³): 14.6

Design Head (m) 1.648 Hydro-Brake® Type Md6 SW Only Invert Level (m) 97.802
Design Flow (l/s) 30.0 Diameter (mm) 201

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.7	1.200	26.3	3.000	39.9	7.000	61.0
0.200	17.3	1.400	27.8	3.500	43.1	7.500	63.1
0.300	25.1	1.600	29.4	4.000	46.1	8.000	65.2
0.400	27.2	1.800	31.0	4.500	48.9	8.500	67.2
0.500	27.2	2.000	32.6	5.000	51.5	9.000	69.2
0.600	26.5	2.200	34.2	5.500	54.1	9.500	71.0
0.800	25.2	2.400	35.7	6.000	56.5		
1.000	25.3	2.600	37.2	6.500	58.8		

Hydro-Brake® Manhole: E20, DS/PN: E8.003, Volume (m³): 16.4

Design Head (m) 1.950 Hydro-Brake® Type Md5 SW Only Invert Level (m) 93.550
Design Flow (l/s) 70.0 Diameter (mm) 288

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	10.4	1.200	57.5	3.000	86.5	7.000	132.1
0.200	27.1	1.400	60.4	3.500	93.4	7.500	136.7
0.300	42.1	1.600	63.8	4.000	99.8	8.000	141.2
0.400	50.8	1.800	67.3	4.500	105.9	8.500	145.5
0.500	54.8	2.000	70.7	5.000	111.6	9.000	149.8
0.600	55.9	2.200	74.1	5.500	117.1	9.500	153.9
0.800	55.2	2.400	77.4	6.000	122.3		
1.000	55.5	2.600	80.5	6.500	127.3		

Storage Structures for Existing

Porous Car Park Manhole: E5, DS/PN: E3.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.2
Membrane Percolation (mm/hr)	1000	Length (m)	80.0
Max Percolation (l/s)	115.6	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	104.850	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E3, DS/PN: E1.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.2
Membrane Percolation (mm/hr)	1000	Length (m)	70.0
Max Percolation (l/s)	120.6	Slope (1:X)	50.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	102.750	Cap Volume Depth (m)	0.000

Cellular Storage Manhole: E8, DS/PN: E4.000

Invert Level (m)	102.092	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	225.0	225.0	1.300	0.0	288.0
0.100	225.0	231.0	1.400	0.0	288.0
0.200	225.0	237.0	1.500	0.0	288.0
0.300	225.0	243.0	1.600	0.0	288.0
0.400	225.0	249.0	1.700	0.0	288.0
0.500	225.0	255.0	1.800	0.0	288.0
0.600	225.0	261.0	1.900	0.0	288.0
0.700	225.0	267.0	2.000	0.0	288.0
0.800	225.0	273.0	2.100	0.0	288.0
0.900	225.0	279.0	2.200	0.0	288.0
1.000	225.0	285.0	2.300	0.0	288.0
1.100	0.0	288.0	2.400	0.0	288.0
1.200	0.0	288.0	2.500	0.0	288.0

Porous Car Park Manhole: E7, DS/PN: E4.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.9
Membrane Percolation (mm/hr)	1000	Length (m)	61.0
Max Percolation (l/s)	100.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.50	Evaporation (mm/day)	3
Invert Level (m)	101.800	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E8, DS/PN: E5.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.6
Membrane Percolation (mm/hr)	1000	Length (m)	44.0
Max Percolation (l/s)	68.4	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	105.150	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E8, DS/PN: E4.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.9
Membrane Percolation (mm/hr)	1000	Length (m)	63.0
Max Percolation (l/s)	103.3	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	102.950	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E9, DS/PN: E4.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.9
Membrane Percolation (mm/hr)	1000	Length (m)	18.0
Max Percolation (l/s)	29.5	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	103.050	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E4, DS/PN: E1.004

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.4
Membrane Percolation (mm/hr)	1000	Length (m)	47.0
Max Percolation (l/s)	83.6	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.575	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E11, DS/PN: E6.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.2
Membrane Percolation (mm/hr)	1000	Length (m)	126.0
Max Percolation (l/s)	217.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	102.050	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E12, DS/PN: E6.001

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	100.650
Membrane Percolation (mm/hr)	1000	Width (m)	6.2
Max Percolation (l/s)	27.6	Length (m)	16.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.30	Depression Storage (mm)	5

Porous Car Park Manhole: E12, DS/PN: E6.001

Evaporation (mm/day) 3 Cap Volume Depth (m) 0.000

Porous Car Park Manhole: E5, DS/PN: E1.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	54.0
Max Percolation (l/s)	90.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.550	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E15, DS/PN: E7.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.5
Membrane Percolation (mm/hr)	1000	Length (m)	196.0
Max Percolation (l/s)	353.9	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.850	Cap Volume Depth (m)	0.000

Cellular Storage Manhole: E18, DS/PN: E8.001

Invert Level (m)	96.200	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	240.0	0.0	1.300	0.0	0.0
0.100	240.0	0.0	1.400	0.0	0.0
0.200	240.0	0.0	1.500	0.0	0.0
0.300	240.0	0.0	1.600	0.0	0.0
0.400	240.0	0.0	1.700	0.0	0.0
0.500	240.0	0.0	1.800	0.0	0.0
0.600	240.0	0.0	1.900	0.0	0.0
0.700	240.0	0.0	2.000	0.0	0.0
0.800	240.0	0.0	2.100	0.0	0.0
0.900	240.0	0.0	2.200	0.0	0.0
1.000	240.0	0.0	2.300	0.0	0.0
1.100	0.0	0.0	2.400	0.0	0.0
1.200	0.0	0.0	2.500	0.0	0.0

Porous Car Park Manhole: E24, DS/PN: E9.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	8.0
Membrane Percolation (mm/hr)	1000	Length (m)	88.0
Max Percolation (l/s)	195.6	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	102.050	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E25, DS/PN: E9.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	11.0
Membrane Percolation (mm/hr)	1000	Length (m)	55.0
Max Percolation (l/s)	168.1	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.950	Cap Volume Depth (m)	0.000

Cellular Storage Manhole: E19, DS/PN: E10.000

Invert Level (m) 103.200 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	40.0	40.0	1.300	0.0	66.6
0.100	40.0	42.5	1.400	0.0	66.6
0.200	40.0	45.1	1.500	0.0	66.6
0.300	40.0	47.6	1.600	0.0	66.6
0.400	40.0	50.1	1.700	0.0	66.6
0.500	40.0	52.6	1.800	0.0	66.6
0.600	40.0	55.2	1.900	0.0	66.6
0.700	40.0	57.7	2.000	0.0	66.6
0.800	40.0	60.2	2.100	0.0	66.6
0.900	40.0	62.8	2.200	0.0	66.6
1.000	40.0	65.3	2.300	0.0	66.6
1.100	0.0	66.6	2.400	0.0	66.6
1.200	0.0	66.6	2.500	0.0	66.6

Cellular Storage Manhole: E20, DS/PN: E10.001

Invert Level (m) 102.800 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	100.0	100.0	1.300	0.0	142.0
0.100	100.0	104.0	1.400	0.0	142.0
0.200	100.0	108.0	1.500	0.0	142.0
0.300	100.0	112.0	1.600	0.0	142.0
0.400	100.0	116.0	1.700	0.0	142.0
0.500	100.0	120.0	1.800	0.0	142.0
0.600	100.0	124.0	1.900	0.0	142.0
0.700	100.0	128.0	2.000	0.0	142.0
0.800	100.0	132.0	2.100	0.0	142.0
0.900	100.0	136.0	2.200	0.0	142.0
1.000	100.0	140.0	2.300	0.0	142.0
1.100	0.0	142.0	2.400	0.0	142.0
1.200	0.0	142.0	2.500	0.0	142.0

Porous Car Park Manhole: E21, DS/PN: E11.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	7.3
Membrane Percolation (mm/hr)	1000	Length (m)	53.0
Max Percolation (l/s)	107.5	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	103.550	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E21, DS/PN: E10.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	7.2
Membrane Percolation (mm/hr)	1000	Length (m)	54.0
Max Percolation (l/s)	108.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	102.850	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E22, DS/PN: E10.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.8
Membrane Percolation (mm/hr)	1000	Length (m)	54.0
Max Percolation (l/s)	87.0	Slope (1:X)	46.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.525	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: E28, DS/PN: E12.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.8
Membrane Percolation (mm/hr)	1000	Length (m)	87.0
Max Percolation (l/s)	164.3	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.550	Cap Volume Depth (m)	0.000

Cellular Storage Manhole: E19, DS/PN: E8.002

Invert Level (m)	95.500	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	300.0	300.0	0.900	300.0	362.4
0.100	300.0	306.9	1.000	300.0	369.3
0.200	300.0	313.9	1.100	300.0	376.2
0.300	300.0	320.8	1.200	300.0	383.1
0.400	300.0	327.7	1.300	300.0	390.1
0.500	300.0	334.6	1.400	0.0	393.5
0.600	300.0	341.6	1.500	0.0	393.5
0.700	300.0	348.5	1.600	0.0	393.5
0.800	300.0	355.4	1.700	0.0	393.5

Cellular Storage Manhole: E19, DS/PN: E8.002

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
1.800	0.0	393.5	2.200	0.0	393.5
1.900	0.0	393.5	2.300	0.0	393.5
2.000	0.0	393.5	2.400	0.0	393.5
2.100	0.0	393.5	2.500	0.0	393.5

Summary of Critical Results by Maximum Level (Rank 1) for Existing

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 Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	22
Number of Online Controls	12	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.307
Site Location 487000 152100 SU 87000 52100		E (1km)	0.300
C (1km)	-0.025	F (1km)	2.648
D1 (1km)	0.301	Cv (Summer)	0.900
D2 (1km)	0.275	Cv (Winter)	0.900

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	30, 100
Climate Change (%)	0, 30

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
E1.000	2160 Winter	30	0%					
E1.001	2160 Winter	30	0%					
E2.000	480 Winter	30	0%	30/120 Summer				
E2.001	480 Winter	30	0%	30/15 Summer				
E1.002	480 Winter	30	0%					
E3.000	15 Summer	100	+30%	30/15 Summer				
E3.001	30 Winter	100	+30%	30/15 Summer				
E1.003	15 Summer	100	+30%					
E4.000	10080 Winter	100	+30%	30/180 Summer				
E4.001	10080 Winter	100	+30%	30/120 Summer	100/5760 Summer			7
E5.000	15 Summer	100	+30%					
E5.001	15 Summer	100	+30%	100/15 Summer				
E4.002	30 Summer	100	+30%	30/15 Summer				
E4.003	30 Summer	100	+30%	30/15 Summer				
E1.004	15 Summer	100	+30%					
E6.000	30 Winter	100	+30%					
E6.001	30 Winter	100	+30%	30/15 Summer				
E1.005	15 Summer	100	+30%					
E1.006	15 Summer	100	+30%	100/15 Summer				
E7.000	180 Winter	30	0%					

Summary of Critical Results by Maximum Level (Rank 1) for Existing

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
E1.007	15 Summer	100	+30%	100/15 Summer				
E8.000	15 Summer	100	+30%	100/15 Summer				
E8.001	600 Winter	100	+30%	100/15 Summer				
E9.000	30 Summer	100	+30%	30/30 Summer				
E9.001	240 Summer	100	+30%	30/15 Summer				
E10.000	15 Summer	100	+30%	30/15 Summer				
E10.001	180 Winter	100	+30%	30/15 Summer				
E11.000	15 Summer	100	+30%	100/15 Summer				
E10.002	15 Winter	100	+30%	30/15 Summer				
E10.003	15 Summer	100	+30%					
E10.004	15 Summer	100	+30%					
E9.002	15 Summer	100	+30%					
E12.000	15 Summer	100	+30%	100/15 Summer				
E12.001	15 Summer	100	+30%	30/15 Summer	100/15 Summer			1
E9.003	15 Summer	100	+30%					
E8.002	60 Summer	100	+30%					
E8.003	60 Summer	100	+30%	30/15 Summer				
E1.008	15 Summer	100	+30%	30/15 Summer				
E1.009	15 Summer	100	+30%	30/15 Summer				

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m^3)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
E1.000	E1	105.800	-0.450	0.000	0.00	0.0	0.0	OK
E1.001	E2	105.338	-0.450	0.000	0.00	0.0	0.0	OK
E2.000	E2	106.361	0.221	0.000	0.02	0.0	5.6	SURCHARGED
E2.001	E3	106.357	0.784	0.000	0.02	0.0	5.6	SURCHARGED
E1.002	E2	104.891	-0.509	0.000	0.01	0.0	7.0	OK
E3.000	E4	105.054	0.579	0.000	0.30	0.0	57.9	SURCHARGED
E3.001	E5	104.920	1.045	0.000	0.04	0.0	11.9	SURCHARGED
E1.003	E3	102.872	-0.403	0.000	0.12	0.0	115.0	OK
E4.000	E8	103.636	1.319	0.000	0.02	0.0	0.6	SURCHARGED
E4.001	E7	103.636	1.386	35.679	0.02	0.0	5.8	FLOOD
E5.000	E10	106.124	-0.101	0.000	0.58	0.0	80.2	OK
E5.001	E8	105.113	0.588	0.000	0.86	0.0	113.9	SURCHARGED
E4.002	E8	103.296	1.471	0.000	0.26	0.0	52.2	SURCHARGED
E4.003	E9	103.284	1.759	0.000	0.06	0.0	21.4	SURCHARGED
E1.004	E4	100.753	-0.347	0.000	0.24	0.0	195.1	OK
E6.000	E11	101.095	-0.130	0.000	0.20	0.0	85.7	OK
E6.001	E12	101.048	0.973	0.000	0.04	0.0	23.5	FLOOD RISK
E1.005	E5	99.320	-0.105	0.000	0.33	0.0	280.1	OK
E1.006	E16	99.086	1.591	0.000	0.92	0.0	232.6	SURCHARGED
E7.000	E15	99.740	-0.341	0.000	0.02	0.0	7.0	OK
E1.007	E6	98.807	1.701	0.000	1.07	0.0	371.0	SURCHARGED
E8.000	E17	100.634	1.034	0.000	1.09	0.0	223.2	SURCHARGED
E8.001	E18	96.735	0.235	0.000	0.01	0.0	1.2	SURCHARGED
E9.000	E24	101.142	0.292	0.000	0.22	0.0	61.4	SURCHARGED
E9.001	E25	101.052	0.877	0.000	0.03	0.0	13.6	SURCHARGED
E10.000	E19	103.986	0.561	0.000	1.48	0.0	110.4	SURCHARGED
E10.001	E20	103.673	0.648	0.000	0.03	0.0	2.8	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for Existing

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
E11.000	E21	103.183	0.183	0.000	0.39	0.0	72.2	SURCHARGED
E10.002	E21	103.044	1.244	0.000	0.07	0.0	20.5	SURCHARGED
E10.003	E22	100.692	-0.208	0.000	0.09	0.0	26.1	OK
E10.004	E26	99.432	-0.268	0.000	0.34	0.0	61.3	OK
E9.002	E23	99.291	-0.309	0.000	0.21	0.0	113.6	OK
E12.000	E28	99.833	0.383	0.000	0.27	0.0	102.6	SURCHARGED
E12.001	E29	99.800	1.548	0.128	0.10	0.0	32.6	FLOOD
E9.003	E24	97.532	-0.393	0.000	0.14	0.0	141.2	OK
E8.002	E19	95.789	-0.236	0.000	0.10	0.0	92.2	OK
E8.003	E20	95.722	1.791	0.000	0.25	0.0	73.6	SURCHARGED
E1.008	E7	94.667	1.286	0.000	1.34	0.0	413.7	SURCHARGED
E1.009	E35	93.219	0.638	0.000	1.34	0.0	413.6	SURCHARGED

Summary of Critical Results by Maximum Outflow (Rank 1) for Existing

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 Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	22
Number of Online Controls	12	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.307
Site Location	487000 152100 SU 87000 52100	E (1km)	0.300
C (1km)	-0.025	F (1km)	2.648
D1 (1km)	0.301	Cv (Summer)	0.900
D2 (1km)	0.275	Cv (Winter)	0.900

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	30, 100
Climate Change (%)	0, 30

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
E1.000	2160 Winter	30	0%					
E1.001	2160 Winter	30	0%					
E2.000	60 Winter	30	0%	30/120 Summer				
E2.001	480 Winter	30	0%	30/15 Summer				
E1.002	480 Winter	30	0%					
E3.000	15 Summer	100	+30%	30/15 Summer				
E3.001	30 Winter	100	+30%	30/15 Summer				
E1.003	15 Summer	100	+30%					
E4.000	15 Summer	100	+30%	30/180 Summer				
E4.001	4320 Winter	30	0%	30/120 Summer	100/5760 Summer			7
E5.000	15 Summer	100	+30%					
E5.001	15 Summer	100	+30%	100/15 Summer				
E4.002	15 Winter	100	+30%	30/15 Summer				
E4.003	30 Summer	100	+30%	30/15 Summer				
E1.004	15 Summer	100	+30%					
E6.000	15 Summer	100	+30%					
E6.001	30 Winter	100	+30%	30/15 Summer				
E1.005	15 Summer	100	+30%					
E1.006	15 Summer	100	+30%	100/15 Summer				
E7.000	480 Winter	100	+30%					

Summary of Critical Results by Maximum Outflow (Rank 1) for Existing

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
E1.007	15 Summer	100	+30%	100/15 Summer				
E8.000	15 Summer	100	+30%	100/15 Summer				
E8.001	600 Winter	100	+30%	100/15 Summer				
E9.000	15 Summer	100	+30%	30/30 Summer				
E9.001	240 Summer	100	+30%	30/15 Summer				
E10.000	15 Summer	100	+30%	30/15 Summer				
E10.001	180 Winter	100	+30%	30/15 Summer				
E11.000	15 Summer	100	+30%	100/15 Summer				
E10.002	15 Winter	100	+30%	30/15 Summer				
E10.003	15 Summer	100	+30%					
E10.004	15 Summer	100	+30%					
E9.002	15 Summer	100	+30%					
E12.000	15 Summer	100	+30%	100/15 Summer				
E12.001	15 Summer	100	+30%	30/15 Summer	100/15 Summer			1
E9.003	15 Summer	100	+30%					
E8.002	15 Summer	100	+30%					
E8.003	60 Summer	100	+30%	30/15 Summer				
E1.008	15 Summer	100	+30%	30/15 Summer				
E1.009	15 Summer	100	+30%	30/15 Summer				

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
E1.000	E1	105.800	-0.450	0.000	0.00	0.0	0.0	OK
E1.001	E2	105.338	-0.450	0.000	0.00	0.0	0.0	OK
E2.000	E2	105.825	-0.315	0.000	0.02	0.0	5.6	OK
E2.001	E3	106.357	0.784	0.000	0.02	0.0	5.6	SURCHARGED
E1.002	E2	104.891	-0.509	0.000	0.01	0.0	7.0	OK
E3.000	E4	105.054	0.579	0.000	0.30	0.0	57.9	SURCHARGED
E3.001	E5	104.920	1.045	0.000	0.04	0.0	11.9	SURCHARGED
E1.003	E3	102.872	-0.403	0.000	0.12	0.0	115.0	OK
E4.000	E8	102.243	-0.074	0.000	0.79	0.0	27.8	OK
E4.001	E7	103.207	0.957	0.000	0.03	0.0	6.9	SURCHARGED
E5.000	E10	106.124	-0.101	0.000	0.58	0.0	80.2	OK
E5.001	E8	105.113	0.588	0.000	0.86	0.0	113.9	SURCHARGED
E4.002	E8	103.272	1.447	0.000	0.43	0.0	86.5	SURCHARGED
E4.003	E9	103.284	1.759	0.000	0.06	0.0	21.4	SURCHARGED
E1.004	E4	100.753	-0.347	0.000	0.24	0.0	195.1	OK
E6.000	E11	101.014	-0.211	0.000	0.33	0.0	144.9	OK
E6.001	E12	101.048	0.973	0.000	0.04	0.0	23.5	FLOOD RISK
E1.005	E5	99.320	-0.105	0.000	0.33	0.0	280.1	OK
E1.006	E16	99.086	1.591	0.000	0.92	0.0	232.6	SURCHARGED
E7.000	E15	99.740	-0.341	0.000	0.02	0.0	7.0	OK
E1.007	E6	98.807	1.701	0.000	1.07	0.0	371.0	SURCHARGED
E8.000	E17	100.634	1.034	0.000	1.09	0.0	223.2	SURCHARGED
E8.001	E18	96.735	0.235	0.000	0.01	0.0	1.2	SURCHARGED
E9.000	E24	101.134	0.284	0.000	0.32	0.0	90.6	SURCHARGED
E9.001	E25	101.052	0.877	0.000	0.03	0.0	13.6	SURCHARGED
E10.000	E19	103.986	0.561	0.000	1.48	0.0	110.4	SURCHARGED
E10.001	E20	103.673	0.648	0.000	0.03	0.0	2.8	SURCHARGED

Summary of Critical Results by Maximum Outflow (Rank 1) for Existing

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m^3)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
E11.000	E21	103.183	0.183	0.000	0.39	0.0	72.2	SURCHARGED
E10.002	E21	103.044	1.244	0.000	0.07	0.0	20.5	SURCHARGED
E10.003	E22	100.692	-0.208	0.000	0.09	0.0	26.1	OK
E10.004	E26	99.432	-0.268	0.000	0.34	0.0	61.3	OK
E9.002	E23	99.291	-0.309	0.000	0.21	0.0	113.6	OK
E12.000	E28	99.833	0.383	0.000	0.27	0.0	102.6	SURCHARGED
E12.001	E29	99.800	1.548	0.128	0.10	0.0	32.6	FLOOD
E9.003	E24	97.532	-0.393	0.000	0.14	0.0	141.2	OK
E8.002	E19	95.746	-0.279	0.000	0.15	0.0	133.0	OK
E8.003	E20	95.722	1.791	0.000	0.25	0.0	73.6	SURCHARGED
E1.008	E7	94.667	1.286	0.000	1.34	0.0	413.7	SURCHARGED
E1.009	E35	93.219	0.638	0.000	1.34	0.0	413.6	SURCHARGED

CAPITA

Appendix D – FEH-Rainfall Analysis

VERSION	FEH CD-ROM	Version		3		GMT			
Parameters									
Calculation type	Design rainfall								
Calculation mo	For a point								
Calculation loca	1 km point	GB		487000	152000	SU 87000 52000			
Duration=		0.25	1	(hour)					
Fixed duration=	no								
Return period=		254	1	(years)					
Annual maximu	yes								
c	d1	d2	d3	e	f				
-0.025	0.301	0.275	0.307	0.3	2.648				

A design rainfall of 59.3 mm was calculated.

The FEH rainfall DDF model should not be used for durations shorter than 30 minutes.

The data in the following table have been computed using sliding durations.

Duration minutes	Duration hours	10 year rainfall mm	30 year rainfall mm	100 year rainfall mm	Δd 30yr:100yr mm	254 (100yr+30%CC) year rainfall mm	Δd 100yr: 100yr+30CC	balance mm
15	0.25	19.76	28.88	43.39	14.51	59.33	15.94	1.43
30	0.5	23.42	33.56	49.36	15.8	66.41	17.05	1.25
45	0.75	25.86	36.64	53.23	16.59	70.94	17.71	1.12
60	1	27.75	38.99	56.15	17.16	74.34	18.19	1.03
75	1.25	29.3	40.92	58.53	17.61	77.08	18.55	0.94
90	1.5	30.64	42.56	60.55	17.99	79.4	18.85	0.86
105	1.75	31.82	44.01	62.31	18.3	81.42	19.11	0.81
120	2	32.88	45.3	63.88	18.58	83.21	19.33	0.75
135	2.25	33.84	46.47	65.29	18.82	84.82	19.53	0.71
150	2.5	34.72	47.54	66.58	19.04	86.28	19.7	0.66
165	2.75	35.54	48.53	67.78	19.25	87.63	19.85	0.6
180	3	36.31	49.45	68.88	19.43	88.88	20	0.57
195	3.25	37.02	50.32	69.91	19.59	90.04	20.13	0.54
210	3.5	37.7	51.13	70.88	19.75	91.13	20.25	0.5
225	3.75	38.34	51.9	71.8	19.9	92.16	20.36	0.46
240	4	38.95	52.63	72.67	20.04	93.13	20.46	0.42
255	4.25	39.54	53.32	73.49	20.17	94.06	20.57	0.4
270	4.5	40.09	53.99	74.28	20.29	94.94	20.66	0.37
285	4.75	40.63	54.62	75.03	20.41	95.77	20.74	0.33
300	5	41.14	55.23	75.75	20.52	96.58	20.83	0.31
315	5.25	41.64	55.82	76.44	20.62	97.35	20.91	0.29
330	5.5	42.11	56.38	77.1	20.72	98.08	20.98	0.26
345	5.75	42.57	56.93	77.74	20.81	98.8	21.06	0.25
360	6	43.02	57.46	78.36	20.9	99.48	21.12	0.22
375	6.25	43.45	57.97	78.96	20.99	100.14	21.18	0.19
390	6.5	43.87	58.46	79.53	21.07	100.79	21.26	0.19
405	6.75	44.28	58.94	80.09	21.15	101.41	21.32	0.17
420	7	44.67	59.4	80.64	21.24	102.01	21.37	0.13
435	7.25	45.06	59.86	81.17	21.31	102.59	21.42	0.11
450	7.5	45.43	60.3	81.68	21.38	103.16	21.48	0.1
465	7.75	45.8	60.73	82.18	21.45	103.71	21.53	0.08
480	8	46.16	61.15	82.67	21.52	104.25	21.58	0.06
495	8.25	46.51	61.55	83.14	21.59	104.77	21.63	0.04
510	8.5	46.85	61.95	83.6	21.65	105.28	21.68	0.03
525	8.75	47.18	62.34	84.06	21.72	105.78	21.72	0
540	9	47.51	62.72	84.5	21.78	106.26	21.76	-0.02
555	9.25	47.83	63.1	84.93	21.83	106.74	21.81	-0.02
570	9.5	48.14	63.46	85.35	21.89	107.2	21.85	-0.04
585	9.75	48.45	63.82	85.76	21.94	107.65	21.89	-0.05
600	10	48.75	64.17	86.17	22	108.1	21.93	-0.07
615	10.25	49.04	64.51	86.57	22.06	108.53	21.96	-0.1
630	10.5	49.33	64.85	86.96	22.11	108.96	22	-0.11
645	10.75	49.62	65.18	87.34	22.16	109.38	22.04	-0.12
660	11	49.9	65.51	87.71	22.2	109.79	22.08	-0.12
675	11.25	50.17	65.83	88.08	22.25	110.19	22.11	-0.14
690	11.5	50.44	66.14	88.44	22.3	110.58	22.14	-0.16
705	11.75	50.71	66.45	88.79	22.34	110.97	22.18	-0.16
720	12	50.97	66.75	89.14	22.39	111.35	22.21	-0.18
735	12.25	51.2	67.02	89.44	22.42	111.67	22.23	-0.19
750	12.5	51.43	67.27	89.73	22.46	111.97	22.24	-0.22
765	12.75	51.65	67.53	90.01	22.48	112.28	22.27	-0.21
780	13	51.87	67.78	90.29	22.51	112.58	22.29	-0.22
795	13.25	52.09	68.02	90.57	22.55	112.87	22.3	-0.25
810	13.5	52.3	68.27	90.84	22.57	113.16	22.32	-0.25
825	13.75	52.51	68.51	91.1	22.59	113.44	22.34	-0.25
840	14	52.72	68.74	91.37	22.63	113.72	22.35	-0.28

855	14.25	52.92	68.97	91.63	22.66	114	22.37	-0.29
870	14.5	53.13	69.2	91.88	22.68	114.27	22.39	-0.29
885	14.75	53.32	69.43	92.13	22.7	114.54	22.41	-0.29
900	15	53.52	69.65	92.38	22.73	114.8	22.42	-0.31
915	15.25	53.72	69.87	92.63	22.76	115.06	22.43	-0.33
930	15.5	53.91	70.09	92.87	22.78	115.31	22.44	-0.34
945	15.75	54.1	70.3	93.11	22.81	115.57	22.46	-0.35
960	16	54.28	70.51	93.34	22.83	115.82	22.48	-0.35
975	16.25	54.47	70.72	93.57	22.85	116.06	22.49	-0.36
990	16.5	54.65	70.93	93.8	22.87	116.3	22.5	-0.37
1005	16.75	54.83	71.13	94.03	22.9	116.54	22.51	-0.39
1020	17	55.01	71.33	94.25	22.92	116.78	22.53	-0.39
1035	17.25	55.18	71.53	94.47	22.94	117.01	22.54	-0.4
1050	17.5	55.36	71.72	94.69	22.97	117.24	22.55	-0.42
1065	17.75	55.53	71.92	94.9	22.98	117.47	22.57	-0.41
1080	18	55.7	72.11	95.12	23.01	117.69	22.57	-0.44
1095	18.25	55.87	72.3	95.33	23.03	117.92	22.59	-0.44
1110	18.5	56.03	72.49	95.53	23.04	118.14	22.61	-0.43
1125	18.75	56.2	72.67	95.74	23.07	118.35	22.61	-0.46
1140	19	56.36	72.86	95.94	23.08	118.57	22.63	-0.45
1155	19.25	56.52	73.04	96.14	23.1	118.78	22.64	-0.46
1170	19.5	56.68	73.22	96.34	23.12	118.99	22.65	-0.47
1185	19.75	56.84	73.4	96.54	23.14	119.2	22.66	-0.48
1200	20	57	73.57	96.73	23.16	119.4	22.67	-0.49
1215	20.25	57.15	73.75	96.93	23.18	119.6	22.67	-0.51
1230	20.5	57.31	73.92	97.12	23.2	119.8	22.68	-0.52
1245	20.75	57.46	74.09	97.3	23.21	120	22.7	-0.51
1260	21	57.61	74.26	97.49	23.23	120.2	22.71	-0.52
1275	21.25	57.76	74.43	97.68	23.25	120.39	22.71	-0.54
1290	21.5	57.91	74.59	97.86	23.27	120.59	22.73	-0.54
1305	21.75	58.05	74.76	98.04	23.28	120.78	22.74	-0.54
1320	22	58.2	74.92	98.22	23.3	120.97	22.75	-0.55
1335	22.25	58.34	75.08	98.4	23.32	121.15	22.75	-0.57
1350	22.5	58.49	75.24	98.57	23.33	121.34	22.77	-0.56
1365	22.75	58.63	75.4	98.75	23.35	121.52	22.77	-0.58
1380	23	58.77	75.56	98.92	23.36	121.7	22.78	-0.58
1395	23.25	58.91	75.71	99.09	23.38	121.88	22.79	-0.59
1410	23.5	59.04	75.87	99.26	23.39	122.06	22.8	-0.59
1425	23.75	59.18	76.02	99.43	23.41	122.24	22.81	-0.6
1440	24	59.32	76.17	99.6	23.43	122.41	22.81	-0.62
1455	24.25	59.45	76.32	99.76	23.44	122.59	22.83	-0.61
1470	24.5	59.58	76.47	99.93	23.46	122.76	22.83	-0.63
1485	24.75	59.72	76.62	100.09	23.47	122.93	22.84	-0.63
1500	25	59.85	76.76	100.25	23.49	123.1	22.85	-0.64
1515	25.25	59.98	76.91	100.41	23.5	123.26	22.85	-0.65
1530	25.5	60.11	77.05	100.57	23.52	123.43	22.86	-0.66
1545	25.75	60.24	77.2	100.72	23.52	123.59	22.87	-0.65
1560	26	60.36	77.34	100.88	23.54	123.76	22.88	-0.66
1575	26.25	60.49	77.48	101.03	23.55	123.92	22.89	-0.66
1590	26.5	60.62	77.62	101.19	23.57	124.08	22.89	-0.68
1605	26.75	60.74	77.76	101.34	23.58	124.24	22.9	-0.68
1620	27	60.86	77.9	101.49	23.59	124.4	22.91	-0.68
1635	27.25	60.99	78.03	101.64	23.61	124.55	22.91	-0.7
1650	27.5	61.11	78.17	101.79	23.62	124.71	22.92	-0.7
1665	27.75	61.23	78.31	101.94	23.63	124.86	22.92	-0.71
1680	28	61.35	78.44	102.08	23.64	125.02	22.94	-0.7
1695	28.25	61.47	78.57	102.23	23.66	125.17	22.94	-0.72
1710	28.5	61.59	78.7	102.37	23.67	125.32	22.95	-0.72
1725	28.75	61.71	78.83	102.52	23.69	125.47	22.95	-0.74
1740	29	61.82	78.96	102.66	23.7	125.62	22.96	-0.74
1755	29.25	61.94	79.09	102.8	23.71	125.77	22.97	-0.74
1770	29.5	62.06	79.22	102.94	23.72	125.91	22.97	-0.75
1785	29.75	62.17	79.35	103.08	23.73	126.06	22.98	-0.75
1800	30	62.28	79.48	103.22	23.74	126.2	22.98	-0.76
1815	30.25	62.4	79.6	103.35	23.75	126.34	22.99	-0.76
1830	30.5	62.51	79.73	103.49	23.76	126.49	23	-0.76
1845	30.75	62.62	79.85	103.63	23.78	126.63	23	-0.78
1860	31	62.73	79.97	103.76	23.79	126.77	23.01	-0.78
1875	31.25	62.84	80.1	103.89	23.79	126.91	23.02	-0.77
1890	31.5	62.95	80.22	104.03	23.81	127.04	23.01	-0.8
1905	31.75	63.06	80.34	104.16	23.82	127.18	23.02	-0.8
1920	32	63.17	80.46	104.29	23.83	127.32	23.03	-0.8
1935	32.25	63.28	80.58	104.42	23.84	127.45	23.03	-0.81
1950	32.5	63.38	80.7	104.55	23.85	127.59	23.04	-0.81

1965	32.75	63.49	80.81	104.68	23.87	127.72	23.04	-0.83
1980	33	63.6	80.93	104.8	23.87	127.85	23.05	-0.82
1995	33.25	63.7	81.05	104.93	23.88	127.99	23.06	-0.82
2010	33.5	63.81	81.16	105.06	23.9	128.12	23.06	-0.84
2025	33.75	63.91	81.28	105.18	23.9	128.25	23.07	-0.83
2040	34	64.01	81.39	105.3	23.91	128.38	23.08	-0.83
2055	34.25	64.12	81.51	105.43	23.92	128.51	23.08	-0.84
2070	34.5	64.22	81.62	105.55	23.93	128.63	23.08	-0.85
2085	34.75	64.32	81.73	105.67	23.94	128.76	23.09	-0.85
2100	35	64.42	81.84	105.79	23.95	128.89	23.1	-0.85
2115	35.25	64.52	81.95	105.91	23.96	129.01	23.1	-0.86
2130	35.5	64.62	82.06	106.03	23.97	129.14	23.11	-0.86
2145	35.75	64.72	82.17	106.15	23.98	129.26	23.11	-0.87
2160	36	64.82	82.28	106.27	23.99	129.38	23.11	-0.88
2175	36.25	64.92	82.39	106.39	24	129.51	23.12	-0.88
2190	36.5	65.01	82.5	106.51	24.01	129.63	23.12	-0.89
2205	36.75	65.11	82.61	106.62	24.01	129.75	23.13	-0.88
2220	37	65.21	82.71	106.74	24.03	129.87	23.13	-0.9
2235	37.25	65.3	82.82	106.85	24.03	129.99	23.14	-0.89
2250	37.5	65.4	82.93	106.97	24.04	130.11	23.14	-0.9
2265	37.75	65.49	83.03	107.08	24.05	130.23	23.15	-0.9
2280	38	65.59	83.13	107.2	24.07	130.34	23.14	-0.93
2295	38.25	65.68	83.24	107.31	24.07	130.46	23.15	-0.92
2310	38.5	65.78	83.34	107.42	24.08	130.58	23.16	-0.92
2325	38.75	65.87	83.44	107.53	24.09	130.69	23.16	-0.93
2340	39	65.96	83.55	107.64	24.09	130.81	23.17	-0.92
2355	39.25	66.05	83.65	107.75	24.1	130.92	23.17	-0.93
2370	39.5	66.15	83.75	107.86	24.11	131.03	23.17	-0.94
2385	39.75	66.24	83.85	107.97	24.12	131.15	23.18	-0.94
2400	40	66.33	83.95	108.08	24.13	131.26	23.18	-0.95
2415	40.25	66.42	84.05	108.19	24.14	131.37	23.18	-0.96
2430	40.5	66.51	84.15	108.29	24.14	131.48	23.19	-0.95
2445	40.75	66.6	84.25	108.4	24.15	131.59	23.19	-0.96
2460	41	66.69	84.35	108.51	24.16	131.7	23.19	-0.97
2475	41.25	66.78	84.44	108.61	24.17	131.81	23.2	-0.97
2490	41.5	66.87	84.54	108.72	24.18	131.92	23.2	-0.98
2505	41.75	66.95	84.64	108.82	24.18	132.03	23.21	-0.97
2520	42	67.04	84.73	108.93	24.2	132.14	23.21	-0.99
2535	42.25	67.13	84.83	109.03	24.2	132.24	23.21	-0.99
2550	42.5	67.21	84.93	109.13	24.2	132.35	23.22	-0.98
2565	42.75	67.3	85.02	109.23	24.21	132.46	23.23	-0.98
2580	43	67.39	85.11	109.34	24.23	132.56	23.22	-1.01
2595	43.25	67.47	85.21	109.44	24.23	132.67	23.23	-1
2610	43.5	67.56	85.3	109.54	24.24	132.77	23.23	-1.01
2625	43.75	67.64	85.4	109.64	24.24	132.88	23.24	-1
2640	44	67.73	85.49	109.74	24.25	132.98	23.24	-1.01
2655	44.25	67.81	85.58	109.84	24.26	133.08	23.24	-1.02
2670	44.5	67.89	85.67	109.94	24.27	133.19	23.25	-1.02
2685	44.75	67.98	85.76	110.04	24.28	133.29	23.25	-1.03
2700	45	68.06	85.85	110.13	24.28	133.39	23.26	-1.02
2715	45.25	68.14	85.95	110.23	24.28	133.49	23.26	-1.02
2730	45.5	68.22	86.04	110.33	24.29	133.59	23.26	-1.03
2745	45.75	68.31	86.13	110.43	24.3	133.69	23.26	-1.04
2760	46	68.39	86.21	110.52	24.31	133.79	23.27	-1.04
2775	46.25	68.47	86.3	110.62	24.32	133.89	23.27	-1.05
2790	46.5	68.55	86.39	110.71	24.32	133.99	23.28	-1.04
2805	46.75	68.63	86.48	110.81	24.33	134.09	23.28	-1.05
2820	47	68.71	86.57	110.9	24.33	134.18	23.28	-1.05
2835	47.25	68.79	86.66	111	24.34	134.28	23.28	-1.06
2850	47.5	68.87	86.74	111.09	24.35	134.38	23.29	-1.06
2865	47.75	68.95	86.83	111.18	24.35	134.47	23.29	-1.06
2880	48	69.03	86.92	111.28	24.36	134.57	23.29	-1.07
2895	48.25	69.12	87.02	111.39	24.37	134.69	23.3	-1.07
2910	48.5	69.21	87.12	111.5	24.38	134.81	23.31	-1.07
2925	48.75	69.3	87.22	111.61	24.39	134.92	23.31	-1.08
2940	49	69.39	87.32	111.72	24.4	135.04	23.32	-1.08
2955	49.25	69.47	87.41	111.83	24.42	135.15	23.32	-1.1
2970	49.5	69.56	87.51	111.94	24.43	135.27	23.33	-1.1
2985	49.75	69.65	87.61	112.05	24.44	135.38	23.33	-1.11
3000	50	69.74	87.71	112.15	24.44	135.5	23.35	-1.09
3015	50.25	69.83	87.81	112.26	24.45	135.61	23.35	-1.1
3030	50.5	69.91	87.9	112.37	24.47	135.73	23.36	-1.11
3045	50.75	70	88	112.47	24.47	135.84	23.37	-1.1
3060	51	70.08	88.1	112.58	24.48	135.95	23.37	-1.11

3075	51.25	70.17	88.19	112.69	24.5	136.06	23.37	-1.13
3090	51.5	70.26	88.29	112.79	24.5	136.18	23.39	-1.11
3105	51.75	70.34	88.38	112.9	24.52	136.29	23.39	-1.13
3120	52	70.43	88.48	113	24.52	136.4	23.4	-1.12
3135	52.25	70.51	88.57	113.11	24.54	136.51	23.4	-1.14
3150	52.5	70.6	88.67	113.21	24.54	136.62	23.41	-1.13
3165	52.75	70.68	88.76	113.31	24.55	136.73	23.42	-1.13
3180	53	70.76	88.85	113.42	24.57	136.84	23.42	-1.15
3195	53.25	70.85	88.95	113.52	24.57	136.95	23.43	-1.14
3210	53.5	70.93	89.04	113.62	24.58	137.05	23.43	-1.15
3225	53.75	71.01	89.13	113.72	24.59	137.16	23.44	-1.15
3240	54	71.1	89.22	113.82	24.6	137.27	23.45	-1.15
3255	54.25	71.18	89.31	113.92	24.61	137.38	23.46	-1.15
3270	54.5	71.26	89.41	114.02	24.61	137.48	23.46	-1.15
3285	54.75	71.34	89.5	114.12	24.62	137.59	23.47	-1.15
3300	55	71.42	89.59	114.22	24.63	137.69	23.47	-1.16
3315	55.25	71.51	89.68	114.32	24.64	137.8	23.48	-1.16
3330	55.5	71.59	89.77	114.42	24.65	137.9	23.48	-1.17
3345	55.75	71.67	89.86	114.52	24.66	138.01	23.49	-1.17
3360	56	71.75	89.95	114.62	24.67	138.11	23.49	-1.18
3375	56.25	71.83	90.04	114.72	24.68	138.22	23.5	-1.18
3390	56.5	71.91	90.13	114.82	24.69	138.32	23.5	-1.19
3405	56.75	71.99	90.21	114.91	24.7	138.42	23.51	-1.19
3420	57	72.07	90.3	115.01	24.71	138.53	23.52	-1.19
3435	57.25	72.15	90.39	115.11	24.72	138.63	23.52	-1.2
3450	57.5	72.23	90.48	115.2	24.72	138.73	23.53	-1.19
3465	57.75	72.3	90.57	115.3	24.73	138.83	23.53	-1.2
3480	58	72.38	90.65	115.4	24.75	138.93	23.53	-1.22
3495	58.25	72.46	90.74	115.49	24.75	139.03	23.54	-1.21
3510	58.5	72.54	90.83	115.59	24.76	139.13	23.54	-1.22
3525	58.75	72.62	90.91	115.68	24.77	139.23	23.55	-1.22
3540	59	72.69	91	115.77	24.77	139.33	23.56	-1.21
3555	59.25	72.77	91.08	115.87	24.79	139.43	23.56	-1.23
3570	59.5	72.85	91.17	115.96	24.79	139.53	23.57	-1.22
3585	59.75	72.92	91.25	116.06	24.81	139.63	23.57	-1.24
3600	60	73	91.34	116.15	24.81	139.73	23.58	-1.23
3615	60.25	73.08	91.42	116.24	24.82	139.83	23.59	-1.23
3630	60.5	73.15	91.51	116.33	24.82	139.93	23.6	-1.22
3645	60.75	73.23	91.59	116.43	24.84	140.02	23.59	-1.25
3660	61	73.3	91.67	116.52	24.85	140.12	23.6	-1.25
3675	61.25	73.38	91.76	116.61	24.85	140.22	23.61	-1.24
3690	61.5	73.45	91.84	116.7	24.86	140.31	23.61	-1.25
3705	61.75	73.53	91.92	116.79	24.87	140.41	23.62	-1.25
3720	62	73.6	92.01	116.88	24.87	140.5	23.62	-1.25
3735	62.25	73.68	92.09	116.97	24.88	140.6	23.63	-1.25
3750	62.5	73.75	92.17	117.06	24.89	140.69	23.63	-1.26
3765	62.75	73.82	92.25	117.15	24.9	140.79	23.64	-1.26
3780	63	73.9	92.33	117.24	24.91	140.88	23.64	-1.27
3795	63.25	73.97	92.42	117.33	24.91	140.98	23.65	-1.26
3810	63.5	74.05	92.5	117.42	24.92	141.07	23.65	-1.27
3825	63.75	74.12	92.58	117.51	24.93	141.17	23.66	-1.27
3840	64	74.19	92.66	117.6	24.94	141.26	23.66	-1.28
3855	64.25	74.26	92.74	117.69	24.95	141.35	23.66	-1.29
3870	64.5	74.34	92.82	117.77	24.95	141.44	23.67	-1.28
3885	64.75	74.41	92.9	117.86	24.96	141.54	23.68	-1.28
3900	65	74.48	92.98	117.95	24.97	141.63	23.68	-1.29
3915	65.25	74.55	93.06	118.03	24.97	141.72	23.69	-1.28
3930	65.5	74.62	93.14	118.12	24.98	141.81	23.69	-1.29
3945	65.75	74.69	93.22	118.21	24.99	141.9	23.69	-1.3
3960	66	74.77	93.29	118.29	25	141.99	23.7	-1.3
3975	66.25	74.84	93.37	118.38	25.01	142.08	23.7	-1.31
3990	66.5	74.91	93.45	118.47	25.02	142.17	23.7	-1.32
4005	66.75	74.98	93.53	118.55	25.02	142.26	23.71	-1.31
4020	67	75.05	93.61	118.64	25.03	142.35	23.71	-1.32
4035	67.25	75.12	93.69	118.72	25.03	142.44	23.72	-1.31
4050	67.5	75.19	93.76	118.81	25.05	142.53	23.72	-1.33
4065	67.75	75.26	93.84	118.89	25.05	142.62	23.73	-1.32
4080	68	75.33	93.92	118.97	25.05	142.71	23.74	-1.31
4095	68.25	75.4	93.99	119.06	25.07	142.8	23.74	-1.33
4110	68.5	75.47	94.07	119.14	25.07	142.89	23.75	-1.32
4125	68.75	75.53	94.15	119.22	25.07	142.97	23.75	-1.32
4140	69	75.6	94.22	119.31	25.09	143.06	23.75	-1.34
4155	69.25	75.67	94.3	119.39	25.09	143.15	23.76	-1.33
4170	69.5	75.74	94.37	119.47	25.1	143.24	23.77	-1.33

4185	69.75	75.81	94.45	119.56	25.11	143.32	23.76	-1.35
4200	70	75.88	94.52	119.64	25.12	143.41	23.77	-1.35
4215	70.25	75.94	94.6	119.72	25.12	143.5	23.78	-1.34
4230	70.5	76.01	94.67	119.8	25.13	143.58	23.78	-1.35
4245	70.75	76.08	94.75	119.88	25.13	143.67	23.79	-1.34
4260	71	76.15	94.82	119.96	25.14	143.75	23.79	-1.35
4275	71.25	76.21	94.9	120.05	25.15	143.84	23.79	-1.36
4290	71.5	76.28	94.97	120.13	25.16	143.92	23.79	-1.37
4305	71.75	76.35	95.04	120.21	25.17	144.01	23.8	-1.37
4320	72	76.41	95.12	120.29	25.17	144.09	23.8	-1.37
4335	72.25	76.48	95.19	120.37	25.18	144.18	23.81	-1.37
4350	72.5	76.55	95.26	120.45	25.19	144.26	23.81	-1.38
4365	72.75	76.61	95.34	120.53	25.19	144.34	23.81	-1.38
4380	73	76.68	95.41	120.61	25.2	144.43	23.82	-1.38
4395	73.25	76.75	95.48	120.68	25.2	144.51	23.83	-1.37
4410	73.5	76.81	95.56	120.76	25.2	144.59	23.83	-1.37
4425	73.75	76.88	95.63	120.84	25.21	144.68	23.84	-1.37
4440	74	76.94	95.7	120.92	25.22	144.76	23.84	-1.38
4455	74.25	77.01	95.77	121	25.23	144.84	23.84	-1.39
4470	74.5	77.07	95.84	121.08	25.24	144.92	23.84	-1.4
4485	74.75	77.14	95.91	121.16	25.25	145.01	23.85	-1.4
4500	75	77.2	95.99	121.23	25.24	145.09	23.86	-1.38
4515	75.25	77.27	96.06	121.31	25.25	145.17	23.86	-1.39
4530	75.5	77.33	96.13	121.39	25.26	145.25	23.86	-1.4
4545	75.75	77.39	96.2	121.46	25.26	145.33	23.87	-1.39
4560	76	77.46	96.27	121.54	25.27	145.41	23.87	-1.4
4575	76.25	77.52	96.34	121.62	25.28	145.49	23.87	-1.41
4590	76.5	77.59	96.41	121.69	25.28	145.57	23.88	-1.4
4605	76.75	77.65	96.48	121.77	25.29	145.65	23.88	-1.41
4620	77	77.71	96.55	121.85	25.3	145.73	23.88	-1.42
4635	77.25	77.78	96.62	121.92	25.3	145.81	23.89	-1.41
4650	77.5	77.84	96.69	122	25.31	145.89	23.89	-1.42
4665	77.75	77.9	96.76	122.07	25.31	145.97	23.9	-1.41
4680	78	77.96	96.83	122.15	25.32	146.05	23.9	-1.42
4695	78.25	78.03	96.9	122.22	25.32	146.13	23.91	-1.41
4710	78.5	78.09	96.96	122.3	25.34	146.21	23.91	-1.43
4725	78.75	78.15	97.03	122.37	25.34	146.29	23.92	-1.42
4740	79	78.21	97.1	122.45	25.35	146.36	23.91	-1.44
4755	79.25	78.28	97.17	122.52	25.35	146.44	23.92	-1.43
4770	79.5	78.34	97.24	122.6	25.36	146.52	23.92	-1.44
4785	79.75	78.4	97.31	122.67	25.36	146.6	23.93	-1.43
4800	80	78.46	97.37	122.74	25.37	146.67	23.93	-1.44
4815	80.25	78.52	97.44	122.82	25.38	146.75	23.93	-1.45
4830	80.5	78.58	97.51	122.89	25.38	146.83	23.94	-1.44
4845	80.75	78.64	97.58	122.96	25.38	146.91	23.95	-1.43
4860	81	78.71	97.64	123.04	25.4	146.98	23.94	-1.46
4875	81.25	78.77	97.71	123.11	25.4	147.06	23.95	-1.45
4890	81.5	78.83	97.78	123.18	25.4	147.13	23.95	-1.45
4905	81.75	78.89	97.84	123.26	25.42	147.21	23.95	-1.47
4920	82	78.95	97.91	123.33	25.42	147.29	23.96	-1.46
4935	82.25	79.01	97.98	123.4	25.42	147.36	23.96	-1.46
4950	82.5	79.07	98.04	123.47	25.43	147.44	23.97	-1.46
4965	82.75	79.13	98.11	123.54	25.43	147.51	23.97	-1.46
4980	83	79.19	98.17	123.62	25.45	147.59	23.97	-1.48
4995	83.25	79.25	98.24	123.69	25.45	147.66	23.97	-1.48
5010	83.5	79.31	98.3	123.76	25.46	147.74	23.98	-1.48
5025	83.75	79.37	98.37	123.83	25.46	147.81	23.98	-1.48
5040	84	79.43	98.44	123.9	25.46	147.89	23.99	-1.47
5055	84.25	79.49	98.5	123.97	25.47	147.96	23.99	-1.48
5070	84.5	79.54	98.57	124.04	25.47	148.03	23.99	-1.48
5085	84.75	79.6	98.63	124.11	25.48	148.11	24	-1.48
5100	85	79.66	98.69	124.18	25.49	148.18	24	-1.49
5115	85.25	79.72	98.76	124.25	25.49	148.26	24.01	-1.48
5130	85.5	79.78	98.82	124.32	25.5	148.33	24.01	-1.49
5145	85.75	79.84	98.89	124.39	25.5	148.4	24.01	-1.49
5160	86	79.9	98.95	124.46	25.51	148.47	24.01	-1.5
5175	86.25	79.95	99.02	124.53	25.51	148.55	24.02	-1.49
5190	86.5	80.01	99.08	124.6	25.52	148.62	24.02	-1.5
5205	86.75	80.07	99.14	124.67	25.53	148.69	24.02	-1.51
5220	87	80.13	99.21	124.74	25.53	148.76	24.02	-1.51
5235	87.25	80.19	99.27	124.81	25.54	148.84	24.03	-1.51
5250	87.5	80.24	99.33	124.87	25.54	148.91	24.04	-1.5
5265	87.75	80.3	99.4	124.94	25.54	148.98	24.04	-1.5
5280	88	80.36	99.46	125.01	25.55	149.05	24.04	-1.51

5295	88.25	80.42	99.52	125.08	25.56	149.12	24.04	-1.52
5310	88.5	80.47	99.58	125.15	25.57	149.19	24.04	-1.53
5325	88.75	80.53	99.65	125.22	25.57	149.26	24.04	-1.53
5340	89	80.59	99.71	125.28	25.57	149.34	24.06	-1.51
5355	89.25	80.64	99.77	125.35	25.58	149.41	24.06	-1.52
5370	89.5	80.7	99.83	125.42	25.59	149.48	24.06	-1.53
5385	89.75	80.76	99.9	125.49	25.59	149.55	24.06	-1.53
5400	90	80.81	99.96	125.55	25.59	149.62	24.07	-1.52
5415	90.25	80.87	100.02	125.62	25.6	149.69	24.07	-1.53
5430	90.5	80.92	100.08	125.69	25.61	149.76	24.07	-1.54
5445	90.75	80.98	100.14	125.75	25.61	149.83	24.08	-1.53
5460	91	81.04	100.2	125.82	25.62	149.9	24.08	-1.54
5475	91.25	81.09	100.26	125.89	25.63	149.97	24.08	-1.55
5490	91.5	81.15	100.33	125.95	25.62	150.03	24.08	-1.54
5505	91.75	81.2	100.39	126.02	25.63	150.1	24.08	-1.55
5520	92	81.26	100.45	126.08	25.63	150.17	24.09	-1.54
5535	92.25	81.31	100.51	126.15	25.64	150.24	24.09	-1.55
5550	92.5	81.37	100.57	126.21	25.64	150.31	24.1	-1.54
5565	92.75	81.42	100.63	126.28	25.65	150.38	24.1	-1.55
5580	93	81.48	100.69	126.34	25.65	150.45	24.11	-1.54
5595	93.25	81.53	100.75	126.41	25.66	150.51	24.1	-1.56
5610	93.5	81.59	100.81	126.48	25.67	150.58	24.1	-1.57
5625	93.75	81.64	100.87	126.54	25.67	150.65	24.11	-1.56
5640	94	81.7	100.93	126.6	25.67	150.72	24.12	-1.55
5655	94.25	81.75	100.99	126.67	25.68	150.79	24.12	-1.56
5670	94.5	81.81	101.05	126.73	25.68	150.85	24.12	-1.56
5685	94.75	81.86	101.11	126.8	25.69	150.92	24.12	-1.57
5700	95	81.92	101.17	126.86	25.69	150.99	24.13	-1.56
5715	95.25	81.97	101.23	126.93	25.7	151.05	24.12	-1.58
5730	95.5	82.02	101.28	126.99	25.71	151.12	24.13	-1.58
5745	95.75	82.08	101.34	127.05	25.71	151.19	24.14	-1.57
5760	96	82.13	101.4	127.12	25.72	151.25	24.13	-1.59
5775	96.25	82.18	101.46	127.18	25.72	151.32	24.14	-1.58
5790	96.5	82.24	101.52	127.24	25.72	151.39	24.15	-1.57
5805	96.75	82.29	101.58	127.31	25.73	151.45	24.14	-1.59
5820	97	82.34	101.64	127.37	25.73	151.52	24.15	-1.58
5835	97.25	82.4	101.69	127.43	25.74	151.58	24.15	-1.59
5850	97.5	82.45	101.75	127.5	25.75	151.65	24.15	-1.6
5865	97.75	82.5	101.81	127.56	25.75	151.72	24.16	-1.59
5880	98	82.56	101.87	127.62	25.75	151.78	24.16	-1.59
5895	98.25	82.61	101.93	127.68	25.75	151.85	24.17	-1.58
5910	98.5	82.66	101.98	127.75	25.77	151.91	24.16	-1.61
5925	98.75	82.71	102.04	127.81	25.77	151.98	24.17	-1.6
5940	99	82.77	102.1	127.87	25.77	152.04	24.17	-1.6
5955	99.25	82.82	102.16	127.93	25.77	152.11	24.18	-1.59
5970	99.5	82.87	102.21	127.99	25.78	152.17	24.18	-1.6
5985	99.75	82.92	102.27	128.06	25.79	152.23	24.17	-1.62
6000	100	82.98	102.33	128.12	25.79	152.3	24.18	-1.61
6015	100.25	83.03	102.38	128.18	25.8	152.36	24.18	-1.62
6030	100.5	83.08	102.44	128.24	25.8	152.43	24.19	-1.61
6045	100.75	83.13	102.5	128.3	25.8	152.49	24.19	-1.61
6060	101	83.18	102.55	128.36	25.81	152.55	24.19	-1.62
6075	101.25	83.23	102.61	128.42	25.81	152.62	24.2	-1.61
6090	101.5	83.29	102.67	128.48	25.81	152.68	24.2	-1.61
6105	101.75	83.34	102.72	128.55	25.83	152.74	24.19	-1.64
6120	102	83.39	102.78	128.61	25.83	152.81	24.2	-1.63
6135	102.25	83.44	102.83	128.67	25.84	152.87	24.2	-1.64
6150	102.5	83.49	102.89	128.73	25.84	152.93	24.2	-1.64
6165	102.75	83.54	102.95	128.79	25.84	153	24.21	-1.63
6180	103	83.59	103	128.85	25.85	153.06	24.21	-1.64
6195	103.25	83.64	103.06	128.91	25.85	153.12	24.21	-1.64
6210	103.5	83.69	103.11	128.97	25.86	153.18	24.21	-1.65
6225	103.75	83.74	103.17	129.03	25.86	153.25	24.22	-1.64
6240	104	83.8	103.22	129.09	25.87	153.31	24.22	-1.65
6255	104.25	83.85	103.28	129.15	25.87	153.37	24.22	-1.65
6270	104.5	83.9	103.33	129.21	25.88	153.43	24.22	-1.66
6285	104.75	83.95	103.39	129.26	25.87	153.49	24.23	-1.64
6300	105	84	103.44	129.32	25.88	153.56	24.24	-1.64
6315	105.25	84.05	103.5	129.38	25.88	153.62	24.24	-1.64
6330	105.5	84.1	103.55	129.44	25.89	153.68	24.24	-1.65
6345	105.75	84.15	103.61	129.5	25.89	153.74	24.24	-1.65
6360	106	84.2	103.66	129.56	25.9	153.8	24.24	-1.66
6375	106.25	84.25	103.72	129.62	25.9	153.86	24.24	-1.66
6390	106.5	84.3	103.77	129.68	25.91	153.92	24.24	-1.67

6405	106.75	84.35	103.82	129.73	25.91	153.99	24.26	-1.65
6420	107	84.4	103.88	129.79	25.91	154.05	24.26	-1.65
6435	107.25	84.44	103.93	129.85	25.92	154.11	24.26	-1.66
6450	107.5	84.49	103.99	129.91	25.92	154.17	24.26	-1.66
6465	107.75	84.54	104.04	129.97	25.93	154.23	24.26	-1.67
6480	108	84.59	104.09	130.02	25.93	154.29	24.27	-1.66
6495	108.25	84.64	104.15	130.08	25.93	154.35	24.27	-1.66
6510	108.5	84.69	104.2	130.14	25.94	154.41	24.27	-1.67
6525	108.75	84.74	104.25	130.2	25.95	154.47	24.27	-1.68
6540	109	84.79	104.31	130.26	25.95	154.53	24.27	-1.68
6555	109.25	84.84	104.36	130.31	25.95	154.59	24.28	-1.67
6570	109.5	84.89	104.41	130.37	25.96	154.65	24.28	-1.68
6585	109.75	84.93	104.47	130.43	25.96	154.71	24.28	-1.68
6600	110	84.98	104.52	130.48	25.96	154.77	24.29	-1.67
6615	110.25	85.03	104.57	130.54	25.97	154.83	24.29	-1.68
6630	110.5	85.08	104.62	130.6	25.98	154.88	24.28	-1.7
6645	110.75	85.13	104.68	130.65	25.97	154.94	24.29	-1.68
6660	111	85.18	104.73	130.71	25.98	155	24.29	-1.69
6675	111.25	85.22	104.78	130.77	25.99	155.06	24.29	-1.7
6690	111.5	85.27	104.83	130.82	25.99	155.12	24.3	-1.69
6705	111.75	85.32	104.89	130.88	25.99	155.18	24.3	-1.69
6720	112	85.37	104.94	130.94	26	155.24	24.3	-1.7
6735	112.25	85.41	104.99	130.99	26	155.3	24.31	-1.69
6750	112.5	85.46	105.04	131.05	26.01	155.35	24.3	-1.71
6765	112.75	85.51	105.09	131.1	26.01	155.41	24.31	-1.7
6780	113	85.56	105.15	131.16	26.01	155.47	24.31	-1.7
6795	113.25	85.6	105.2	131.22	26.02	155.53	24.31	-1.71
6810	113.5	85.65	105.25	131.27	26.02	155.59	24.32	-1.7
6825	113.75	85.7	105.3	131.33	26.03	155.64	24.31	-1.72
6840	114	85.75	105.35	131.38	26.03	155.7	24.32	-1.71
6855	114.25	85.79	105.4	131.44	26.04	155.76	24.32	-1.72
6870	114.5	85.84	105.46	131.49	26.03	155.82	24.33	-1.7
6885	114.75	85.89	105.51	131.55	26.04	155.87	24.32	-1.72
6900	115	85.93	105.56	131.6	26.04	155.93	24.33	-1.71
6915	115.25	85.98	105.61	131.66	26.05	155.99	24.33	-1.72
6930	115.5	86.03	105.66	131.71	26.05	156.04	24.33	-1.72
6945	115.75	86.07	105.71	131.77	26.06	156.1	24.33	-1.73
6960	116	86.12	105.76	131.82	26.06	156.16	24.34	-1.72
6975	116.25	86.17	105.81	131.88	26.07	156.21	24.33	-1.74
6990	116.5	86.21	105.86	131.93	26.07	156.27	24.34	-1.73
7005	116.75	86.26	105.91	131.98	26.07	156.33	24.35	-1.72
7020	117	86.31	105.96	132.04	26.08	156.38	24.34	-1.74
7035	117.25	86.35	106.01	132.09	26.08	156.44	24.35	-1.73
7050	117.5	86.4	106.06	132.15	26.09	156.5	24.35	-1.74
7065	117.75	86.45	106.11	132.2	26.09	156.55	24.35	-1.74
7080	118	86.49	106.16	132.25	26.09	156.61	24.36	-1.73
7095	118.25	86.54	106.21	132.31	26.1	156.66	24.35	-1.75
7110	118.5	86.58	106.26	132.36	26.1	156.72	24.36	-1.74
7125	118.75	86.63	106.31	132.42	26.11	156.78	24.36	-1.75
7140	119	86.67	106.36	132.47	26.11	156.83	24.36	-1.75
7155	119.25	86.72	106.41	132.52	26.11	156.89	24.37	-1.74
7170	119.5	86.77	106.46	132.58	26.12	156.94	24.36	-1.76
7185	119.75	86.81	106.51	132.63	26.12	157	24.37	-1.75
7200	120	86.86	106.56	132.68	26.12	157.05	24.37	-1.75
7215	120.25	86.9	106.61	132.73	26.12	157.11	24.38	-1.74
7230	120.5	86.95	106.66	132.79	26.13	157.16	24.37	-1.76
7245	120.75	86.99	106.71	132.84	26.13	157.22	24.38	-1.75
7260	121	87.04	106.76	132.89	26.13	157.27	24.38	-1.75
7275	121.25	87.08	106.81	132.95	26.14	157.33	24.38	-1.76
7290	121.5	87.13	106.86	133	26.14	157.38	24.38	-1.76
7305	121.75	87.17	106.9	133.05	26.15	157.44	24.39	-1.76
7320	122	87.22	106.95	133.1	26.15	157.49	24.39	-1.76
7335	122.25	87.26	107	133.16	26.16	157.55	24.39	-1.77
7350	122.5	87.31	107.05	133.21	26.16	157.6	24.39	-1.77
7365	122.75	87.35	107.1	133.26	26.16	157.65	24.39	-1.77
7380	123	87.4	107.15	133.31	26.16	157.71	24.4	-1.76
7395	123.25	87.44	107.2	133.36	26.16	157.76	24.4	-1.76
7410	123.5	87.49	107.24	133.42	26.18	157.82	24.4	-1.78
7425	123.75	87.53	107.29	133.47	26.18	157.87	24.4	-1.78
7440	124	87.57	107.34	133.52	26.18	157.92	24.4	-1.78
7455	124.25	87.62	107.39	133.57	26.18	157.98	24.41	-1.77
7470	124.5	87.66	107.44	133.62	26.18	158.03	24.41	-1.77
7485	124.75	87.71	107.49	133.67	26.18	158.08	24.41	-1.77
7500	125	87.75	107.53	133.73	26.2	158.14	24.41	-1.79

7515	125.25	87.79	107.58	133.78	26.2	158.19	24.41	-1.79
7530	125.5	87.84	107.63	133.83	26.2	158.24	24.41	-1.79
7545	125.75	87.88	107.68	133.88	26.2	158.3	24.42	-1.78
7560	126	87.93	107.72	133.93	26.21	158.35	24.42	-1.79
7575	126.25	87.97	107.77	133.98	26.21	158.4	24.42	-1.79
7590	126.5	88.01	107.82	134.03	26.21	158.46	24.43	-1.78
7605	126.75	88.06	107.87	134.08	26.21	158.51	24.43	-1.78
7620	127	88.1	107.91	134.13	26.22	158.56	24.43	-1.79
7635	127.25	88.14	107.96	134.18	26.22	158.61	24.43	-1.79
7650	127.5	88.19	108.01	134.24	26.23	158.67	24.43	-1.8
7665	127.75	88.23	108.05	134.29	26.24	158.72	24.43	-1.81
7680	128	88.27	108.1	134.34	26.24	158.77	24.43	-1.81
7695	128.25	88.32	108.15	134.39	26.24	158.82	24.43	-1.81
7710	128.5	88.36	108.2	134.44	26.24	158.88	24.44	-1.8
7725	128.75	88.4	108.24	134.49	26.25	158.93	24.44	-1.81
7740	129	88.45	108.29	134.54	26.25	158.98	24.44	-1.81
7755	129.25	88.49	108.34	134.59	26.25	159.03	24.44	-1.81
7770	129.5	88.53	108.38	134.64	26.26	159.08	24.44	-1.82
7785	129.75	88.57	108.43	134.69	26.26	159.14	24.45	-1.81
7800	130	88.62	108.48	134.74	26.26	159.19	24.45	-1.81
7815	130.25	88.66	108.52	134.79	26.27	159.24	24.45	-1.82
7830	130.5	88.7	108.57	134.84	26.27	159.29	24.45	-1.82
7845	130.75	88.75	108.61	134.89	26.28	159.34	24.45	-1.83
7860	131	88.79	108.66	134.94	26.28	159.39	24.45	-1.83
7875	131.25	88.83	108.71	134.98	26.27	159.44	24.46	-1.81
7890	131.5	88.87	108.75	135.03	26.28	159.5	24.47	-1.81
7905	131.75	88.92	108.8	135.08	26.28	159.55	24.47	-1.81
7920	132	88.96	108.84	135.13	26.29	159.6	24.47	-1.82
7935	132.25	89	108.89	135.18	26.29	159.65	24.47	-1.82
7950	132.5	89.04	108.94	135.23	26.29	159.7	24.47	-1.82
7965	132.75	89.08	108.98	135.28	26.3	159.75	24.47	-1.83
7980	133	89.13	109.03	135.33	26.3	159.8	24.47	-1.83
7995	133.25	89.17	109.07	135.38	26.31	159.85	24.47	-1.84
8010	133.5	89.21	109.12	135.43	26.31	159.9	24.47	-1.84
8025	133.75	89.25	109.16	135.47	26.31	159.95	24.48	-1.83
8040	134	89.29	109.21	135.52	26.31	160	24.48	-1.83
8055	134.25	89.34	109.25	135.57	26.32	160.05	24.48	-1.84
8070	134.5	89.38	109.3	135.62	26.32	160.1	24.48	-1.84
8085	134.75	89.42	109.34	135.67	26.33	160.15	24.48	-1.85
8100	135	89.46	109.39	135.72	26.33	160.2	24.48	-1.85
8115	135.25	89.5	109.43	135.76	26.33	160.25	24.49	-1.84
8130	135.5	89.54	109.48	135.81	26.33	160.3	24.49	-1.84
8145	135.75	89.58	109.52	135.86	26.34	160.35	24.49	-1.85
8160	136	89.63	109.57	135.91	26.34	160.4	24.49	-1.85
8175	136.25	89.67	109.61	135.96	26.35	160.45	24.49	-1.86
8190	136.5	89.71	109.66	136	26.34	160.5	24.5	-1.84
8205	136.75	89.75	109.7	136.05	26.35	160.55	24.5	-1.85
8220	137	89.79	109.75	136.1	26.35	160.6	24.5	-1.85
8235	137.25	89.83	109.79	136.15	26.36	160.65	24.5	-1.86
8250	137.5	89.87	109.84	136.2	26.36	160.7	24.5	-1.86
8265	137.75	89.91	109.88	136.24	26.36	160.75	24.51	-1.85
8280	138	89.95	109.93	136.29	26.36	160.8	24.51	-1.85
8295	138.25	90	109.97	136.34	26.37	160.85	24.51	-1.86
8310	138.5	90.04	110.01	136.39	26.38	160.9	24.51	-1.87
8325	138.75	90.08	110.06	136.43	26.37	160.95	24.52	-1.85
8340	139	90.12	110.1	136.48	26.38	160.99	24.51	-1.87
8355	139.25	90.16	110.15	136.53	26.38	161.04	24.51	-1.87
8370	139.5	90.2	110.19	136.57	26.38	161.09	24.52	-1.86
8385	139.75	90.24	110.23	136.62	26.39	161.14	24.52	-1.87
8400	140	90.28	110.28	136.67	26.39	161.19	24.52	-1.87
8415	140.25	90.32	110.32	136.71	26.39	161.24	24.53	-1.86
8430	140.5	90.36	110.37	136.76	26.39	161.29	24.53	-1.86
8445	140.75	90.4	110.41	136.81	26.4	161.33	24.52	-1.88
8460	141	90.44	110.45	136.85	26.4	161.38	24.53	-1.87
8475	141.25	90.48	110.5	136.9	26.4	161.43	24.53	-1.87
8490	141.5	90.52	110.54	136.95	26.41	161.48	24.53	-1.88
8505	141.75	90.56	110.58	136.99	26.41	161.53	24.54	-1.87
8520	142	90.6	110.63	137.04	26.41	161.57	24.53	-1.88
8535	142.25	90.64	110.67	137.09	26.42	161.62	24.53	-1.89
8550	142.5	90.68	110.71	137.13	26.42	161.67	24.54	-1.88
8565	142.75	90.72	110.76	137.18	26.42	161.72	24.54	-1.88
8580	143	90.76	110.8	137.22	26.42	161.77	24.55	-1.87
8595	143.25	90.8	110.84	137.27	26.43	161.81	24.54	-1.89
8610	143.5	90.84	110.89	137.32	26.43	161.86	24.54	-1.89

8625	143.75	90.88	110.93	137.36	26.43	161.91	24.55	-1.88
8640	144	90.92	110.97	137.41	26.44	161.96	24.55	-1.89
8655	144.25	90.96	111.01	137.45	26.44	162	24.55	-1.89
8670	144.5	91	111.06	137.5	26.44	162.05	24.55	-1.89
8685	144.75	91.04	111.1	137.55	26.45	162.1	24.55	-1.9
8700	145	91.08	111.14	137.59	26.45	162.15	24.56	-1.89
8715	145.25	91.12	111.18	137.64	26.46	162.19	24.55	-1.91
8730	145.5	91.16	111.23	137.68	26.45	162.24	24.56	-1.89
8745	145.75	91.2	111.27	137.73	26.46	162.29	24.56	-1.9
8760	146	91.23	111.31	137.77	26.46	162.33	24.56	-1.9
8775	146.25	91.27	111.35	137.82	26.47	162.38	24.56	-1.91
8790	146.5	91.31	111.4	137.86	26.46	162.43	24.57	-1.89
8805	146.75	91.35	111.44	137.91	26.47	162.47	24.56	-1.91
8820	147	91.39	111.48	137.95	26.47	162.52	24.57	-1.9
8835	147.25	91.43	111.52	138	26.48	162.57	24.57	-1.91
8850	147.5	91.47	111.57	138.04	26.47	162.61	24.57	-1.9
8865	147.75	91.51	111.61	138.09	26.48	162.66	24.57	-1.91
8880	148	91.55	111.65	138.13	26.48	162.71	24.58	-1.9
8895	148.25	91.59	111.69	138.18	26.49	162.75	24.57	-1.92
8910	148.5	91.62	111.73	138.22	26.49	162.8	24.58	-1.91
8925	148.75	91.66	111.77	138.27	26.5	162.85	24.58	-1.92
8940	149	91.7	111.82	138.31	26.49	162.89	24.58	-1.91
8955	149.25	91.74	111.86	138.36	26.5	162.94	24.58	-1.92
8970	149.5	91.78	111.9	138.4	26.5	162.98	24.58	-1.92
8985	149.75	91.82	111.94	138.45	26.51	163.03	24.58	-1.93
9000	150	91.85	111.98	138.49	26.51	163.08	24.59	-1.92
9015	150.25	91.89	112.02	138.53	26.51	163.12	24.59	-1.92
9030	150.5	91.93	112.07	138.58	26.51	163.17	24.59	-1.92
9045	150.75	91.97	112.11	138.62	26.51	163.21	24.59	-1.92
9060	151	92.01	112.15	138.67	26.52	163.26	24.59	-1.93
9075	151.25	92.05	112.19	138.71	26.52	163.3	24.59	-1.93
9090	151.5	92.08	112.23	138.75	26.52	163.35	24.6	-1.92
9105	151.75	92.12	112.27	138.8	26.53	163.39	24.59	-1.94
9120	152	92.16	112.31	138.84	26.53	163.44	24.6	-1.93
9135	152.25	92.2	112.35	138.89	26.54	163.49	24.6	-1.94
9150	152.5	92.24	112.4	138.93	26.53	163.53	24.6	-1.93
9165	152.75	92.27	112.44	138.97	26.53	163.58	24.61	-1.92
9180	153	92.31	112.48	139.02	26.54	163.62	24.6	-1.94
9195	153.25	92.35	112.52	139.06	26.54	163.67	24.61	-1.93
9210	153.5	92.39	112.56	139.1	26.54	163.71	24.61	-1.93
9225	153.75	92.43	112.6	139.15	26.55	163.76	24.61	-1.94
9240	154	92.46	112.64	139.19	26.55	163.8	24.61	-1.94
9255	154.25	92.5	112.68	139.23	26.55	163.85	24.62	-1.93
9270	154.5	92.54	112.72	139.28	26.56	163.89	24.61	-1.95
9285	154.75	92.58	112.76	139.32	26.56	163.93	24.61	-1.95
9300	155	92.61	112.8	139.36	26.56	163.98	24.62	-1.94
9315	155.25	92.65	112.84	139.41	26.57	164.02	24.61	-1.96
9330	155.5	92.69	112.88	139.45	26.57	164.07	24.62	-1.95
9345	155.75	92.73	112.92	139.49	26.57	164.11	24.62	-1.95
9360	156	92.76	112.96	139.54	26.58	164.16	24.62	-1.96
9375	156.25	92.8	113	139.58	26.58	164.2	24.62	-1.96
9390	156.5	92.84	113.04	139.62	26.58	164.25	24.63	-1.95
9405	156.75	92.87	113.08	139.67	26.59	164.29	24.62	-1.97
9420	157	92.91	113.12	139.71	26.59	164.33	24.62	-1.97
9435	157.25	92.95	113.16	139.75	26.59	164.38	24.63	-1.96
9450	157.5	92.99	113.2	139.79	26.59	164.42	24.63	-1.96
9465	157.75	93.02	113.24	139.84	26.6	164.47	24.63	-1.97
9480	158	93.06	113.28	139.88	26.6	164.51	24.63	-1.97
9495	158.25	93.1	113.32	139.92	26.6	164.55	24.63	-1.97
9510	158.5	93.13	113.36	139.96	26.6	164.6	24.64	-1.96
9525	158.75	93.17	113.4	140.01	26.61	164.64	24.63	-1.98
9540	159	93.21	113.44	140.05	26.61	164.69	24.64	-1.97
9555	159.25	93.24	113.48	140.09	26.61	164.73	24.64	-1.97
9570	159.5	93.28	113.52	140.13	26.61	164.77	24.64	-1.97
9585	159.75	93.32	113.56	140.17	26.61	164.82	24.65	-1.96
9600	160	93.35	113.6	140.22	26.62	164.86	24.64	-1.98
9615	160.25	93.39	113.64	140.26	26.62	164.9	24.64	-1.98
9630	160.5	93.43	113.68	140.3	26.62	164.95	24.65	-1.97
9645	160.75	93.46	113.72	140.34	26.62	164.99	24.65	-1.97
9660	161	93.5	113.76	140.38	26.62	165.03	24.65	-1.97
9675	161.25	93.54	113.8	140.43	26.63	165.08	24.65	-1.98
9690	161.5	93.57	113.84	140.47	26.63	165.12	24.65	-1.98
9705	161.75	93.61	113.88	140.51	26.63	165.16	24.65	-1.98
9720	162	93.64	113.92	140.55	26.63	165.21	24.66	-1.97

9735	162.25	93.68	113.96	140.59	26.63	165.25	24.66	-1.97
9750	162.5	93.72	113.99	140.63	26.64	165.29	24.66	-1.98
9765	162.75	93.75	114.03	140.68	26.65	165.33	24.65	-2
9780	163	93.79	114.07	140.72	26.65	165.38	24.66	-1.99
9795	163.25	93.83	114.11	140.76	26.65	165.42	24.66	-1.99
9810	163.5	93.86	114.15	140.8	26.65	165.46	24.66	-1.99
9825	163.75	93.9	114.19	140.84	26.65	165.5	24.66	-1.99
9840	164	93.93	114.23	140.88	26.65	165.55	24.67	-1.98
9855	164.25	93.97	114.27	140.92	26.65	165.59	24.67	-1.98
9870	164.5	94	114.3	140.97	26.67	165.63	24.66	-2.01
9885	164.75	94.04	114.34	141.01	26.67	165.67	24.66	-2.01
9900	165	94.08	114.38	141.05	26.67	165.72	24.67	-2
9915	165.25	94.11	114.42	141.09	26.67	165.76	24.67	-2
9930	165.5	94.15	114.46	141.13	26.67	165.8	24.67	-2
9945	165.75	94.18	114.5	141.17	26.67	165.84	24.67	-2
9960	166	94.22	114.54	141.21	26.67	165.89	24.68	-1.99
9975	166.25	94.25	114.57	141.25	26.68	165.93	24.68	-2
9990	166.5	94.29	114.61	141.29	26.68	165.97	24.68	-2
10005	166.75	94.33	114.65	141.33	26.68	166.01	24.68	-2
10020	167	94.36	114.69	141.37	26.68	166.05	24.68	-2
10035	167.25	94.4	114.73	141.41	26.68	166.1	24.69	-1.99
10050	167.5	94.43	114.76	141.46	26.7	166.14	24.68	-2.02
10065	167.75	94.47	114.8	141.5	26.7	166.18	24.68	-2.02
10080	168	94.5	114.84	141.54	26.7	166.22	24.68	-2.02