

APPENDIX F3

Hydrologic Input Parameters

**EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY**

**160623199 - Elfrida Subwatershed Study - Phase 1
NRCS (SCS) Curve Number Determination**

Soil Type	Hydrologic Soil Group
Gravel	A
Sand and Gravel	AB
Silty Sand, Loamy Sand, Sand Loam	B
Silt, Silt Loam	BC
Clay, Clay Loam, Silty Clay Loam	C
Bedrock, shallow soil over bedrock, organic	CD
Muck	D

Pre-Development Conditions

TABLE OF CURVE NUMBERS (CN's)									
Land Use		Hydrologic Soil Type							Manning's 'n'
		A	AB	B	BC	C	CD	D	
Meadow	"Good"	30	44	58	64.5	71	74.5	78	0.40
Woodlot	"Fair"	36	48	60	66.5	73	76	79	0.40
Gravel		76	80.5	85	87	89	90	91	0.30
Lawns	"Good"	39	50	61	67.5	74	77	80	0.25
Pasture/Range		58	61.5	65	70.5	76	78.5	81	0.17
Crop		66	70	74	78	82	84	86	0.13
Fallow (Bare)		77	82	86	89	91	93	94	0.05
Impervious		98	98	98	98	98	98	98	0.01

Notes:

1. MTO Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
2. Chin (2000), Water-Resources Engineering, Table 6.13-Curve Numbers for Various Urban Land Uses

EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY

Catchment	HYDROLOGIC SOIL TYPE (%)							TOTAL	Allotting of area identified as N
	Hydrologic Soil Type ³								
	A	AB	B	BC	C	CD	D		
Internal Catchments									
100					79.5		20.5	100	
110					65.2		34.8	100	
111					93.1		6.9	100	
112					88.6		11.4	100	
113					100.0		0.0	100	
120					46.7		53.3	100	
121					99.1		0.9	100	
122					91.3		8.7	100	
123					100.0		0.0	100	
124					100.0		0.0	100	
130					94.3		5.7	100	
131					100.0		0.0	100	
140					59.7		40.3	100	
141					62.2		37.8	100	
142					83.1		16.9	100	
143					78.6		21.4	100	
144					78.8		21.2	100	
145					100.0		0.0	100	N added to C
146					100.0		0.0	100	N added to C
150					51.1		48.9	100	N added to C
151					84.7		15.3	100	
152					85.8		14.2	100	
153					84.9		15.1	100	
160					88.6		11.4	100	
170					100.0		0.0	100	
180					90.7		9.3	100	
185					98.7		1.3	100	
190					98.3		1.7	100	
191					100.0		0.0	100	
192					100.0		0.0	100	
200					100.0		0.0	100	
201					100.0		0.0	100	
210					100.0		0.0	100	
211					100.0		0.0	100	
220					100.0		0.0	100	
230					100.0		0.0	100	
231					100.0		0.0	100	
240					100.0		0.0	100	
241					100.0		0.0	100	
250					100.0		0.0	100	
260					100.0		0.0	100	
270					100.0		0.0	100	
300					80.7		19.3	100	
301					99.8		0.2	100	
320					94.7		5.3	100	
330					100.0		0.0	100	
340					100.0		0.0	100	
350					100.0		0.0	100	
400					64.3		35.7	100	
401					77.0		23.0	100	
410					24.5		75.5	100	
411					0.0		100.0	100	
420					63.1		36.9	100	
421					100.0		0.0	100	
422					93.2		6.8	100	
423					66.1		33.9	100	
430					39.0		61.0	100	
440					24.4		75.6	100	N added to D
441					0.0		100.0	100	N added to D
442					38.6		61.4	100	
443					86.8		13.2	100	N added to D
451					100.0		0.0	100	N added to C
500					100.0		0.0	100	
510					99.5		0.0	100	
520					100.0		0.0	100	N added to C
600					100.0		0.0	100	

EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY

External Catchments								
20				100.0		0.0	100	
21				100.0		0.0	100	
22				100.0		0.0	100	
23				100.0		0.0	100	
30				100.0		0.0	100	
31				100.0		0.0	100	
32				100.0		0.0	100	
40				47.0		53.0	100	
41				69.9		30.1	100	
10				100.0		0.0	100	N added to C
11				100.0		0.0	100	N added to C
12				100.0		0.0	100	N added to C
42				25.8		74.2	100	
43				100.0		0.0	100	
44				53.8		46.2	100	
45				100.0		0.0	100	

EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY

Catchment	LAND USE (%)								
	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious ⁴	Total
Internal Catchments									
100		0.3				97.1		2.6	100
110						100.0		0.0	100
111		0.4				99.4		0.3	100
112		0.2				97.6		2.2	100
113						96.9		3.1	100
120		1.7				98.0		0.3	100
121						72.1		27.9	100
122		0.4				82.0		17.5	100
123				5.0		87.0		8.0	100
124		8.0				63.5		28.5	100
130		6.5				93.3		0.3	100
131		13.6				77.9		8.5	100
140		0.6				99.4		0.0	100
141		13.2				78.5		8.3	100
142						98.3		1.7	100
143						100.0		0.0	100
144		1.2				98.0		0.8	100
145						91.8		8.2	100
146		1.7				90.8		7.4	100
150		9.8				86.6		3.6	100
151						98.5		1.5	100
152						100.0		0.0	100
153						100.0		0.0	100
160						95.0		5.0	100
170						97.7		2.3	100
180				10.0		85.1		4.9	100
185				57.4		30.0		12.6	100
190		0.9				87.4		11.7	100
191		0.1				99.9		0.0	100
192		30.0				63.5		6.5	100
200		1.5		15.0		73.9		9.6	100
201		2.1				93.3		4.6	100
210		1.8		5.0		88.1		5.2	100
211		11.3		5.0		79.5		4.2	100
220		6.5		5.0		84.7		3.8	100
230		2.1				90.8		7.1	100
231		1.2				98.8		0.0	100
240						100.0		0.0	100
241				5.0		90.9		4.1	100
250		2.5		5.0		89.3		3.2	100
260						89.3		10.7	100
270		6.5		35.0		43.5		15.0	100
300		6.4				88.0		5.6	100
301						95.8		4.2	100
320		0.1		10.0		79.8		10.1	100
330		8.0				86.6		5.4	100
340						94.8		5.2	100
350				10.0		77.6		12.4	100
400				5.0		90.1		4.9	100
401						98.9		1.1	100
410				5.0		88.8		6.2	100
411						93.9		6.1	100
420		0.4		5.0		91.2		3.4	100
421		0.2				94.8		5.0	100
422				5.0		85.1		9.9	100
423						95.0		5.0	100
430	10.0	16.5			10.0	49.3		14.3	100
440	7.4	1.3			7.4	80.2		3.7	100
441						55.3		44.7	100
442						96.5		3.5	100
443				5.0		83.7		11.3	100
451				5.0		78.0		17.0	100
500		0.0		5.0		87.3		7.7	100
510				5.0		92.1		2.9	100
520						96.9		3.1	100
600						97.0		3.0	100

EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY

External Catchments								
20			5.0		90.3		4.7	100
21	15.1				60.4		24.5	100
22	10.4		15.0		57.9		16.7	100
23	0.9	1.2			91.5		6.5	100
30			25.0		65.6		9.4	100
31	12.3		18.0		50.4		19.3	100
32	0.3				90.9		8.8	100
40	0.3		7.0		88.5		4.1	100
41	4.9				89.6		5.5	100
10	0.2		19.8				80.0	100
11	2.6		40.3				57.1	100
12	0.6		19.4				80.0	100
42			17.0				83.0	100
43			51.3				48.7	100
44	47.5		11.5				40.9	100
45			35.0				65.0	100

EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY

CURVE NUMBER (CN)										
Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Impervious	Weighted CN	Pervious CN
Internal Catchments										
100		0.2				80.4		2.6	83.2	82.8
110						83.4			83.4	83.4
111		0.3				81.8		0.3	82.3	82.2
112		0.1				80.4		2.2	82.8	82.4
113						79.5		3.0	82.5	82.0
120		1.3				82.4		0.3	84.0	84.0
121						59.2		27.3	86.5	82.0
122		0.3				67.6		17.2	85.1	82.3
123				3.7		71.3		7.8	82.9	81.6
124		5.8				52.1		28.0	85.8	81.0
130		4.8				76.7		0.2	81.7	81.6
131		9.9				63.9		8.3	82.1	80.7
140		0.5				83.1			83.6	83.6
141		9.9				65.6		8.1	83.6	82.3
142						81.2		1.7	82.9	82.7
143						82.9			82.9	82.9
144		0.9				81.2		0.8	82.9	82.7
145						75.3		8.0	83.3	82.0
146		1.3				74.5		7.3	83.0	81.8
150		7.4				72.7		3.5	83.7	83.1
151						81.4		1.5	82.8	82.6
152						82.6			82.6	82.6
153						82.6			82.6	82.6
160						78.3		4.9	83.2	82.5
170						80.1		2.3	82.4	82.0
180				7.5		70.1		4.8	82.4	81.6
185				42.5		24.6		12.3	79.5	76.8
190		0.7				71.7		11.5	83.9	82.0
191		0.1				81.9		0.0	82.0	82.0
192		21.9				52.1		6.3	80.3	79.1
200		1.1		11.1		60.6		9.4	82.2	80.5
201		1.5				76.5		4.5	82.6	81.8
210		1.3		3.7		72.2		5.1	82.3	81.4
211		8.2		3.7		65.2		4.1	81.3	80.5
220		4.8		3.7		69.5		3.7	81.6	81.0
230		1.5				74.5		6.9	82.9	81.8
231		0.9				81.0			81.9	81.9
240						82.0			82.0	82.0
241				3.7		74.6		4.0	82.3	81.6
250		1.8		3.7		73.3		3.1	81.9	81.4
260						73.2		10.5	83.7	82.0
270		4.7		25.9		35.7		14.7	81.0	78.0
300		4.8				72.8		5.5	83.1	82.2
301						78.6		4.1	82.7	82.0
320		0.1		7.4		65.6		9.9	83.0	81.3
330		5.8				71.0		5.3	82.2	81.2
340						77.8		5.1	82.8	82.0
350				7.4		63.6		12.2	83.2	81.1
400				3.8		75.1		4.8	83.8	83.0
401						82.0		1.1	83.1	82.9
410				3.9		75.5		6.1	85.5	84.7
411						80.7		6.0	86.7	86.0
420		0.3		3.8		76.2		3.3	83.6	83.1
421		0.2				77.7		4.9	82.8	82.0
422				3.7		70.0		9.7	83.4	81.8
423						79.2		4.9	84.1	83.4
430		7.5			7.9	41.6		14.0	83.6	81.2
440	5.7	12.6			5.9	68.2		3.6	84.4	83.8
441		1.0				47.6		43.8	91.4	86.0
442						81.5		3.4	84.9	84.5
443				3.7		69.1		11.1	83.9	82.1
451				3.7		63.9		16.7	84.3	81.5
500		0.0		3.7		71.6		7.5	82.8	81.6
510				3.7		75.2		2.8	81.7	81.2
520						79.4		3.1	82.5	82.0
600						79.5		2.9	82.5	82.0

**EXISTING CONDITIONS
ELFRIDA SUBWATERSHED STUDY**

External Catchments									
20			3.7		74.0		4.6	82.4	81.6
21	11.0				49.5		24.0	84.6	80.2
22	7.6		11.1		47.5		16.3	82.5	79.4
23	0.6	1.0			75.0		6.3	83.0	82.0
30			18.5		53.8		9.2	81.5	79.8
31	9.0		13.3		41.3		18.9	82.5	78.8
32	0.2				74.6		8.6	83.4	82.0
40	0.2		5.4		74.5		4.0	84.2	83.6
41	3.6				74.6		5.4	83.6	82.8
10	0.1		14.6				78.4	93.2	74.0
11	1.9		29.9				56.0	87.7	73.9
12	0.4		14.4				78.4	93.2	74.0
42			13.3				81.3	94.7	78.5
43			37.9				47.8	85.7	74.0
44	36.0		8.9				40.1	85.0	76.0
45			25.9				63.7	89.6	74.0

Notes:

3. Ontario Ministry of Agriculture, Food, and Rural Affairs. (2023) Soil Survey Complex [Dataset]. Ontario GeoHub. <https://geohub.lio.gov.on.ca/datasets/ontarioca11::soil-survey-complex>. Accessed June, 2025. Areas labelled 'N' soil type added to adjacent soil type.

4. Imperviousness provided by background shapefiles, and adjusted based on latest satellite imagery. For catchments 11 and 42, imperviousness reflects built out condition.

5. AMC II assumed

6. Hydrological Soil Group taken from MTO Drainage Manual for each soil type

VISUAL OTTHYMO CATCHMENT PARAMETER SUMMARY
EXISTING CONDITIONS

ELFRIDA SUBWATERSHED STUDY

Subcatchment ID / VO NHYD	Area (ha)	CN	IA (mm)	TP (hrs)	Length (m)	Slope (%)
<u>NasHYD - Internal</u>						
Sinkhole Creek						
100	54.7	83.2	7.69	1.23	1116.0	0.64
110	11.9	83.4	7.58	0.68	497.1	1.24
111	45.5	82.3	8.19	1.33	1154.6	0.56
112	30.5	82.8	7.91	1.60	1407.2	0.41
113	13.5	82.5	8.08	0.87	592.2	0.69
120	9.0	84.0	7.25	1.16	666.9	0.37
121	16.1	86.5	5.94	0.89	744.9	0.47
122	31.8	85.1	6.67	0.96	865.8	0.62
123	24.6	82.9	7.85	0.93	791.4	0.77
124	24.3	85.8	6.30	0.51	505.8	1.37
130	26.7	81.7	8.53	1.32	1106.4	0.53
131	28.7	82.1	8.30	1.11	838.9	0.50
140	18.3	83.6	7.47	1.34	858.9	0.36
141	8.1	83.6	7.47	0.78	527.8	0.73
142	27.1	82.9	7.85	1.22	1032.1	0.59
143	27.7	82.9	7.85	1.07	861.6	0.72
144	28.6	82.9	7.85	0.97	742.1	0.73
145	12.6	83.3	7.63	0.59	391.3	1.09
146	12.8	83.0	7.80	0.55	363.1	1.19
150	6.6	83.7	7.41	0.96	454.8	0.34
151	24.6	82.8	7.91	1.00	725.2	0.63
152	16.2	82.6	8.02	0.93	417.3	0.36
153	33.3	82.6	8.02	1.08	807.1	0.62
160	16.3	83.2	7.69	1.15	906.7	0.54
170	5.8	82.4	8.13	0.69	311.3	0.55
180	6.8	82.4	8.13	0.85	441.6	0.46
185	2.0	79.5	6.54	0.36	155.4	1.08
190	12.3	83.9	7.31	0.83	791.0	0.97
191	20.1	82.0	8.36	0.94	762.9	0.86
192	28.3	80.3	6.23	1.06	941.1	0.71
West Twenty Mile Creek						
200	25.6	82.2	8.25	0.79	757.6	1.14
201	8.2	82.6	8.02	0.60	236.1	0.50
210	9.1	82.3	8.19	0.64	455.3	1.10
211	17.3	81.3	8.76	1.02	690.8	0.54
220	20.3	81.6	8.59	0.85	752.1	1.05
230	24.7	82.9	7.85	0.82	786.6	1.17
231	29.5	81.9	8.42	0.89	797.8	1.10
240	10.1	82.0	8.36	0.74	376.7	0.61
241	26.7	82.3	8.19	0.75	621.9	1.16
250	10.7	81.9	8.42	0.54	422.3	1.78
260	7.0	83.7	7.41	0.43	338.2	2.05
270	2.5	81.0	5.95	0.24	152.7	3.10
East Twenty Mile Creek						
300	36.8	83.1	7.74	0.90	772.8	0.90
301	59.4	82.7	7.97	1.23	1197.7	0.69
320	11.7	83.0	7.80	0.45	332.9	1.72
330	22.3	82.2	8.25	0.60	475.9	1.48
340	21.0	82.8	7.91	0.69	546.7	1.17
350	1.5	83.2	7.69	0.38	173.1	1.05

**VISUAL OTTHYMO CATCHMENT PARAMETER SUMMARY
EXISTING CONDITIONS**

ELFRIDA SUBWATERSHED STUDY

Stoney Creek						
400	27.6	83.8	7.36	0.88	892.7	1.18
401	23.0	83.1	7.74	0.78	758.3	1.50
410	8.5	85.5	6.46	0.94	465.7	0.35
411	4.5	86.7	5.84	1.11	321.1	0.12
420	25.8	83.6	7.47	1.12	1106.7	0.81
421	10.4	82.8	7.91	0.37	167.9	1.28
422	6.9	83.4	7.58	0.61	504.7	1.33
423	23.9	84.1	7.20	0.80	665.0	1.00
430	19.8	83.6	7.47	1.13	652.6	0.28
440	31.6	84.4	7.04	1.16	1070.5	0.70
442	2.4	84.9	6.77	0.41	193.9	1.21
443	21.3	83.9	7.31	0.59	494.0	1.39
451	12.3	84.3	7.09	0.57	542.5	1.52
Hannon Creek						
500	7.6	82.8	7.91	0.48	392.0	1.94
510	12.7	81.7	8.53	0.69	644.1	1.58
520	17.3	82.5	8.08	0.78	647.1	1.10
Upper Davis Creek						
600	2.5	82.5	8.08	0.45	128.1	0.50
<u>NasHYD - External</u>						
West Twenty Mile Creek						
20	12.60	82.4	8.13	0.72	511.0	0.7
21	47.60	84.6	6.93	0.93	1001.3	0.5
22	3.40	82.5	5.38	0.20	88.1	1.7
23	7.00	83.0	7.80	0.73	552.6	0.7
East Twenty Mile Creek						
30	1.10	81.5	5.76	0.30	134.8	1.1
31	3.00	82.5	5.38	0.62	299.0	0.3
32	28.00	83.4	7.58	0.95	857.0	0.6
Stoney Creek						
40	37.50	84.2	7.14	0.98	732.8	0.5
41	25.40	83.6	7.47	1.21	897.2	0.3

ELFRIDA SUBWATERSHED STUDY

Catchment ID	Area (ha)	CN	IA-perv (mm)	TP (hrs)	TIMP	XIMP	Slope (%)	Length (m)	R.C	Tc (hrs)
<u>StandHYD - Internal</u>										
Stoney Creek										
441	3.00	86.0	3.58	0.06	45	35	2.00	141.4	0.52	0.10
<u>StandHYD - External</u>										
Sinkhole Creek										
10	12.90	74.0	8.94	0.13	80	70	1.00	293.3	0.76	0.22
11	132.00	73.9	8.95	0.33	57	45	1.00	938.1	0.60	0.55
12	17.50	74.0	8.94	0.15	80	70	1.00	341.6	0.76	0.24
Stoney Creek										
42	20.50	78.5	6.98	0.14	83	70	2.00	369.7	0.79	0.23
43	22.90	74.0	8.92	0.16	49	40	1.00	390.7	0.55	0.27
44	8.90	76.0	8.04	0.10	41	20	2.00	243.6	0.49	0.16
45	1.30	74.0	8.92	0.05	65	35	1.00	93.1	0.66	0.09

Internal Total	1230.30				5.47					
External Total	381.60				39.77					
Total	1611.90				13.60					

Notes:

TIMP Total percent impervious

XIMP Percent impervious directly connected

Time of Concentration calculated using the Airport Method
(For areas less than 100 ha, and RC less than 0.4) $T_c = [3.26 (1.1-C) L^{0.5}] / S^{0.33}$
Where: C = Runoff Coefficient according to MTO Design chart 1.07 for 'cultivated' on silt loam/loam soil
L = Length of Overland Flow (m)
S = Slope (%)

Time of Concentration calculated using the Bransby Williams Method
(For areas less than 100 ha, and RC greater than 0.4) $T_c = 0.057 * L / [(Sw^{0.2}) * (A^{0.1})]$
Where: tc = time of concentration, minutes
L = catchment or watershed length, m
Sw = catchment or watershed slope, %
A = catchment or watershed area, ha

Time to Peak (hr) $T_p = 0.6T_c$ (StandHyd), $T_p = (N-1)/N * T_c$ (Nashyd) - 3.4.2 of VO manual

Storage $S = (25400 / CN) - 254$

Initial Abstractions $CN \leq 70, IA = 0.075 * S$
 $CN > 70 \leq 80, IA = 0.10 * S$
 $CN > 80 \leq 90, IA = 0.15 * S$
 $CN > 90, IA = 0.2 * S$

**VISUAL OTTHYMO CHANNEL PARAMETER SUMMARY
EXISTING CONDITIONS**

ELFRIDA SUBWATERSHED STUDY

RouteChannel ID	Length (m)	Slope (%)
Sinkhole Creek		
800	517.8	0.19
801	489.0	0.12
802	1192.3	0.38
810	465.0	0.04
811	496.2	0.25
812	170.1	0.39
813	676.9	0.43
814	372.6	0.44
820	138.5	0.05
821	883.0	0.20
822	523.6	0.25
830	871.5	0.14
832	532.7	0.33
833	739.7	0.25
834	505.6	0.27
840	546.5	0.20
841	1017.8	0.28
842	420.8	0.20
843	583.1	0.33
844	285.9	0.43
899	111.3	0.22
East Twenty Mile Creek		
850	771.1	0.61
852	405.1	0.32
854	193.5	0.87
West Twenty Mile Creek		
860	223.8	0.48
862	276.9	0.15
863	390.4	0.34
864	475.1	0.45
870	433.4	0.32
871	768.8	0.31
875	799.0	0.65
Stoney Creek		
880	385.3	0.19
882	309.5	0.06
883	883.5	0.98
884	369.5	0.18
885	193.5	0.07
886	335.8	0.09
887	110.6	0.23
888	244.6	0.11
889	770.1	0.22
891	176.0	0.27
892	112.5	1.44
893	158.7	0.20
894	211.0	0.06
895	68.5	0.49
896	207.7	0.59
897	564.4	0.18
898	215.0	0.20

ELFRIDA SUBWATERSHED STUDY

NASHYD ID 872	
"EAST POND"	
Discharge (m3/s)	Storage (ha.m)
0.0000	0.0000
0.0250	0.1344
0.0390	0.2425
0.0530	0.3962
0.0540	0.4360
0.0760	0.4361
0.1660	0.5172
0.2260	0.5585
0.5260	0.7280
0.9350	0.9090
1.2810	1.0589
2.3680	1.5187

NASHYD ID 873	
"EXISTING POND"	
Discharge (m3/s)	Storage (ha.m)
0.0000	0.0000
0.0240	0.0325
0.0370	0.0741
0.0460	0.1156
0.0530	0.1607
0.0600	0.2060
0.1750	0.2530
0.2250	0.3008
0.2650	0.3494
0.2990	0.3993
0.3290	0.4497
0.5720	0.5013
0.9900	0.5538
1.5230	0.6074

NASHYD ID 874	
Derived from VO Pond sizing	
Discharge (m3/s)	Storage (ha.m)
0	0
0.095	1.586
1.253	3.839
2.42	5.428
3.393	6.628

NASHYD ID 872 taken from *Stormwater Management Report, Felker Neighbourhood – Phase 1 – City of Hamilton, Pitura Husson Limited* (April 2011)

NASHYD ID 873 taken from *Highgate Meadow Estates Plan of Subdivision, Storm Water Pond Retrofit to Quality/Quantity Pond – City of Hamilton (Stoney Creek), The Odan/Detech Group Inc.* (March 2009).

NASHYD ID 874 generated using VO pond sizing tool, using target 25mm, 5-, 25-, and 100-year outlet flows for SWM FACILITY 2 (WET POND) provided in *Stormwater Management Report for Summit Park Swayze Lands – City of Hamilton (Glanbrook), A.J. Clarke and Associated Ltd.* (October 2017).

ELFRIDA SUBWATERSHED STUDY

Design Storm	IDF Storm Parameters			Time of Peak Ratio	Storm Duration	Total Depth
	a	b	c			
25-mm	425	5	0.767	0.4	D (hr) 4	(mm) 25
2-year	646	6	0.781	0.4	12	45.2
5-year	1049.5	8	0.803	0.4	12	63.4
10-year	1343.7	9	0.814	0.4	12	75.4
25-year	1719.5	10	0.823	0.4	12	90.8
50-year	1954.8	10	0.826	0.4	12	101.2
100-year	2317.4	11	0.836	0.4	12	112.2

Notes:

For the 25mm event, a 4-hr, Chicago distribution was used as is standard for hydrologic modelling

For the other events, a 12-hr AES distribution was used to provide consistency with the NPCA floodplain mapping modelling.