

APPENDIX G

DESIGN FLOWS: NOTTAWASAGA BASIN

## DESIGN FLOWS:

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
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INNISFIL									
302	Outlet of catchment 302 and 300	40.9	Present	4.9	6.0	7.2	8.8	10.1	46.5
			Future	4.9	6.0	7.2	8.8	10.1	46.5
1020	Outlet of catchment 303	58.2	Present	8.3	10.3	12.3	15.1	17.3	70.3
			Future	8.3	10.3	12.3	15.1	17.3	70.3
304	Outlet of catchment 304	7.2	Present	1.7	2.1	2.6	3.2	3.6	16.5
			Future	1.7	2.1	2.6	3.2	3.6	16.5
1021	Confluence of Innisfil Creek at catchment 304	65.4	Present	12.6	15.6	18.6	22.8	26.1	81.9
			Future	12.6	15.6	18.6	22.8	26.1	81.9
305	Outlet of catchment 305	14.6	Present	3.5	4.3	5.2	6.3	7.2	35.6
			Future	3.5	4.3	5.2	6.3	7.2	35.6
240	Confluence of Innisfil Creek at catchment 305	80.0	Present	12.8	15.8	18.9	23.1	26.4	103.3
			Future	12.8	15.8	18.9	23.1	26.4	103.3
250	Outlet of catchment 306	105.4	Present	16.8	20.8	24.9	30.4	34.8	140.4
			Future	16.8	20.8	24.9	30.4	34.8	140.4
260	Outlet of catchment 310	112.7	Present	17.6	21.8	26.0	31.8	36.5	129.6
			Future	17.6	21.8	26.0	31.8	36.5	129.6
311	Outlet of catchment 311	24.1	Present	7.8	9.6	11.5	14.1	16.1	66.3
			Future	7.8	9.6	11.5	14.1	16.1	66.3
270	Outlet of catchment 312	36.8	Present	10.7	13.2	15.7	19.2	22.1	85.2
			Future	10.7	13.2	15.7	19.2	22.1	85.2
1044	Confluence of catchment 312 and 310	149.5	Present	28.3	34.9	41.8	51.1	58.5	196.5
			Future	28.3	34.9	41.8	51.1	58.5	196.5
280	Outlet of catchment 313	158.2	Present	30.9	38.2	45.6	55.8	63.9	210.5
			Future	30.9	38.2	45.6	55.8	63.9	210.5
316	Confluence of catchment 315 and 316	35.0	Present	9.3	11.5	13.8	16.9	19.3	56.8
			Future	9.3	11.5	13.8	16.9	19.3	56.8
290	Outlet of catchment 317	45.6	Present	11.4	14.1	16.9	20.7	23.7	71.6
			Future	11.4	14.1	16.9	20.7	23.7	71.6
314	Outlet of catchment 314	11.7	Present	4.8	6.0	7.2	8.8	10.0	39.2
			Future	4.8	6.0	7.2	8.8	10.0	39.2
1025	Confluence of catchment 314 and 317	57.3	Present	14.2	17.6	21.0	25.7	29.4	93.7
			Future	14.2	17.6	21.0	25.7	29.4	93.7

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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
300	Outlet of catchment 318	60.4	Present	15.1	18.7	22.4	27.3	31.3	98.6
			Future	15.1	18.7	22.4	27.3	31.3	98.6
1045	Confluence of catchment 313 and 318	218.6	Present	45.7	56.5	67.5	82.5	94.6	274.6
			Future	45.7	56.5	67.5	82.5	94.6	274.6
310	Outlet of catchment 321	249.9	Present	49.5	61.2	73.1	89.4	102.4	294.1
			Future	49.5	61.2	73.1	89.4	102.4	294.1

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REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
BEETON/BAILEY CREEKS									
209	Outlet of catchment 209	27.7	Present	3.3	4.1	5.0	6.2	7.1	33.3
			Future	3.3	4.1	5.0	6.2	7.1	33.3
208	Outlet of catchment 208	24.7	Present	5.4	6.8	8.1	10.1	11.6	56.7
			Future	5.4	6.8	8.1	10.1	11.6	56.7
1028	Confluence of catchment 208 and 209	52.4	Present	8.6	10.9	13.1	16.2	18.6	76.7
			Future	8.6	10.9	13.1	16.2	18.6	76.7
120	Outlet of catchment 210	54.9	Present	9.4	11.8	14.2	17.6	20.2	82.3
			Future	9.4	11.8	14.2	17.6	20.2	82.3
130	Outlet of catchment 211	80.5	Present	15.8	19.8	23.9	29.5	34.0	131.1
			Future	15.8	19.8	23.9	29.5	34.0	131.1
140	Outlet of catchment 212	99.2	Present	19.6	24.6	29.6	36.7	42.2	148.5
			Future	19.6	24.6	29.6	36.7	42.2	148.5
213	Outlet of catchment 213	11.5	Present	2.9	3.6	4.3	5.4	6.2	24.8
			Future	2.9	3.6	4.3	5.4	6.2	24.8
1032	Confluence of catchment 212 and 213	110.7	Present	22.5	28.2	34.0	42.1	48.4	167.9
			Future	22.5	28.2	34.0	42.1	48.4	167.9
150	Outlet of catchment 214	113.9	Present	22.8	28.6	34.5	42.7	49.1	160.2
			Future	22.8	28.6	34.5	42.7	49.1	160.2
201	Outlet of catchment 201	23.4	Present	9.0	11.0	13.0	15.8	17.9	66.7
			Future	9.0	11.0	13.0	15.8	17.9	66.7
170	Outlet of catchment 202	33.6	Present	11.6	14.1	16.7	20.3	22.9	77.0
			Future	11.6	14.1	16.7	20.3	22.9	77.0
203	Outlet of catchment 203	11.3	Present	2.8	3.4	4.1	4.9	5.6	22.4
			Future	2.8	3.4	4.1	4.9	5.6	22.4
2100	Outlet of catchment 204	34.6	Present	7.9	9.6	11.4	13.8	15.6	54.0
			Future	7.9	9.6	11.4	13.8	15.6	54.0
1035	Confluence of catchment 204 and 202	68.2	Present	19.5	23.7	28.1	34.0	38.5	116.9
			Future	19.5	23.7	28.1	34.0	38.5	116.9
180	Outlet of catchment 205	84.7	Present	20.4	24.7	29.3	35.5	40.2	123.4
			Future	20.4	24.7	29.3	35.5	40.2	123.4

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REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
-----									
BEETON/BAILEY/INNISFIL CREEKS									
190	Outlet of catchment 206	87.4	Present	21.1	25.6	30.4	36.8	41.6	122.0
			Future	21.1	25.6	30.4	36.8	41.6	122.0
1039	Confluence of catchment 206 AND 214	201.3	Present	38.4	48.2	58.0	71.8	82.6	280.2
			Future	38.4	48.2	58.0	71.8	82.6	279.7
200	Outlet of Beeton and Bailey Creeks	204.8	Present	39.0	49.0	59.0	73.0	84.0	255.3
			Future	39.0	49.0	59.0	73.0	84.0	254.8
1041	Confluence of Beeton and Innisfil Creeks	454.8	Present	98.6	111.9	133.6	163.5	187.3	449.1
			Future	98.6	111.9	133.6	163.5	187.3	448.6
320	Outlet of Innisfil Creek	472.2	Present	93.0	114.9	137.2	168.9	192.3	458.5
			Future	93.0	114.9	137.2	168.9	192.3	458.2

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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
UPPER NOTTAWASAGA RIVER									
101	Outlet of catchment 101	27.2	Present Future	5.6 5.6	7.0 7.0	8.3 8.3	10.2 10.2	11.6 11.6	52.5 52.5
102	Outlet of catchment 102	10.4	Present Future	3.1 3.1	3.9 3.9	4.6 4.6	5.7 5.7	6.5 6.5	27.8 27.8
1001	Confluence of catchments 101 and 102	37.6	Present Future	8.6 8.6	10.7 10.7	12.6 12.6	15.4 15.4	17.7 17.7	77.2 77.2
20	Outlet of catchment 103	48.5	Present Future	9.8 9.8	12.1 12.1	14.4 14.4	17.7 17.7	20.3 20.3	80.9 80.9
105	Outlet of catchment 105	50.6	Present Future	3.7 3.7	4.6 4.6	5.5 5.5	6.8 6.8	7.8 7.8	33.5 33.5
40	Outlet of catchment 106	72.9	Present Future	5.9 5.9	7.2 7.2	8.6 8.6	10.6 10.6	12.1 12.1	49.8 49.8
1006	Confluence of catchments 106 and 103	121.4	Present Future	15.6 15.6	19.3 19.3	23.1 23.1	28.2 28.2	32.3 32.3	121.5 121.5
107	Outlet of catchment 107	9.9	Present Future	1.9 1.9	2.4 2.4	2.9 2.9	3.5 3.5	4.0 4.0	21.0 22.8
1004	Confluence of Nottawasaga R. and Catchment 107	131.3	Present Future	16.8 16.8	20.9 20.9	25.0 25.0	30.5 30.5	34.9 34.9	133.3 133.7
108	Outlet of catchment 108	14.1	Present Future	2.4 2.4	3.0 3.0	3.6 3.6	4.4 4.4	5.0 5.0	26.7 26.7
1004	Confluence of Nottawasaga R. and Catchment 108	145.4	Present Future	18.6 18.6	23.1 23.1	27.7 27.7	33.8 33.8	38.6 38.6	149.4 149.9
50	Outlet of catchment 109	175.9	Present Future	21.6 22.0	26.7 27.2	31.9 32.2	39.0 39.1	44.7 44.7	160.9 160.9
60	Outlet of catchment 110	206.6	Present Future	23.2 23.5	28.6 29.0	31.2 31.4	41.8 42.0	47.9 47.9	151.3 151.8
70	Outlet of catchment 112	236.3	Present Future	26.5 26.5	32.8 32.8	39.1 39.1	47.9 47.9	54.8 54.8	168.5 169.0
114	Outlet of catchment 114	36.8	Present Future	5.2 5.2	6.5 6.5	7.7 7.7	9.4 9.4	10.8 10.8	60.0 60.0
1011	Confluence of catchments 114 and 115	51.0	Present Future	7.1 7.1	8.7 8.7	10.4 10.4	12.7 12.7	14.6 14.6	76.7 76.7

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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
90	Outlet of catchment 116	66.3	Present	9.4	11.7	13.9	17.1	19.5	87.1
			Future	9.4	11.7	13.9	17.1	19.5	87.1
100	Outlet of catchment 117	100.7	Present	14.9	18.4	21.9	26.9	30.8	112.4
			Future	14.9	18.4	21.9	26.9	30.8	112.4
1014	Confluence of catchments 117 and 112	336.9	Present	40.7	50.3	60.1	73.5	84.2	237.8
			Future	40.7	50.3	60.1	73.5	84.2	237.8
210	Outlet of catchment 118	354.8	Present	40.8	50.4	60.2	73.7	84.4	223.3
			Future	40.8	50.4	60.2	73.7	84.4	224.5
1050	Confluence of Innisfil Creek and Nottawasaga R.	826.9	Present	133.8	165.1	197.3	241.4	276.5	550.8
			Future	133.8	165.1	197.3	241.4	276.5	551.7
220	Outlet of catchment 119	851.2	Present	133.0	164.2	196.2	240.0	274.9	544.7
			Future	133.0	164.2	196.2	240.0	274.9	545.6

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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
BOYNE RIVER									
400	Outlet of catchment 400	30.5	Present	11.7	15.4	19.3	25.0	29.5	47.8
			Future	11.7	15.4	19.3	25.0	29.5	47.8
401	Outlet of catchment 401	15.2	Present	11.4	14.9	18.7	21.2	28.5	39.8
			Future	11.4	14.9	18.7	21.2	28.5	40.1
1052	Confluence of catchment 400 and 401	45.7	Present	21.6	28.4	35.6	46.1	54.4	77.9
			Future	21.7	28.9	36.0	49.3	59.6	77.8
330	Outlet of catchment 402	57.4	Present	28.4	37.4	46.7	60.5	71.5	96.7
			Future	28.5	37.6	46.9	60.8	71.9	96.4
404	Outlet of catchment 404	21.1	Present	8.8	11.6	14.5	18.8	22.2	34.9
			Future	8.8	11.6	14.5	18.8	22.2	34.9
1053	Confluence of catchment 404 and 402	78.5	Present	37.0	48.8	61.0	79.1	93.5	119.8
			Future	37.1	49.0	61.4	79.4	93.9	119.6
350	Outlet of catchment 405	93.5	Present	41.3	54.3	67.9	87.9	103.9	136.4
			Future	41.4	54.5	68.4	88.5	104.7	136.2
360	Outlet of catchment 407	131.2	Present	48.0	63.1	78.9	102.3	120.8	139.7
			Future	48.1	63.3	79.2	102.9	122.3	139.7
370	Outlet of catchment 407	158.7	Present	55.9	73.5	91.9	119.1	140.6	146.0
			Future	56.1	73.7	92.1	119.3	140.7	146.0
1058	Confluence of catchment 407 and 408	178.0	Present	62.5	82.1	102.7	133.0	157.1	165.4
			Future	62.5	82.1	102.7	133.0	157.1	165.4
409	Outlet of catchment 409	26.1	Present	24.7	32.4	40.6	52.6	62.1	79.3
			Future	24.7	32.4	40.6	52.6	62.1	79.3
702	Outlet of catchment 410A-wsc gauge Earl Rowe Park	207.2	Present	70.0	92.0	115.0	149.0	176.0	184.3
			Future	70.0	92.0	115.0	149.0	176.0	184.3
390	Outlet of catchment 410B	212.1	Present	69.0	90.7	113.4	146.9	173.6	174.8
			Future	69.0	90.7	113.4	146.9	173.6	174.8



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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
-----									
SPRING CREEK									
411	Outlet of catchment	5.21	Present	3.0	4.1	5.5	7.3	8.6	21.7
	411		Future	3.0	4.1	5.5	7.3	8.6	21.7
400	Outlet of catchment	8.1	Present	3.4	4.7	6.4	8.5	10.1	27.6
	412		Future	3.4	4.7	6.4	8.5	10.1	27.6
410	Outlet of catchment	15.3	Present	4.6	6.4	8.6	11.6	14.0	41.9
	413		Future	5.4	6.5	8.4	11.3	14.0	42.3
1063	Confluence of catchment	227.4	Present	73.4	96.5	120.6	156.3	184.6	186.3
	413 and 410B		Future	73.6	96.5	120.1	156.0	184.6	186.5
420	Outlet of Boyne River	229.8	Present	72.8	95.7	119.6	154.9	183.0	185.1
			Future	73.0	95.7	119.6	154.7	183.0	185.3

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		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
NOTTAWASAGA RIVER TO ANGUS									
1070	Confluence of Nottawasaga and Boyne River	1081	Present	157.6	194.6	232.5	284.5	325.9	678.7
			Future	157.6	194.6	232.5	284.5	325.9	679.4
440	Outlet of catchment 120	1100	Present	159.8	197.3	235.7	288.4	330.4	681.2
			Future	159.8	197.3	235.7	288.4	330.4	682.2
1072	Confluence of catchment 120 and 121	1114	Present	161.8	199.8	235.7	292.0	334.5	689.8
			Future	161.8	199.8	235.7	292.0	334.5	690.8
450	Outlet of catchment 122	1116.2	Present	162.3	200.4	239.4	292.9	335.5	690.0
			Future	162.3	200.4	239.4	292.9	335.5	690.9
1074	Confluence of catchment 122 and 123	1149.2	Present	168.3	207.8	248.3	303.7	347.9	715.7
			Future	168.3	207.8	248.3	303.7	347.9	716.7
460	Outlet of catchment 124	1162.5	Present	169.1	208.8	249.4	305.2	349.6	718.1
			Future	169.1	208.8	249.4	305.2	349.6	719.2
125	Outlet of catchment 125	19.1	Present	3.7	4.6	5.5	6.7	7.7	31.6
			Future	3.7	4.6	5.5	6.7	7.7	31.6
1076	Confluence of catchment 124 and 125	1181.6	Present	172.1	212.5	253.9	310.6	355.8	731.2
			Future	172.1	212.5	253.9	310.6	355.8	732.2
606	Outlet of catchment 606	14.7	Present	3.6	4.5	5.4	6.6	7.6	30.7
			Future	3.6	4.5	5.4	6.6	7.6	30.7
470	Outlet of catchment 607	34.7	Present	7.8	9.6	11.5	14.0	16.1	63.0
			Future	7.8	9.6	11.5	14.0	16.1	63.0
1078	Confluence of catchment 124, 125, 607 wsc gauge at Baxter	1219*	Present	179.0	221.0	264.0	323.0	370.0	759.2
			Future	179.0	221.0	264.0	323.0	370.0	760.2
480	Outlet of catchment 126	1254.5	Present	178.5	220.4	263.3	322.2	369.1	763.9
			Future	178.5	220.4	263.3	322.2	369.1	764.9
490	Outlet of catchment 127	1269.4	Present	174.7	215.6	257.6	315.2	361.1	752.3
			Future	174.7	215.6	257.6	315.2	361.1	753.5

\*Measured by MPI from 1:50,000 maps with watershed boundaries reflecting delineation established during study. Note Water Survey of Canada use 1180 sq. km<sup>2</sup> (Table 1.2).

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REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
PINE RIVER									
501	Outlet of catchment 501	74.9	Present Future	24.6 24.6	30.0 30.0	34.9 34.9	41.6 41.6	46.7 46.7	175.1 175.1
510	Outlet of catchment 502	104.2	Present Future	28.4 28.4	34.6 34.6	40.3 40.3	48.0 48.0	53.9 53.9	193.7 193.7
1101	Confluence of catchment 503 and 502	133.9	Present Future	36.2 36.2	44.0 44.0	51.3 51.3	61.1 61.1	68.6 68.6	225.1 225.1
520	Outlet of catchment 504	157.8	Present Future	36.3 36.3	44.1 44.1	51.4 51.4	61.2 61.2	68.8 68.8	223.7 223.7
530	Outlet of catchment 505B	167.7	Present Future	36.2 36.2	44.0 44.0	51.3 51.3	61.0 61.0	68.5 68.5	206.7 206.7
506	Outlet of catchment 506	21.8	Present Future	7.0 7.0	8.5 8.5	9.9 9.9	11.8 11.8	13.2 13.2	52.4 52.4
540	Outlet of catchment 505A wsc gauge Everett	197.2	Present Future	41.7 41.7	50.7 50.7	59.1 59.1	70.3 70.3	79.0 79.0	223.4 223.4
550	Outlet of catchment 505C	211.1	Present Future	43.2 43.2	52.6 52.6	61.2 61.2	72.8 72.8	81.8 81.8	228.4 228.4
1107	Confluence of catchment 505C and 505D	216.7	Present Future	43.6 43.6	53.0 53.0	61.8 61.8	73.5 73.5	82.6 82.6	229.9 229.9
560	Outlet of catchment 505E	219.7	Present Future	43.9 43.9	53.4 53.4	62.2 62.2	74.0 74.0	83.2 83.2	231.2 231.2
1109	Confluence of catchment 505E and 505F	234.2	Present Future	45.2 45.2	55.0 55.0	64.1 64.1	76.2 76.2	85.6 85.6	237.2 237.2
570	Outlet of catchment 505G	237.6	Present Future	45.8 45.8	55.6 55.6	64.9 64.9	77.2 77.2	86.7 86.7	237.4 237.4
1112	Confluence of catchment 505G, 507 and 508	302.5	Present Future	53.0 53.0	64.5 64.5	75.2 75.2	89.4 89.4	100.5 100.5	258.2 258.2
508	Outlet of catchment 508	29.6	Present Future	4.1 4.1	5.0 5.0	5.8 5.8	7.0 7.0	7.8 7.8	31.9 31.9
507	Outlet of catchment 507	35.2	Present Future	3.5 3.5	4.3 4.3	5.0 5.0	5.9 5.9	6.7 6.7	28.9 28.9
580	Outlet of catchment 509 (Angus)	326.3	Present Future	52.7 52.7	64.0 64.0	74.6 74.6	88.8 88.8	99.8 99.8	236.0 236.0

## DESIGN FLOWS:

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
510	Outlet of catchment 510 (Angus)	8.5	Present	2.9	3.6	4.2	5.0	5.6	11.6
			Future	2.9	3.6	4.2	5.0	5.6	11.6
1114	Confluence of catchment 509 and 510 (Angus)	334.8	Present	53.3	64.8	75.5	89.9	100.9	238.9
			Future	53.3	64.8	75.5	89.9	100.9	238.9
590	Outlet of catchment 511 (Angus)	335.9	Present	53.6	65.1	75.9	90.3	101.4	238.6
			Future	53.6	65.1	75.9	90.3	101.4	238.6
1250	Confluence of Pine and Nottawasaga Rivers	1605.3	Present	218.4	269.6	322.1	394.1	451.4	937.6
			Future	218.4	269.6	322.1	394.1	451.4	938.7

DESIGN FLOWS:

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
-----									
BEAR CREEK - ANGUS									
600	Outlet of catchment 600	33.8	Present	3.3	4.1	4.9	6.0	6.9	39.4
			Future	4.3	5.3	6.4	7.8	9.0	54.0
601	Outlet of catchment 601	12.8	Present	2.4	3.0	3.5	4.3	4.9	25.5
			Future	3.0	3.7	3.9	4.3	4.9	26.8
1200	Confluence of catchment 600 and 601	46.6	Present	5.7	7.1	8.4	10.3	11.8	56.8
			Future	7.0	8.7	10.0	11.9	13.6	65.8
610	Outlet of catchment 602	64.7	Present	7.1	8.8	10.5	12.8	14.7	62.6
			Future	7.4	9.1	10.8	13.1	15.0	69.2
603	Outlet of catchment 603	10.1	Present	6.5	8.0	9.6	11.8	13.5	48.0
			Future	6.5	8.0	9.6	11.8	13.5	48.0
604	Outlet of catchment 604	21.1	Present	7.7	9.5	11.4	14.0	16.0	58.4
			Future	7.7	9.5	11.4	14.0	16.0	58.4
1203	Confluence of catchment 602, 604	85.8	Present	13.7	17.0	20.3	24.8	28.4	108.2
			Future	14.7	18.2	21.7	26.5	30.4	117.8
620	Outlet of catchment 608	86.7	Present	13.8	17.1	20.4	25.0	28.6	108.8
			Future	14.8	18.3	21.8	26.6	30.5	118.6
1251	Outlet of catchment 128	1605.6	Present	218.5	269.7	322.2	394.2	451.6	937.8
			Future	218.5	269.7	322.2	394.2	451.6	939.0
1252	Confluence of Bear Creek and Nottawasaga River	1692.3	Present	225.3	278.2	332.3	406.6	465.8	964.4
			Future	225.3	278.2	332.3	406.6	465.8	964.3

## DESIGN FLOWS:

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
SILVER CREEK									
900	Outlet from sub-catchment 900	20.3	Present Future	13.4 13.4	17.8 17.8	22.1 22.1	29.5 29.5	35.4 35.4	80.8 80.8
90	Total flow at outlet of sub- catchment 901A	22.6	Present Future	15.6 15.6	20.6 20.6	25.7 25.7	34.4 34.4	40.6 40.6	81.1 81.1
9012	Outlet of sub-catchment no. 901B	1.65	Present Future	2.5 2.5	3.2 3.2	4.0 4.0	5.2 5.2	6.2 6.2	14.5 14.5
9013	Outlet of sub-catchment 901C	0.85	Present Future	1.4 1.4	1.8 1.8	2.2 2.2	3.0 3.0	3.5 3.5	8.2 8.2
930	Confluence sub-catchments 901B and 901C	2.5	Present Future	3.9 3.9	5.1 5.1	6.2 6.2	8.2 8.2	9.7 9.7	22.7 22.7
91	Outlet of sub-catchment no 901D	2.8	Present Future	4.2 4.2	5.4 5.4	6.6 6.6	8.7 8.7	10.3 10.3	22.2 22.2
94	Confluence of Silver Creek and tributary	25.4	Present Future	18.6 18.6	24.0 24.0	30.0 30.0	39.6 39.6	46.9 46.9	105.7 105.7
92	At CNR crossing	26.3	Present Future	19.5 19.5	25.0 25.0	31.0 31.0	40.7 40.7	49.6 49.6	109.0 109.0
93	At Highway No. 26	26.6	Present Future	20.2 20.2	25.5 25.5	31.3 31.3	40.8 40.8	50.1 50.1	113.7 113.7
95	Outlet of Silver Creek	26.8	Present Future	19.1 19.1	24.0 24.0	29.7 29.7	38.7 38.7	47.7 47.7	105.1 105.1
9018	Catchment 901H only	0.38	Present Future	0.22 0.72	0.30 0.87	0.37 1.03	0.46 1.24	0.51 1.39	1.52 2.27
9019	Catchment 901I only	0.67	Present Future	0.45 1.21	0.58 1.49	0.78 1.79	1.02 2.17	1.21 2.44	3.16 4.18

DESIGN FLOWS:

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
-----									
PRETTY RIVER									
98	Outlet from sub-catchment 906	43.4	Present	36.3	43.0	47.6	52.1	55.5	85.6
			Future	36.3	43.0	47.6	52.1	55.5	85.6
1520	Total Flow at confluence	61.9	Present	49.2	60.1	67.8	74.8	78.4	227.4
			Future	49.2	60.1	67.8	74.8	78.4	227.4
99	Outlet to Nottawasaga Bay	77.2	Present	57.3	69.7	78.5	86.2	90.1	196.0
			Future	57.3	69.7	78.5	86.2	90.1	196.0

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
MAD RIVER									
800	Outlet of catchment 800	42.8	Present	7.01	8.60	10.2	12.2	13.9	47.6
			Future	7.01	8.60	10.2	12.2	13.9	47.6
670	Outlet of catchment 801	74.5	Present	15.6	19.2	22.7	27.3	31.1	92.6
			Future	15.6	19.2	22.7	27.3	31.1	92.6
680	Outlet of catchment 802	88.7	Present	20.4	25.0	29.6	35.6	40.4	116.3
			Future	20.4	25.0	29.6	35.6	40.4	116.3
690	Outlet of catchment 803	99.7	Present	25.1	30.8	36.5	43.9	49.9	135.5
			Future	25.1	30.8	36.5	43.9	49.9	135.5
807	Outlet of catchment 807	19.9	Present	14.3	17.6	20.8	25.0	28.5	86.2
			Future	14.3	17.6	20.8	25.0	28.5	86.2
1303	Confluence of catchments 803 and 807	119.6	Present	35.6	43.7	51.8	62.2	70.8	186.4
			Future	35.6	43.7	51.8	62.2	70.8	186.4
700	Outlet of catchment 808	124.3	Present	38.7	47.5	56.2	67.6	76.9	199.5
			Future	38.7	47.5	56.2	67.6	76.9	199.5
804	Outlet of catchment 804	38.61	Present	14.1	17.3	20.4	24.6	27.9	96.5
			Future	14.1	17.3	20.4	24.6	27.9	96.5
710	Outlet of catchment 805	70.0	Present	22.8	28.0	33.2	39.9	45.4	158.0
			Future	22.8	28.0	33.2	39.9	45.4	158.0
720	Outlet of catchment 806	90.1	Present	31.9	39.2	46.4	55.8	63.4	202.5
			Future	31.9	39.2	46.4	55.8	63.4	202.5
1307	Confluence of catchments 806 and 808	214.4	Present	70.6	86.6	102.7	123.4	140.3	378.7
			Future	70.6	86.6	102.7	123.4	140.3	378.7
730	Outlet of catchment 809	256.1	Present	62.7	76.9	91.1	109.5	124.6	365.6
			Future	62.7	76.9	91.1	109.5	124.6	365.6
810	Outlet of catchment 810	35.3	Present	17.1	21.0	24.8	29.9	33.9	116.3
			Future	17.1	21.0	24.8	29.9	33.9	116.3
1309	Confluence of catchments 810 and 809	291.4	Present	72.5	88.9	105.3	126.6	144.0	425.2
			Future	72.5	88.9	105.3	126.6	144.0	425.2
740	Outlet of catchment 811A WSC gauge	303.0	Present	75.0	92.0	109.0	131.0	149.0	440.9
			Future	75.0	92.0	109.0	131.0	149.0	440.9



REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
750	Outlet of catchment 811B	323.9	Present	78.0	95.6	113.3	136.2	154.9	420.2
			Future	78.0	95.6	113.3	136.2	154.9	420.2
760	Outlet of catchment 812	340.7	Present	77.3	94.8	112.3	135.0	153.5	399.9
			Future	77.3	94.8	112.3	135.0	153.5	399.9
770	Outlet of catchment 813	353.6	Present	78.7	96.5	114.4	137.5	156.4	410.7
			Future	78.7	96.5	114.4	137.5	156.4	410.7
780	Outlet of catchment 817	375.6	Present	77.7	95.3	112.9	135.8	154.4	382.4
			Future	77.7	95.3	112.9	135.8	154.4	382.4

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
COATES CREEK/MAD RIVER									
814	Outlet of catchment 814	18.4	Present	11.8	14.5	17.1	20.6	23.4	78.2
			Future	11.8	14.5	17.1	20.6	23.4	78.2
790	Outlet of catchment 815	39.8	Present	17.6	21.6	25.6	30.8	35.0	111.0
			Future	17.6	21.6	25.6	30.8	35.0	111.0
800	Outlet of catchment 816	79.8	Present	31.2	38.3	45.4	54.6	62.1	175.2
			Future	31.2	38.3	45.4	54.6	62.1	175.2
1317	Confluence of Mad River and Coates Creek	455.4	Present	98.4	120.8	143.1	172.0	195.6	485.7
			Future	98.4	120.8	143.1	172.0	195.6	485.7

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		5-YR	10-YR	DISCHARGE (M3/S)			REGIONAL STORM
		AREA (KM2)	CONDITION			20-YR	50-YR	100-YR	
-----									
MARL CREEK									
717	Outlet of catchment 717	45.3	Present	24.8	32.6	40.6	51.2	59.3	123.4
			Future	24.8	32.6	40.6	51.2	59.3	123.4
900	Outlet of catchment 718	61.6	Present	32.4	42.6	52.7	65.7	75.3	157.2
			Future	32.4	42.6	52.7	65.7	75.3	157.2
910	Outlet of catchment 719	91.9	Present	45.1	59.0	72.3	88.8	101.0	193.5
			Future	45.1	59.0	72.3	88.8	101.0	193.5

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
GEORGIAN BAY INFLOWS									
912	Runoff from catchment 912	35.8	Present	24.1	30.2	35.7	42.3	46.8	116.6
			Future	25.5	31.5	36.7	42.8	46.7	116.6
920	Runoff from catchment 920	2.6	Present	4.16	5.11	6.05	7.28	8.20	15.3
			Future	4.16	5.11	6.05	7.28	8.20	15.3
921	Sturgeon Creek	19.7	Present	9.86	12.7	15.2	18.2	20.2	53.2
			Future	9.86	12.7	15.2	18.2	20.2	53.2

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
BATTEAUX RIVER									
909	Outlet of catchment 909	30.2	Present	25.8	32.1	37.0	41.7	44.4	105.4
			Future	25.8	32.1	37.0	41.7	44.4	105.4
1530	Outlet of catchment 910	51.4	Present	38.8	48.5	56.2	64.0	68.5	166.2
			Future	38.8	48.5	56.2	64.0	68.5	166.2
1531	Outlet of catchment 911	55.1	Present	41.9	52.1	60.0	67.7	72.0	169.8
			Future	41.9	52.1	60.0	67.7	72.0	169.8

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
BLACK ASH CREEK									
902	Outlet of catchment 902	11.1	Present	11.1	13.5	15.4	17.6	19.6	51.1
			Future	11.1	13.5	15.4	17.6	19.6	51.1
1510	Outlet of catchment 903	26.85	Present	27.7	32.6	36.0	40.1	43.9	112.5
			Future	27.7	32.6	36.0	40.1	43.9	112.5
1511	Outlet of catchment 904	29.14	Present	28.8	35.9	41.8	47.9	51.5	115.4
			Future	29.4	36.5	42.2	48.3	51.9	115.4

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
LAMONT AND WARRINGTON CREEK									
913	Outlet of catchment 913	26.9	Present	24.6	32.5	40.1	49.8	56.8	121.5
			Future	24.7	32.6	40.1	49.8	56.8	121.6
1020	Outlet of catchment 914	40.4	Present	29.9	38.5	46.3	55.5	61.6	139.4
			Future	29.9	38.6	46.4	55.5	61.6	139.5
915	Outlet of catchment 915	29.9	Present	25.0	32.1	38.6	46.3	51.5	127.9
			Future	25.0	32.1	38.6	46.3	51.5	127.9
916	Outlet of catchment 916	15.3	Present	12.1	15.3	18.2	21.6	23.9	64.2
			Future	12.1	12.1	18.2	21.6	23.9	64.2
917	Outlet of catchment 917	14.8	Present	8.2	9.96	11.3	12.7	13.4	38.4
			Future	8.2	9.96	11.3	12.7	13.4	38.4
1602	Confluence of catchments 915, 916 and 917	60.0	Present	44.4	56.4	66.9	79.0	86.9	199.4
			Future	44.4	56.4	66.9	79.0	86.9	199.4
1030	Outlet of catchment 918	71.4	Present	50.4	63.7	75.4	88.7	97.3	228.9
			Future	50.4	63.7	75.4	88.7	97.3	228.9
1031	Confluence of Lamont and Warrington Creeks	111.8	Present	79.9	102.0	122.0	144.0	159.0	351.4
			Future	79.9	102.0	122.0	144.0	159.0	351.5

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
INFLOWS TO LOWER NOTTAWASAGA									
129	Runoff from catchment 129	0.7	Present	0.31	0.45	0.59	1.1	1.4	3.4
			Future	0.31	0.45	0.59	1.1	1.4	3.4
130	Runoff from catchment 130	26.8	Present	11.9	14.9	18.6	25.2	31.9	89.8
			Future	11.9	14.9	18.6	25.2	31.9	89.8
131	Runoff from catchment 131	4.5	Present	0.68	0.88	1.08	1.32	1.49	3.7
			Future	0.68	0.88	1.08	1.32	1.49	3.7
132	Runoff from catchment 132	12.1	Present	4.8	5.9	7.2	9.2	11.0	35.7
			Future	4.8	5.9	7.2	9.2	11.0	35.7
134	Runoff from catchment 134	42.75	Present	20.2	24.4	30.0	40.4	51.5	135.3
			Future	20.2	24.4	30.0	40.4	51.5	135.3
135	Runoff from catchment 135	5.5	Present	6.8	8.4	10.1	12.6	14.6	31.0
			Future	6.8	8.4	10.1	12.6	14.6	31.0
136	Runoff from catchment 136	21.17	Present	10.8	13.7	16.0	18.3	19.6	51.8
			Future	10.8	13.7	16.0	18.3	19.6	51.8
137	Runoff from catchment 137	22.9	Present	6.5	8.7	10.8	13.4	15.2	20.8
			Future	6.5	8.7	10.8	13.4	15.2	20.8
138	Runoff from catchment 138	15.82	Present	8.9	11.1	13.0	14.8	15.8	40.1
			Future	8.9	11.1	13.0	14.8	15.8	40.1
139	Runoff from catchment 139	20.98	Present	11.2	14.0	16.2	18.4	19.7	53.5
			Future	11.2	14.0	16.2	18.4	19.7	53.5
140	Runoff from catchment 140	23.8	Present	11.3	14.3	16.7	19.1	20.5	53.0
			Future	11.3	14.3	16.7	19.1	20.5	53.0
142	Runoff from catchment 142	20.9	Present	12.4	15.2	17.4	19.6	21.0	59.1
			Future	12.4	15.2	17.4	19.6	21.0	59.1
919	Runoff from catchment 919	16.3	Present	16.2	20.8	25.1	30.3	33.9	71.7
			Future	16.2	20.8	25.1	30.3	33.9	71.7



REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
-----									
WILLOW CREEK									
700	Outlet of catchment 700	16.10	Present	7.6	8.4	9.3	10.5	11.5	59.1
			Future	7.6	8.4	9.3	10.5	11.5	59.1
810	Outlet of catchment 702	25.18	Present	7.4	8.3	9.1	10.3	11.2	68.0
			Future	7.4	8.3	9.1	10.3	11.2	68.0
701	Outlet of catchment 701	27.30	Present	10.8	12.0	13.2	14.9	16.3	92.2
			Future	10.8	12.0	13.2	14.9	16.3	92.2
1400	Confluence of catchments 701 and 702	52.48	Present	18.2	20.2	22.3	25.2	27.5	150.2
			Future	18.2	20.2	22.3	25.2	27.5	150.2
820	Outlet of catchment 703	54.50	Present	19.1	21.2	23.4	26.5	28.9	153.7
			Future	19.1	21.2	23.4	26.5	28.9	153.7
1401	Confluence of catchments 703, 704 and 705	67.21	Present	24.5	27.2	30.0	33.9	37.0	183.5
			Future	24.5	27.2	30.0	33.9	37.0	183.5
830	Outlet of catchment 706	77.32	Present	24.4	27.1	30.0	33.8	36.9	190.8
			Future	24.4	27.1	30.0	33.8	36.9	190.8
1403	Confluence of catchments 706 and 707	91.56	Present	30.3	33.6	37.2	42.0	45.8	219.8
			Future	30.3	33.6	37.2	42.0	45.8	219.8
840	Outlet of catchment 708 at WSC gauge	95.0	Present	29.8	33.1	36.6	41.3	45.1	221.5
			Future	29.8	33.1	36.6	41.3	45.1	221.5
7020	Outlet of Little Lake	106.3	Present	5.7	6.5	7.3	8.3	9.0	84.7
			Future	5.7	6.5	7.3	8.3	9.0	84.7
860	Outlet of catchment 710 d/s of Midhurst gauge	138.2	Present	18.2	20.8	23.3	26.6	28.8	64.5
			Future	19.4	21.6	23.6	27.1	29.8	65.3
714	Outlet of catchment 714	39.8	Present	15.6	17.8	19.9	22.8	24.6	96.9
			Future	15.6	17.8	19.9	22.8	24.6	96.9
715	Outlet of catchment 715	20.5	Present	6.9	7.9	8.9	10.1	11.1	42.2
			Future	6.9	7.9	8.9	10.1	11.1	42.2
1407	Confluence of catchments 714 and 715	60.3	Present	24.8	28.3	31.7	36.1	39.1	127.0
			Future	24.8	28.3	31.7	36.1	39.1	127.0
880	Outlet of catchment 716	74.4	Present	27.3	31.2	34.9	39.9	43.2	155.2
			Future	27.3	31.2	34.9	39.9	43.2	155.2
1409	Confluence of catchments 710 and 716	212.6	Present	38.3	43.8	49.0	56.0	60.7	169.2
			Future	38.8	44.4	49.0	56.0	60.7	169.9

REF. NO.	DESCRIPTION	TRIBUTARY DEVELOPMENT		DISCHARGE (M3/S)					REGIONAL STORM
		AREA (KM2)	CONDITION	5-YR	10-YR	20-YR	50-YR	100-YR	
890	Outlet of catchment 711	235.9	Present	37.3	42.6	47.7	54.5	59.0	179.6
			Future	37.8	42.9	48.0	55.5	59.0	180.6
712	Outlet of catchment 712	23.6	Present	9.4	10.7	11.9	13.7	14.8	57.3
			Future	9.4	10.7	11.9	13.7	14.8	57.3
1411	Confluence of catchments 711 and 712	259.5	Present	43.9	50.2	56.3	64.3	69.6	214.4
			Future	44.4	50.5	56.6	64.6	70.6	215.4

DWOPER RESULTS

Design Flows for Nottawasaga River  
Downstream of Minesing Swamp

Cross-section Number(1)	Development Condition	Discharge (m <sup>3</sup> /s)					Regional Storm
		5-Yr	10-Yr	20-Yr	50-Yr	100-Yr	
D12	Present	161	180	201	224	247	243
	Future	161	180	201	224	247	243
D13	Present	161	180	201	224	247	277
	Future	161	180	201	224	247	277
D14	Present	161	180	201	224	247	271
	Future	161	180	201	224	247	271
D15	Present	161	180	201	224	247	266
	Future	161	180	201	224	247	266
D16	Present	161	180	201	224	247	259
	Future	161	180	201	224	247	259
D17	Present	160	180	200	224	247	256
	Future	160	180	200	224	247	256
D18	Present	160	180	200	224	247	274
	Future	160	180	200	224	247	274
D19	Present	160	180	200	224	247	274
	Future	160	180	200	224	247	274
D20	Present	160	180	200	223	247	274
	Future	160	180	200	223	247	274
D21	Present	160	180	200	223	246	314
	Future	160	180	200	223	246	314
D22	Present	160	180	200	223	246	322
	Future	160	180	200	223	246	322
D23	Present	160	180	200	223	246	340
	Future	160	180	200	223	246	340

DWOPEP RESULTS

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Design Flows for Nottawasaga River  
Downstream of Minesing Swamp

Cross-section Number(1)	Development Condition	Discharge (m <sup>3</sup> /s)					Regional Storm
		5-Yr	10-Yr	20-Yr	50-Yr	100-Yr	
D24	Present	160	180	200	223	246	341
	Future	160	180	200	223	246	341
D25	Present	160	180	200	223	246	343
	Future	160	180	200	223	246	343
D26	Present	214	242	288	313	413	423
	Future	214	242	288	313	413	423
D27	Present	213	242	289	317	336	469
	Future	213	242	289	317	336	469
D28	Present	213	242	289	318	337	467
	Future	213	242	289	318	337	467
D29	Present	211	240	288	318	338	468
	Future	211	240	288	318	338	468
D30	Present	211	240	288	318	338	469
	Future	211	240	288	318	338	469
D31	Present	211	240	288	318	338	469
	Future	211	240	288	318	338	469
D32	Present	224	257	308	343	365	480
	Future	224	257	308	343	365	480

(1) Refer to Figure 4-1 for location of cross-sections.