

Cramahe-Colborne Industrial Park - SBS Hydraulic Design Sheet - 2017 Capacity Assessment - Assumed Average Flow Conditions

Phase	Pipe Reach	Location			Residential		Commercial			Design Flow	Sewer Parameters					Flow Design					Comments			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20	21	22
		Location	From	To	Residential Connections	Cumulative Residential Connections	Commercial Avg Flow (L/s)	Cumulative Commercial Avg Flow (L/s)	Commercial Special Peak Flow (L/s)	Avg Design Flow, Q (L/s)	Length (m)	U/S Elevation (m)	D/S Elevation (m)	Overall Pipe Slope (%)	Min. Pipe Slope (%)	Pipe Dia. (mm)	Pipe Capacity, Qf (L/s)	Flow Design Ratio, Q/Qf	Velocity Design Ratio, V/Vf	Full Flow Velocity, Vf (m/s)	Design Velocity, V (m/s)	Time in Pipe (min)	Cumulative Time in Pipe (min)	
2017 Updated for Capacity Study	1	A-B	2+870	2+430	0	0	1.00	1.00		1.00	440.0	166.40	164.41	0.45%	0.35%	100.8	3.12	0.32	0.75	0.39	0.29	25.08	25.08	Start of Run - existing (2004)
	2	C-B	C	2+430	0	0		0.00		0.00	20.0	164.51	164.41	0.50%	0.40%	193.3	18.94	0.00	0.00	0.65	0.00	#DIV/0!	#DIV/0!	Start of Run - proposed
	3	H-B	H	2+430	0	0	0.80	0.80		0.80	383.5	170.00	164.41	1.46%	1.33%	72.7	2.55	0.31	0.75	0.61	0.46	13.94	13.94	Start of Run - existing (2008)
	4	B-J	2+430	2+235	0	0	0.16	1.95		1.95	235.0	164.41	163.51	0.38%	0.33%	100.8	3.05	0.64	0.94	0.38	0.36	10.95	36.03	Receiving from A, C and H
	5	I-J	I	2+235	0	0	0.16	0.16		0.16	89.0	166.50	163.51	3.36%	3.36%	72.7	4.05	0.04	0.37	0.97	0.36	4.10	4.10	Start of Run - existing (2008)
	6	J-D	2+235	2+020	0	0	0.06	2.17		2.17	215.0	163.51	162.06	0.67%	0.25%	100.8	2.64	0.82	1.00	0.33	0.33	10.81	46.84	Receiving from J
	7	E-D	E	2+020	0	0	0.00	0.00		0.00	20.0	162.16	162.06	0.50%	0.50%	72.7	1.56	0.00	0.00	0.38	0.00	#DIV/0!	#DIV/0!	Start of Run - proposed
	8	D-F	4+008	3+126	0	0	1.29	3.46		3.46	882.0	162.06	144.95	1.94%	0.50%	148.5	10.48	0.33	0.76	0.61	0.46	31.96	78.80	Receiving from D
	9	F-G	3+126	2+836	0	0		3.46		3.46	290.0	144.95	128.79	5.57%	0.32%	148.5	8.45	0.41	0.81	0.49	0.39	12.27	91.07	Receiving from F

DESIGN ASSUMPTIONS:

n = Manning's coefficient =
 R = Maximum peak flow design ratio =
 v = Minimum flow velocity =
 q = Average daily per capita flow =
 I = Average extraneous flow (new) =
 M = Peaking Factor =

Residential:

0.013
 60%
 0.15 m/s
 350 L/person/day
 3.1 pers/residence
 0 L/cap/d
 2 for SBS

Commercial:

75 L/empl/shift
 10 hr/shift
 0 L/cap/d
 2 for SBS

Commercial Flow Assumptions:

Pipe Reach	User	Average Flow (L/s)	Special Peak Flow	Comments
A-B	CCC Plastics	0.16	0.14	Domestic + Process Water
A-B	EMS Building	0.10	1.11	Domestic + Truck Wash
A-B	Cam Tran (formerly Grafton)	0.73	0.17	Domestic + Process Water
H-B	Waste Transfer Station	0.02	0.45	Domestic + Floor Drain
H-B	Real-Flex Building	0.78	-	Domestic + Food Processing
B-J	Cam Tran	0.16	-	Domestic
I-J	Anixter (formerly HD Supply)	0.16	-	Domestic
J-D	Durham Transport	0.06	0.17	Domestic + Wash Water
E-D	Big Apple Complex	-	-	Excluded from analysis
D-F	Gas Station/Restaurant	0.83	1.48	Domestic + Rest Stop
D-F	Tim Hortons	0.46	3.24	Domestic + Restaurant

PROJECT: Cramahe-Colborne Industrial Park-Updated for Capacity Study

PROJECT NO. 04001



DESIGNED BY: G.Dumencu

CHECKED BY: Y.Wang

LOCATION: Township of Cramahe, Ontario

WATERSHED: Colborne Wastewater Treatment Plant

DATE: 2008/04/21

REVISED: 2017/07/19

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NOTES:

- This original design was based on the commercial developments meeting the requirements of the "dry" Industrial Park.
- The wastewater generation rate is based on 75 L/employee (from OBC Table 8.2.1.3.B "Other Occupancies) for 10-hour shift, unless otherwise specified.
- This design is based on a peaking factor of 2, unless otherwise specified.
- Special peak flows are considered as temporary localized flows that are not carried to downstream pipe segments.