

Table 3.1: Published Flood Data

Year	Date	Water Level at Mission) (m GSC)	Published Discharge (m ³ /s)	
			Mission	Hope
1894	Jun-05	7.92	---	---
1948	Jun-10	7.61	---	15,200
1950	Jun-20	7.45	---	12,500
1972	Jun-17	7.15	14,400	12,900

Table 3.2: Tributary Freshet Design Flows

Tributary River:	Stave	Pitt	Coquitlam	Alouette
Gauging Station:	BC Hydro	08MH017	08MH002	08MH005
Basin Area (km ²):	1,140	795	237	234
No of Years of Record:	20	13	35	36
Fraser Correlation (R ²):	0.096	0.124	0.090	0.100
Peak Flow Ratio:	0.02147	0.02165	0.00059	0.00026
Design Flow:	365	368	10	4
Return Period (years):	3	10	<2	<2

Table 3.3: Measured Hydraulic Conditions During Large Floods

Date	Year	Water Level	Cross Sectional	Top Width	Mean Depth	Mean Velocity	Discharge
		(m GSC)	(m ²)	(m)	(m)	(m/s)	(m ³ /s)
Jun-14	1964	6.85	7,432	580	12.81	1.77	13,144
Jun-21	1967	6.87	7,404	553	13.38	1.78	13,172
Jun-17	1972	7.18	7,720	550	14.00	1.77	13,654 (14,400)
Jun-21	1974	6.87	7,627	558	13.67	1.65	12,606

Table 3.4: Estimated Hydraulic Conditions in 1948 and 1894

Base Year	Predicted	Water	Cross	Top Width	Mean	Mean	Discharge
		(m GSC)	(m ²)	(m)	(m)	(m/s)	(m ³ /s)
1972	1894	7.92 (obs)	8,130	555	14.65	2.06	16,500
1972	1948	7.61 (obs)	7,960	552	14.42	1.99	15,700
1972	1950	7.45 (obs)	7,870	552	14.26	1.94	15,200
1967	1894	7.92 (obs)	7,990	555	14.39	2.10	16,800
1967	1948	7.61 (obs)	7,810	555	14.08	2.00	15,600
1967	1950	7.45 (obs)	8,280	555	13.92	1.95	15,000

Table 3.5: Winter Flood Frequency Analysis, Tributaries and Mission

Return Period	Stave River	Alouette River	Pitt River	Coquitlam River	Tributary Combined	Mission Flow
(Year)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(m ³ /s)
2	486	29	290	55	860	4,200
5	775	54	455	102	1386	5,400
10	978	76	568	143	1764	6,200
20	1179	100	678	190	2148	6,900
25	1245	109	714	206	2274	7,150
50	1450	140	826	263	2678	7,800
100	1661	175	940	329	3106	8,500
200	1878	217	1059	407	3562	9,130

Table 3.6: Channel Changes Downstream of New Westminster

Period	Total Dredging Volume		Net Channel Changes	
	Total Volume	Annual Average	Total Volume	Annual Volume
	(million m ³)	(million m ³ /year)	(million m ³)	(million m ³ /year)
1952 – 2005	140.0	2.6	-59.0	-1.1
1963 – 1974	22.5	2.0	-7.4	-0.7
1974 – 1984	44.3	4.4	-17.6	-1.8

Table 3.7: Net Channel Changes between Port Mann and Mission

Period	Net Volume Change	Average Change
	(million m ³)	(million m ³ /year)
1952 – 2005	-21	-0.40
1991 – 2005	-9.1	-0.65

Table 4.1: Bridge Location Summary

Bridge Name	River	Chainage (m)	Easting	Northing
Annacis Island West Causeway	Annacis	3336	503050	5446863
Annacis Island East Causeway	Annacis	3583	503263	5446989
Derwent Low-Level	Annacis	5627	504946	5448138
Westham Island	Canoe	11011	490556	5436422
Alex-Fraser	Fraser	29337	504180	5445205
Skytrain	Fraser	35580	507463	5450330
Pattullo	Fraser	35886	507668	5450556
Patullo Railway Bridge (Fraser River Swing Bridge) - CNR	Fraser	35953	507708	5450610
Port Mann	Fraser	42283	513681	5451898
Mission	Fraser	84827	550669	5441407
Mission Rail	Fraser	85295	551041	5441691
Jacob-Haldi Bridge (Bedford Channel)	McMillan	2573	-	-
No. 2 Road Bridge	Middle	10872	488583	5447072
Dinsmore	Middle	11508	489164	5447331
Middle Arm (Moray)	Middle	13275	489999	5448799
Middle Arm (New) - Airport Connector	Middle	13342	490024	5448861
Arthur Laing	North	13575	490097	5449590
Marpole Rail Bridge	North	14278	490756	5449649
Oak Street	North	14380	490849	5449690
Knight Street - South Branch	North	18080	494360	5449898
CN Rail (Lulu to Burnaby)	North	25339	500875	5447802
Queensborough	North	29131	503854	5449286
Queensborough Railway Bridge	North	30932	505580	5449383
Mitchell Island	Mitchell	1609	492830	5450182
Knight Street - North Branch	Mitchell	3202	494369	5450573
CP Rail	Pitt	3261	519352	5454764
Pitt River	Pitt	3714	519664	5455089

Table 4.2: Hydrometric and Tidal Data

Station Name	Station Number	Agency	Drainage Area (km ²)	Type of Record	Period	Flow Status
Fraser River at Hope	08MF005	WSC	217,000	Daily Flows Max Instantaneous Flows	1912 - Present 1950 - Present	Regulated since 1952 "
Harrison River near Harrison Hot Springs	08MG013	WSC	7,870	Daily Flows Max Instantaneous Flows	1951 - Present 1979 - Present	Natural Flow "
Chehalis River near Harrison Mills	08MG001	WSC	383	Daily Flows Max Instantaneous Flows	1911-26, 79-Pr 1985 - Present	" "
Chilliwack River at Vedder Crossing	08MH001	WSC	1,230	Daily Flows Max Instantaneous Flows	1911-31, 51-Pr 1969 - Present	" "
Fraser River at Mission	08MH024	WSC	228,000	Daily Flows Max Instantaneous Flows Hourly Flows Hourly Water Levels	1965 - Present 1974 - Present 1996 - 2004 1996 - 2004	" " " "
Stave River below the Dam (Total Flow) Stave River at Stave Falls	- 08MH011	BC Hydro WSC	- 1,140	Daily Flows Daily Flows	1984 - 2005 1901 - 1913	Regulated since 1910 "
Pitt River near Alvin	08MH017	WSC	515	Daily Flows	1952 - 1965	Natural Flow
Alouette River near Haney	08MH005	WSC	234	Daily Flows Daily Flows Max Instantaneous Flows	1911 - 1915 1960 - Present 1975 - Present	Natural Flow Regulated since 1925 "
North Alouette River at 232nd Street	08MH006	WSC	37.3	Daily Flows Daily Flows Max Instantaneous Flows	1911 - 1913 1960 - Present 1969 - Present	Natural Flow Regulated since 1925 "
Coquitlam River at Port Coquitlam	08MH002	WSC	237	Daily Flows Daily Flows Max Instantaneous Flows	1915 - 1916 1960 - Present 1975 - Present	Regulated since 1902 " "
Fraser River at Whonock	08MH044	WSC	-	Hourly Water Levels	1997, 99, 2002	Regulated since 1952
Fraser River at Port Hammond	08MH043	WSC	-	Hourly Water Levels	1972, 1986 - 90	"
Fraser River at Port Mann	08MH126	WSC	-	Hourly Water Levels	1972 - 2004	"
Pitt River near Port Coquitlam	08MH035	WSC	-	Hourly Water Levels	1969 - 2004	"
North Arm Fraser River at Vancouver	08MH032	WSC	-	Hourly Water Levels	1997, 99, 2002	"
Fraser River at Steveston	08MH028	WSC	-	Hourly Water Levels	1999, 2002	"
Point Atkinson	7795	MEDS	-	Hourly Water Levels	1914 - Present	"
New Westminster	7654	MEDS	-	Hourly Water Levels	1969 - Present	"
Steveston	7607	MEDS	-	Hourly Water Levels	1997	"
Fraser River at Salmon River Confluence	-	Langley	-	Hourly Water Levels	1998 - 2003	"
Fraser River at 192nd Street	-	Surrey	-	Hourly Water Levels	2000 - 2005	"
Fraser River at Manson	-	Surrey	-	Hourly Water Levels	2000 - 2004	"
North Arm Fraser River at Queensborough	-	Richmond	-	Hourly Water Levels	1999 - 2004	"
North Arm Fraser River at Bathslough	-	Richmond	-	Hourly Water Levels	1999 - 2004	"
Fraser River at Nelson Road South	-	Richmond	-	Hourly Water Levels	1999 - 2004	"
Fraser River at No 5 Road South	-	Richmond	-	Hourly Water Levels	1999 - 2004	"

Table 4.3: Freshet and Winter Calibration/Verification Data

Freshet Period:

Gauge	2002 Calibration Flood: May 23 - July 26			1999 Verification Flood: May 24 - August 16			1997 Verification Flood: April 30 - August 7		
	Available Data	Time of Peak	Reading	Available Data	Time of Peak	Reading	Available Data	Time of Peak	Reading
Flows (m³/s):									
Fraser River at Mission	8 Jun-26 Jul	22 Jun 5:00	11,269	25 May-16 Aug	23 Jun 5:00	11,820	12 May-4 Aug	5 Jun 7:00	12,177
Stave River below the Dam	C	22 Jun	138	C	23 Jun	169	C	5 Jun	177
Alouette River near Haney	C	22 Jun	3	C	23 Jun	3	C	5 Jun	4
Coquitlam River at Port Coquitlam	C	22 Jun	5	C	23 Jun	8	C	5 Jun	4
Pitt River at Confluence	Estim.	22 Jun	100	Estim.	23 Jun	100	Estim.	5 Jun	100
Water Levels (m-GSC):									
Fraser River at Mission	C	22 Jun 5:00	6.087	C	23 Jun 5:00	6.300	S	5 Jun 7:00	6.385
Fraser River at Whonock	C	22 Jun 5:00	4.854	C	23 Jun 5:00	4.964	S/E	-	-
Fraser River at Salmon River Confluence	S/E	22 Jun 4:00	4.069	E	23 Jun 5:00	-	-	-	-
Fraser River at 192nd Street	C	22 Jun 3:00	3.543	M	23 Jun 5:00	-	-	-	-
Pitt River near Port Coquitlam	C	22 Jun 4:00	2.675	C	23 Jun 3:00	2.613	C	5 Jun 7:00	2.828
Fraser River at Port Mann	C	22 Jun 3:00	2.502	C	23 Jun 2:00	2.411	C	5 Jun 7:00	2.644
New Westminster	C	22 Jun 3:00	2.273	C	23 Jun 2:00	2.166	C	5 Jun 7:00	2.350
Fraser River at Manson	C	22 Jun 3:00	2.163	M	-	-	M	-	-
Fraser River at Nelson Road South	C	22 Jun 3:00	1.808	M	-	-	M	-	-
Fraser River at No 6 Road South	C	22 Jun 2:00	1.717	M	-	-	M	-	-
Fraser River at Steveston	C	22 Jun 2:00	1.627	C	23 Jun 1:00	1.382	C	5 Jun 7:00	1.560
North Arm Fraser River at Queensborough	E/M	-	-	M	-	-	M	-	-
North Arm Fraser River at Bathslough	C	22 Jun 3:00	1.821	M	-	-	M	-	-
North Arm Fraser River at Vancouver	C	22 Jun 3:00	1.686	M	-	-	S	5 Jun 7:00	1.674
Main Arm Outlet	Estim. (Triton)	22 Jun 2:00	1.436	C	23 Jun 1:00	1.191	C	5 Jun 7:00	1.390
Point Atkinson	C	22 Jun 2:00	1.471	C	23 Jun 1:00	1.221	C	5 Jun 7:00	1.420

Notes: C = Data available for complete period.
 S = Sporadic data available for period.
 E = Data contains errors and was not used.
 M = Missing data.

Table 4.3 (Continued): Freshet and Winter Calibration/Verification Data

Winter Period:

Gauge	2002 Verification Flood: Nov 1 - Nov 15			2002-2003 Calibration Flood: Dec 27 - Jan 10		
	Available Data	Time of Peak	Reading	Available Data	Time of Peak	Reading
Flows (m³/s):						
Fraser River at Mission	Estim.	8 Nov	1464	Estim.	30 Dec	973
Stave River below the Dam	C	8 Nov	53	C	30 Dec	166
Alouette River near Haney	C	8 Nov	7	C	30 Dec	3
Coquitlam River at Port Coquitlam	C	8 Nov	17	C	30 Dec	3
Pitt River at Confluence	Estim.	8 Nov	20	Estim.	30 Dec	11
Water Levels (m GSC):						
Fraser River at Mission	M	-	-	C	30 Dec 16:00	2.029
Fraser River at Whonock	C	8 Nov 12:00	2.009	C	30 Dec 16:00	1.929
Fraser River at Salmon River Confluence	M	-	-	M	-	-
Fraser River at 192nd Street	C	8 Nov 12:00	1.946	M	-	-
Pitt River near Port Coquitlam	M	-	-	M	-	-
Fraser River at Port Mann	C	8 Nov 11:00	1.848	M	-	-
New Westminster	M	-	-	M	-	-
Fraser River at Manson	C	8 Nov 10:00	2.068	M	-	-
Fraser River at Nelson Road South	C	8 Nov 10:00	2.118	M	-	-
Fraser River at No 6 Road South	C	8 Nov 10:00	2.175	M	-	-
Fraser River at Steveston	C	8 Nov 9:00	2.237	C	30 Dec 13:00	1.901
North Arm Fraser River at Queensborough	M	-	-	M	-	-
North Arm Fraser River at Bathslough	C	8 Nov 10:00	2.348	M	-	-
North Arm Fraser River at Vancouver	C	8 Nov 9:00	2.269	C	30 Dec 14:00	1.908
Point Atkinson	C	8 Nov 9:00	2.221	C	30 Dec 13:00	1.831
Main Arm Outlet	C	8 Nov 9:00	2.183	Estim. (Triton)	30 Dec 13:00	1.804

Notes: C = Data available for complete period.
 S = Sporadic data available for period.
 E = Data contains errors and was not used.
 M = Missing data.

Table 4.4: Winter Calibration/Verification Summary

2002 November Calibration

Gauge	Peak Comparison			Trough Comparison			
	Modelled	Observed	Modelled less Observed	Modelled	Observed	Modelled less Observed	
Mission	-	-	-	-	-	-	
Whonnock	2.30	2.01	0.29	0.43	-0.08	0.51	
Salmon R Confl. McMillan Channel	-	-	-	-	-	-	
192nd Street Barnston Channel	2.07	<i>1.95</i>	0.12	-0.12	<i>-0.06</i>	-0.06	
Pitt at Port Coquitlam	-	-	-	-	-	-	
Portmann	1.99	1.85	0.14	-0.52	-0.65	0.13	
New Westminster	-	-	-	-	-	-	
Manson	2.02	2.07	-0.05	-0.84	<i>-0.60</i>	-	
Nelson Road	2.05	2.12	-0.07	-1.35	<i>-0.29</i>	-	
No. 6 Road	2.07	2.18	-0.11	-1.45	<i>-1.04</i>	-0.41	
Steveston	2.16	2.24	-0.08	-1.82	<i>-1.81</i>	-0.01	
Bathslough North Arm	2.03	2.35	-0.32	-1.55	<i>-0.84</i>	-0.71	
Vancouver South Mitchell Channel	2.01	2.27	-0.26	-1.52	<i>-1.61</i>	0.09	
Avg Abs Error:			0.16	Avg Abs Error:			0.29

2002 December Verification

Gauge	Peak Comparison			Trough Comparison			
	Modelled	Observed	Modelled less Observed	Modelled	Observed	Modelled less Observed	
Mission	2.10	2.03	0.07	0.25	0.10	0.15	
Whonnock	1.97	1.93	0.04	0.09	-0.04	0.13	
Salmon R Confl. McMillan Channel	-	-	-	-	-	-	
192nd Street Barnston Channel	-	-	-	-	-	-	
Pitt at Port Coquitlam	-	-	-	-	-	-	
Portmann	-	-	-	-	-	-	
New Westminster	-	-	-	-	-	-	
Manson	-	-	-	-	-	-	
Nelson Road	-	-	-	-	-	-	
No. 6 Road	-	-	-	-	-	-	
Steveston	1.78	1.90	-0.12	-1.75	-1.66	-0.09	
Bathslough North Arm	-	-	-	-	-	-	
Vancouver South Mitchell Channel	1.75	1.91	-0.16	-1.46	<i>-0.40</i>	-	
Avg Abs Error:			0.08	Avg Abs Error:			0.12

Note: 1. Suspect observed data shown in italics.
2. For graphic comparison, see Appendix C.

Table 4.5: Freshet Calibration/Verification Summary

2002 Calibration

Gauge	Peak Comparison			Trough Comparison		
	Modelled	Observed	Modelled less Observed	Modelled	Observed	Modelled less Observed
Mission	6.04	6.09	-0.05	5.84	5.91	-0.07
Whonnock	4.78	4.85	-0.07	4.48	4.55	-0.07
Salmon R Confl. McMillan Channel	4.17	4.07	0.10	3.79	3.86	-0.07
192nd Street Barnston Channel	3.27	3.54	-0.27	2.71	2.95	-0.24
Pitt at Port Coquitlam	2.64	2.68	-0.03	1.90	2.04	-0.14
Portmann	2.46	2.50	-0.04	1.48	1.40	0.08
New Westminster	2.24	2.27	-0.03	0.86	0.69	0.17
Manson	2.21	2.16	0.05	0.79	0.5059	0.28
Nelson Road	1.81	1.81	0.00	-0.23	-0.24	0.01
No. 6 Road	1.67	1.72	-0.05	-0.52	-0.70	0.18
Steveston	1.43	1.63	-0.20	-1.39	-1.44	0.05
Bathslough North Arm	1.64	1.82	-0.18	-0.70	-0.35	-0.35
Vancouver South Mitchell Channel	1.66	1.69	-0.03	-0.67	-0.96	0.29
Avg Abs Error:			0.09	Avg Abs Error:		0.15

1999 Verification

Gauge	Peak Comparison			Trough Comparison		
	Modelled	Observed	Modelled less Observed	Modelled	Observed	Modelled less Observed
Mission	6.34	6.30	0.04	6.21	6.18	0.03
Whonnock	5.03	4.98	0.06	4.84	4.80	0.04
Salmon R Confl. McMillan Channel	-	-	-	-	-	-
192nd Street Barnston Channel	-	-	-	-	-	-
Pitt at Port Coquitlam	2.70	2.66	0.04	2.27	2.19	0.08
Portmann	2.49	2.44	0.05	1.79	1.68	0.11
New Westminster	2.17	2.20	-0.03	1.12	1.04	0.08
Manson	-	-	-	-	-	-
Nelson Road	-	-	-	-	-	-
No. 6 Road	-	-	-	-	-	-
Steveston	1.20	1.40	-0.20	-0.93	-0.79	-0.14
Bathslough North Arm	-	-	-	-	-	-
Vancouver South Mitchell Channel	-	-	-	-	-	-
Avg Abs Error:			0.07	Avg Abs Error:		0.08

- Note:**
1. Suspect observed data shown in italics.
 2. For graphic comparison, see Appendix C.
 3. 1999 Verification includes staff gauge readings shown in Appendix C.

Table 4.5 (Continued): Freshet Calibration/Verification Summary

1997 Verification

Gauge	Peak Comparison			Trough Comparison		
	Modelled	Observed	Modelled less Observed	Modelled	Observed	Modelled less Observed
Mission	6.56	6.39	0.18	6.41	6.24	0.17
Whonnock	-	-	-	-	-	-
Salmon R Confl. McMillan Channel	-	-	-	-	-	-
192nd Street Barnston Channel	-	-	-	-	-	-
Pitt at Port Coquitlam	2.99	2.83	0.16	2.30	2.23	0.07
Portmann	2.78	2.68	0.10	1.87	1.59	0.28
New Westminster	2.44	2.45	-0.01	1.12	0.84	0.28
Manson	-	-	-	-	-	-
Nelson Road	-	-	-	-	-	-
No. 6 Road	-	-	-	-	-	-
Steveston	1.65	1.90	-0.25	-1.27	-1.31	0.04
Bathslough North Arm	-	-	-	-	-	-
Vancouver South Mitchell Channel	1.90	1.97	-0.07	-0.44	-0.86	0.42
Avg Abs Error:			0.14	Avg Abs Error:		0.17

- Note:**
1. Suspect observed data shown in italics.
 2. For graphic comparison, see Appendix C.
 3. 1999 Verification includes staff gauge readings shown in Appendix C.

Table 4.6: Summary of Channel Roughness Values

River Channel	Downstream Chainage	Upstream Chainage	Channel Manning's n			
			Calibration Values		Design Event Values	
			Vertical Range		Vertical Range	
			Min	Max	Min	Max
NORTH ARM	0	10000	0.020	0.033	0.020	0.033
NORTH ARM	10000	20000	0.020	0.033	0.020	0.033
NORTH ARM	20000	31261	0.032	0.033	0.032	0.033
MITCHELL	0	14066	0.024	0.035	0.024	0.035
POPLAR	0	4377	0.032	0.035	0.032	0.035
MIDDLE ARM	0	10000	0.011	0.032	0.011	0.032
MIDDLE ARM	10000	31804	0.024	0.032	0.024	0.032
FRASER	-1545	10000	0.015	0.033	0.015	0.033
FRASER	10000	20000	0.015	0.033	0.015	0.033
FRASER	20000	30000	0.025	0.033	0.025	0.033
FRASER	30000	40000	0.025	0.033	0.025	0.033
FRASER	40000	50000	0.030	0.033	0.027	0.031
FRASER	50000	60000	0.030	0.031	0.027	0.027
FRASER	60000	70000	0.030	0.031	0.027	0.027
FRASER	70000	80000	0.030	0.030	0.027	0.027
FRASER	80000	90000	0.030	0.030	0.027	0.029
FRASER	90000	89822	0.030	0.030	0.029	0.029
STURGEON	3776	5766	0.033	0.033	0.033	0.033
CANNERY	1159	4371	0.029	0.029	0.029	0.029
CANOE	1640	6971	0.020	0.033	0.020	0.033
LADNER	0	11783	0.015	0.033	0.015	0.033
ANNACIS	-1545	7091	0.015	0.033	0.015	0.033
TRIF PHASE 3	1144	2962	0.035	0.035	0.035	0.035
SAPPERTON	661	4589	0.030	0.030	0.030	0.030
DOUGLAS	1159	95237	0.029	0.030	0.027	0.027
BARNSTON	0	7446	0.030	0.030	0.027	0.027
MCMILLAN	0	5493	0.030	0.030	0.027	0.027
CRESCENT	0	3724	0.030	0.030	0.027	0.027
MATSQUI	0	6480	0.030	0.033	0.027	0.027
PITT	0	46483	0.029	0.030	0.029	0.030

Table 4.7: Observed and Calculated Flow Splits for 2002

Split #	Channels			Measured Split at 6000 cms			Modelled Split								
							Average over time period (Jun 15-25)			At High Tide (June 20th 03:00)			At Low Tide (June 20th 09:00)		
				1	2	3	1	2	3	1	2	3	1	2	3
1	Fraser	Matsqui		71%	29%		72%	28%		72%	28%		72%	28%	
2	Fraser	Crescent		90%	10%		90%	10%		90%	10%		90%	10%	
3	Fraser	McMillan		94%	6%		94%	6%		94%	6%		94%	6%	
4	Fraser	Barnston		70%	30%		72%	28%		73%	27%		73%	27%	
5	Fraser	Douglas		70%	30%		58%	42%		57%	43%		58%	42%	
6	Fraser	North Arm	Annacis	80%	10%	10%	82%	11%	7%	82%	11%	7%	83%	11%	6%
7	Fraser	Ladner		90%	10%		90%	10%		90%	10%		88%	12%	
8	Ladner	Canoe		41%	59%		80%	20%		84%	16%		82%	18%	
9	Fraser	Cannery	Sturgeon	84%	2%	14%	89%	2%	9%	87%	2%	11%	91%	2%	7%
10	North Arm	Mid Arm		44%	56%		81%	17%		84%	16%		73%	15%	

- Notes:
1. Split # 7 to 10 were measured during winter low flow conditions and are approximate only.
 2. Downstream of Trifurcation percentages refer to split at each junction, not total Fraser flow.

Table 4.8: Historic Simulation Flow and Water Level Data

Year	Flow at Mission (m ³ /s)	Observed Water Level (m GSC)					
		Mission	Whonnock	Port Hammond	Port Mann	New Westminster	Pitt River Bridge
1948	15500	7.61	6.18	4.83		3.36	4.05
1950	14500	7.45				3.19	3.87
1969	9660	5.68		3.55		2.24	
1972	13650	7.18	5.81	4.40	3.40	3.04	3.68

Year	Flow at Mission (m ³ /s)	Simulated Water Level (m GSC)					
		Mission	Whonnock	Port Hammond	Port Mann	New Westminster	Pitt River Bridge
1948	15500	7.61	6.46	5.19	3.88	3.36	4.27
1950	14500	7.45	6.28	5.02	3.73	3.19	4.09
1969	9660	5.68	4.64	3.58	2.63	2.24	2.80
1972	13650	7.18	6.06	4.73	3.57	3.04	3.74

Superseded by 2008 nbc report

Table 5.1: Summary of 2006 Modelled and 1969 Calculated Water Levels

Municipality/Diking District	Location	MIKE 11 Chainage	Re-Occurrence of 1894 Flood			
			2006 Modelled WL (m GSC)	1969 Calculated WL (m GSC)	Difference (m)	
North Fraser						
City of Vancouver	West end UBC	'NORTH ARM'	1238	2.88	2.62	0.26
	Burnaby border	'NORTH ARM'	22157	3.03	2.68	0.35
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	2.88	2.62	0.26
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	2.89	2.62	0.27
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	2.89	2.62	0.27
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	2.89	2.62	0.27
	New Westminster border	'NORTH ARM'	28105	3.14	3.10	0.04
City of Burnaby	Vancouver border	'NORTH ARM'	22157	3.03	2.68	0.35
	New Westminster border	'NORTH ARM'	28764	3.26	3.17	0.09
City of New Westminster	Burnaby border	'NORTH ARM'	28764	3.26	3.17	0.09
	Coquitlam border	'FRASER'	37528	4.24	3.95	0.29
City of Coquitlam	Burnaby border	'FRASER'	37528	4.24	3.95	0.29
	Port Coquitlam border	'FRASER'	42617	4.83	4.37	0.46
City of Port Coquitlam	Coquitlam border	'FRASER'	42617	4.83	4.37	0.46
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	5.08	4.50	0.58
	Pitt River at De Bouville Slough	'PITT'	7342	4.90	4.57	0.33
District of Pitt Meadows	Pitt River at Sheridan Hill	'PITT'	10817	4.90	4.57	0.33
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	5.08	4.50	0.58
	Maple Ridge border	'FRASER'	53954	6.05	5.11	0.94
District of Maple Ridge	Pitt Meadows border	'FRASER'	53954	6.05	5.11	0.94
	Whonnock Creek	'FRASER'	71256	7.69	6.71	0.98
	Mission border	'FRASER'	73842	7.96	7.00	0.96
District of Mission	Maple Ridge border	'FRASER'	73842	7.96	7.00	0.96
	Silverdale Creek	'FRASER'	80578	8.51	7.50	1.01
	Mission bridge	'FRASER'	85182	8.88	7.91	0.97
	FVRD border	'FRASER'	89408	9.30	8.40	0.90
FVRD	Mission border	'FRASER'	89408	9.30	8.40	0.90
	Nicomen Slough	'FRASER'	95237	9.84	9.05	0.79
South Fraser						
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	2.87	2.59	0.28
	Massey Tunnel	'FRASER'	18117	2.93	2.65	0.28
	Surrey border	'FRASER'	31926	3.58	3.60	-0.02
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	2.87	2.59	0.28
	Westham Island: Reifel Island at Ladner Reach	'FRASER'	9650	2.84	2.59	0.25
	Westham Island: Upstream end	'LADNER'	4506	2.88	2.59	0.29
City of Richmond	Steveston, Garry Point Park	'FRASER'	7589	2.84	2.59	0.25
	Massey Tunnel	'FRASER'	18117	2.93	2.71	0.22
	New Westminster Border	'ANNACIS'	3136	3.23	3.50	-0.27
City of New Westminster	City of Richmond Border	'ANNACIS'	3136	3.23	3.50	-0.27
	Trifurcation	'FRASER'	34089	3.84	3.60	0.24
City of Surrey	Delta border	'FRASER'	31926	3.58	3.60	-0.02
	Township of Langley border	'BARNSTON'	6011	5.91	5.05	0.86
Barnston Diking District	Barnston Island: downstream end	'BARNSTON'	0	5.48	4.75	0.73
	Barnston Island: upstream end	'BARNSTON'	7446	6.03	5.11	0.92
Township of Langley	Surrey border	'BARNSTON'	6011	5.91	5.05	0.86
	Jacob-Haldi Bridge	'MCMILLAN'	2644	6.97	5.95	1.02
	Abbotsford border	'FRASER'	70804	7.65	7.00	0.65
City of Abbotsford	Langley border	'FRASER'	70804	7.65	7.00	0.65
	Mission Bridge	'FRASER'	85182	8.88	7.91	0.97
	Sumas Mountain	'FRASER'	92614	9.65	8.84	0.81

Notes: 1. Historic water levels were obtained from profile drawings and MOE maps and are approximate for the locations indicated.
 2. Modelled water levels are based on smoothed profile.
 3. Water levels below chainage 28002 are based on winter design condition.

Table 5.2: Summary of 2006 and 2001 Modelled Water Levels for Hope to Mission Model (Re-Occurrence of 1894 Flood)

Location	MIKE 11 Chainage		Modelled WL (m GSC)	UMA 2001 WL (m GSC)	Difference (m)
Mission Bridge	Fraser	85400	8.89	7.99	0.90
D/S end Nicomen Slough	Fraser	95577	9.87	9.13	0.74
Confluence of Vedder Canal	Fraser	100054	10.29	9.61	0.68
D/S end Minto Channel	Fraser	112778	12.02	11.68	0.34
Confluence of Harrison River	Fraser	117394	13.69	13.52	0.17
Agassiz-Rosedale Bridge	Fraser	131012	18.80	18.79	0.01
U/S end Seabird Island	Fraser	147912	26.90	26.90	0.00
U/S extent of model	Fraser	154447	31.44	31.44	0.00

Superseded by 2008 nhc report

Table 5.3: Summary of Roughness Sensitivity Tests (Freshet Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+10% n Diff. (m)	+20% n Diff. (m)	-10% n Diff. (m)
North Fraser						
City of Vancouver	West end UBC	'NORTH ARM'	1238	1.53	0.00	0.00
	Burnaby border	'NORTH ARM'	22157	2.55	0.25	0.47
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	1.65	0.03	0.09
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	1.48	0.00	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	1.89	0.10	0.22
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	1.48	0.00	0.00
City of Burnaby	New Westminister border	'NORTH ARM'	28105	3.14	0.35	0.65
	Vancouver border	'NORTH ARM'	22157	2.55	0.25	0.47
City of New Westminister	New Westminister border	'NORTH ARM'	28764	3.16	0.36	0.66
	Burnaby border	'NORTH ARM'	28764	3.16	0.36	0.66
City of Coquitlam	Coquitlam border	'FRASER'	37528	4.21	0.43	0.80
	Burnaby border	'FRASER'	37528	4.21	0.43	0.80
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	4.84	0.48	0.91
	Coquitlam border	'FRASER'	42617	4.84	0.48	0.91
District of Pitt Meadows	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.49	0.94
	Pitt River at De Bouville Slough	'PITT'	7342	4.90	0.38	0.77
	Pitt River at Sheridan Hill	'PITT'	10817	4.90	0.39	0.77
District of Maple Ridge	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.49	0.94
	Maple Ridge border	'FRASER'	53954	6.09	0.50	0.95
	Pitt Meadows border	'FRASER'	53954	6.09	0.50	0.95
District of Mission	Whonnock Creek	'FRASER'	71256	7.53	0.57	1.12
	Mission border	'FRASER'	73842	7.95	0.57	1.11
	Maple Ridge border	'FRASER'	73842	7.95	0.57	1.11
	Silverdale Creek	'FRASER'	80578	8.44	0.60	1.17
FVRD	Mission bridge	'FRASER'	85182	8.89	0.57	1.13
	FVRD border	'FRASER'	89408	9.34	0.61	1.34
FVRD	Mission border	'FRASER'	89408	9.34	0.61	1.34
	Nicomen Slough	'FRASER'	95237	9.93	0.62	1.34
South Fraser						
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.00	0.00
	Massey Tunnel	'FRASER'	18117	2.17	0.17	0.33
	Surrey border	'FRASER'	31926	3.55	0.38	0.71
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.00	0.00
	Westham Island: Reifel Island at Ladner Reach	'FRASER'	9650	1.56	0.02	0.04
City of Richmond	Westham Island: Upstream end	'LADNER'	4506	1.81	0.08	0.16
	Steveston, Garry Point Park	'FRASER'	7589	1.51	0.01	0.02
	Massey Tunnel	'FRASER'	18117	2.17	0.17	0.33
	New Westminister Border	'ANNACIS'	3136	3.13	0.34	0.64
City of New Westminister	City of Richmond Border	'ANNACIS'	3136	3.13	0.34	0.64
	Trifurcation	'FRASER'	34089	3.61	0.40	0.75
City of Surrey	Delta border	'FRASER'	31926	3.55	0.38	0.71
	Township of Langley border	'BARNSTON'	6011	5.81	0.51	0.97
Barnston Diking District	Barnston Island: downstream end	'BARNSTON'	0	5.45	0.48	0.93
	Barnston Island: upstream end	'BARNSTON'	7446	5.96	0.51	0.97
Township of Langley	Surrey border	'BARNSTON'	6011	5.81	0.51	0.97
	Jacob-Haldi Bridge	'MCMILLAN'	2644	7.19	0.49	0.99
	Abbotsford border	'FRASER'	70804	7.64	0.56	1.10
City of Abbotsford	Langley border	'FRASER'	70804	7.64	0.56	1.10
	Mission Bridge	'FRASER'	85182	8.89	0.57	1.13
	Sumas Mountain	'FRASER'	92614	9.65	0.62	1.34

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.4: Summary of Roughness Sensitivity Tests Douglas Island to Mission (Freshet Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base (m GSC)	n 0.024 Diff. (m)	n 0.025 Diff. (m)	n 0.026 Diff. (m)	n 0.027 Diff. (m)	n 0.028 Diff. (m)	n 0.029 Diff. (m)	
North Fraser										
City of Vancouver	West end UBC	'NORTH ARM' 1238	1.53	0.00	0.00	0.00	0.00	0.00	0.00	
	Burnaby border	'NORTH ARM' 22157	2.55	0.00	0.00	0.00	0.00	0.00	0.00	
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM' 9913	1.65	0.00	0.00	0.00	0.00	-0.01	-0.01	
	Sea Island: West end at Middle Arm	'MIDDLE ARM' 6788	1.48	0.00	0.00	0.00	0.00	0.00	0.00	
	Middle and North Arm Confluence	'MIDDLE ARM' 14066	1.89	0.00	0.00	0.00	0.00	0.00	0.00	
	Terra Nova Park at Middle Arm	'MIDDLE ARM' 7834	1.48	0.00	0.00	0.00	0.00	0.00	0.00	
	New Westminster border	'NORTH ARM' 28105	3.14	0.00	0.00	0.00	0.00	0.00	0.00	
City of Burnaby	Vancouver border	'NORTH ARM' 22157	2.55	0.00	0.00	0.00	0.00	0.00	0.00	
	New Westminster border	'NORTH ARM' 28764	3.16	0.00	0.00	0.00	0.00	0.00	0.00	
City of New Westminster	Burnaby border	'NORTH ARM' 28764	3.16	0.00	0.00	0.00	0.00	0.00	0.00	
	Coquitlam border	'FRASER' 37528	4.21	0.00	0.00	0.00	0.00	0.00	0.00	
City of Coquitlam	Burnaby border	'FRASER' 37528	4.21	0.00	0.00	0.00	0.00	0.00	0.00	
	Port Coquitlam border	'FRASER' 42617	4.84	-0.01	0.00	0.00	0.00	0.00	0.00	
City of Port Coquitlam	Coquitlam border	'FRASER' 42617	4.84	-0.01	0.00	0.00	0.00	0.00	0.00	
	Pitt and Fraser Rivers confluence	'DOUGLAS' 2988	4.93	-0.01	0.00	0.00	0.00	0.00	0.00	
	Pitt River at De Bouville Slough	'PITT' 7342	4.90	-0.01	0.00	0.00	0.00	0.00	0.00	
District of Pitt Meadows	Pitt River at Sheridan Hill	'PITT' 10817	4.90	0.00	0.00	0.00	0.00	0.00	0.01	
	Pitt and Fraser Rivers confluence	'DOUGLAS' 2988	4.93	-0.01	0.00	0.00	0.00	0.00	0.00	
	Maple Ridge border	'FRASER' 53954	6.09	-0.14	-0.09	-0.05	0.00	0.05	0.10	
District of Maple Ridge	Pitt Meadows border	'FRASER' 53954	6.09	-0.14	-0.09	-0.05	0.00	0.05	0.10	
	Whonnock Creek	'FRASER' 71256	7.53	-0.42	-0.28	-0.14	0.00	0.12	0.26	
	Mission border	'FRASER' 73842	7.95	-0.43	-0.28	-0.14	0.00	0.14	0.28	
District of Mission	Maple Ridge border	'FRASER' 73842	7.95	-0.43	-0.28	-0.14	0.00	0.14	0.28	
	Silverdale Creek	'FRASER' 80578	8.44	-0.50	-0.33	-0.16	0.00	0.16	0.32	
	Mission bridge	'FRASER' 85182	8.89	-0.48	-0.33	-0.16	0.00	0.19	0.32	
	FVRD border	'FRASER' 89408	9.34	-0.35	-0.30	-0.15	0.00	0.16	0.30	
FVRD	Mission border	'FRASER' 89408	9.34	-0.35	-0.30	-0.15	0.00	0.16	0.30	
	Nicomen Slough	'FRASER' 95237	9.93	-0.30	-0.26	-0.13	0.00	0.10	0.26	
South Fraser										
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE' 8065	1.44	0.00	0.00	0.00	0.00	0.00	0.00	
	Massey Tunnel	'FRASER' 18117	2.17	0.00	0.00	0.00	0.00	0.00	0.00	
	Surrey border	'FRASER' 31926	3.55	0.00	0.00	0.00	0.00	0.00	0.01	
	Westham Island: Roberts Bank at Canoe Pass	'CANOE' 8065	1.44	0.00	0.00	0.00	0.00	0.00	0.00	
	Westham Island: Reifel Island at Ladner	'FRASER' 9650	1.56	0.00	0.00	0.00	0.00	0.00	0.00	
	Westham Island: Upstream end	'LADNER' 4506	1.81	0.00	0.00	0.00	0.00	0.00	0.00	
City of Richmond	Steveston, Garry Point Park	'FRASER' 7589	1.51	-0.01	-0.01	0.00	0.00	0.00	0.00	
	Massey Tunnel	'FRASER' 18117	2.17	0.00	0.00	0.00	0.00	0.00	0.00	
	New Westminster Border	'ANNACIS' 3136	3.13	0.00	0.00	0.00	0.00	0.00	0.00	
City of New Westminster	City of Richmond Border	'ANNACIS' 3136	3.13	0.00	0.00	0.00	0.00	0.00	0.00	
	Trifurcation	'FRASER' 34089	3.61	0.00	0.00	0.00	0.00	0.00	0.00	
City of Surrey	Delta border	'FRASER' 31926	3.55	0.00	0.00	0.00	0.00	0.00	0.01	
	Township of Langley border	'BARNSTON' 6011	5.81	-0.12	-0.08	-0.04	0.00	0.04	0.09	
Barnston Diking District	Barnston Island: downstream end	'BARNSTON' 0	5.45	-0.04	-0.02	-0.01	0.00	0.01	0.02	
	Barnston Island: upstream end	'BARNSTON' 7446	5.96	-0.14	-0.09	-0.04	0.00	0.05	0.10	
Township of Langley	Surrey border	'BARNSTON' 6011	5.81	-0.12	-0.08	-0.04	0.00	0.04	0.09	
	Jacob-Haldi Bridge	'MCMILLAN' 2644	7.19	-0.36	-0.23	-0.11	0.00	0.09	0.19	
	Abbotsford border	'FRASER' 70804	7.64	-0.40	-0.26	-0.13	0.00	0.13	0.26	
City of Abbotsford	Langley border	'FRASER' 70804	7.64	-0.40	-0.26	-0.13	0.00	0.13	0.26	
	Mission Bridge	'FRASER' 85182	8.89	-0.48	-0.33	-0.16	0.00	0.19	0.32	
	Sumas Mountain	'FRASER' 92614	9.65	-0.32	-0.27	-0.13	0.00	0.14	0.28	

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.5: Summary of Flow Sensitivity Tests (Freshet Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+10% Inflow Diff. (m)	-10% Inflow Diff. (m)
North Fraser					
City of Vancouver	West end UBC	'NORTH ARM'	1238	1.53	0.00
	Burnaby border	'NORTH ARM'	22157	2.55	0.25
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	1.65	0.04
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	1.48	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	1.89	0.11
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	1.48	0.00
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.34
	Vancouver border	'NORTH ARM'	22157	2.55	0.25
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.16	0.34
	Burnaby border	'NORTH ARM'	28764	3.16	0.34
City of Coquitlam	Coquitlam border	'FRASER'	37528	4.21	0.53
	Port Coquitlam border	'FRASER'	42617	4.84	0.57
City of Port Coquitlam	Coquitlam border	'FRASER'	42617	4.84	0.57
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.56
	Pitt River at De Bouville Slough	'PITT'	7342	4.90	0.44
District of Pitt Meadows	Pitt River at Sheridan Hill	'PITT'	10817	4.90	0.45
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.56
	Maple Ridge border	'FRASER'	53954	6.09	0.57
District of Maple Ridge	Pitt Meadows border	'FRASER'	53954	6.09	0.57
	Whonnock Creek	'FRASER'	71256	7.53	0.59
	Mission border	'FRASER'	73842	7.95	0.62
District of Mission	Maple Ridge border	'FRASER'	73842	7.95	0.62
	Silverdale Creek	'FRASER'	80578	8.44	0.64
	Mission bridge	'FRASER'	85182	8.89	0.63
	FVRD border	'FRASER'	89408	9.34	0.67
FVRD	Mission border	'FRASER'	89408	9.34	0.67
	Nicomen Slough	'FRASER'	95237	9.93	0.68
South Fraser					
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.00
	Massey Tunnel	'FRASER'	18117	2.17	0.16
	Surrey border	'FRASER'	31926	3.55	0.40
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.00
	Westham Island: Reifel Island at Ladner Reach	'FRASER'	9650	1.56	0.02
	Westham Island: Upstream end	'LADNER'	4506	1.81	0.08
City of Richmond	Steveston, Garry Point Park	'FRASER'	7589	1.51	0.00
	Massey Tunnel	'FRASER'	18117	2.17	0.16
	New Westminster Border	'ANNACIS'	3136	3.13	0.34
City of New Westminster	City of Richmond Border	'ANNACIS'	3136	3.13	0.34
	Trifurcation	'FRASER'	34089	3.61	0.40
City of Surrey	Delta border	'FRASER'	31926	3.55	0.40
	Township of Langley border	'BARNSTON'	6011	5.81	0.56
Barnston Diking District	Barnston Island: downstream end	'BARNSTON'	0	5.45	0.56
	Barnston Island: upstream end	'BARNSTON'	7446	5.96	0.57
Township of Langley	Surrey border	'BARNSTON'	6011	5.81	0.56
	Jacob-Haldi Bridge	'MCMILLAN'	2644	7.19	0.55
	Abbotsford border	'FRASER'	70804	7.64	0.61
City of Abbotsford	Langley border	'FRASER'	70804	7.64	0.61
	Mission Bridge	'FRASER'	85182	8.89	0.63
	Sumas Mountain	'FRASER'	92614	9.65	0.68

- Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.6: Summary of Ocean Level Sensitivity Tests (Freshet Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+10% Swing at d/s boundary Diff. (m)	0.6m Rise at d/s boundary Diff. (m)	
North Fraser						
City of Vancouver	West end UBC	'NORTH ARM'	1238	1.53	0.16	0.59
	Burnaby border	'NORTH ARM'	22157	2.55	0.09	0.41
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	1.65	0.14	0.55
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	1.48	0.16	0.61
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	1.89	0.11	0.46
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	1.48	0.15	0.61
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.06	0.33
	Vancouver border	'NORTH ARM'	22157	2.55	0.09	0.41
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.16	0.06	0.33
	Burnaby border	'NORTH ARM'	28764	3.16	0.06	0.33
City of Coquitlam	Coquitlam border	'FRASER'	37528	4.21	0.05	0.26
	Burnaby border	'FRASER'	37528	4.21	0.05	0.26
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	4.84	0.02	0.22
	Coquitlam border	'FRASER'	42617	4.84	0.02	0.22
District of Pitt Meadows	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.02	0.22
	Pitt River at De Bouville Slough	'PITT'	7342	4.90	0.03	0.19
	Pitt River at Sheridan Hill	'PITT'	10817	4.90	0.03	0.19
District of Maple Ridge	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	0.02	0.22
	Maple Ridge border	'FRASER'	53954	6.09	0.02	0.16
	Pitt Meadows border	'FRASER'	53954	6.09	0.02	0.16
District of Mission	Whonnock Creek	'FRASER'	71256	7.53	0.01	0.09
	Mission border	'FRASER'	73842	7.95	0.01	0.09
	Maple Ridge border	'FRASER'	73842	7.95	0.01	0.09
FVRD	Silverdale Creek	'FRASER'	80578	8.44	0.01	0.08
	Mission bridge	'FRASER'	85182	8.89	0.00	0.07
	FVRD border	'FRASER'	89408	9.34	0.00	0.07
	Mission border	'FRASER'	89408	9.34	0.00	0.07
FVRD	Nicomen Slough	'FRASER'	95237	9.93	0.00	0.05
South Fraser						
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.11	0.56
	Massey Tunnel	'FRASER'	18117	2.17	0.10	0.45
	Surrey border	'FRASER'	31926	3.55	0.05	0.30
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.11	0.56
	Westham Island: Reifel Island at Ladner Reach	'FRASER'	9650	1.56	0.13	0.56
City of Richmond	Westham Island: Upstream end	'LADNER'	4506	1.81	0.10	0.50
	Steveston, Garry Point Park	'FRASER'	7589	1.51	0.13	0.56
	Massey Tunnel	'FRASER'	18117	2.17	0.10	0.45
City of New Westminster	New Westminster Border	'ANNACIS'	3136	3.13	0.06	0.33
	City of Richmond Border	'ANNACIS'	3136	3.13	0.06	0.33
City of Surrey	Trifurcation	'FRASER'	34089	3.61	0.04	0.29
	Delta border	'FRASER'	31926	3.55	0.05	0.30
Barnston Diking District	Township of Langley border	'BARNSTON'	6011	5.81	0.02	0.17
	Barnston Island: downstream end	'BARNSTON'	0	5.45	0.01	0.18
Township of Langley	Barnston Island: upstream end	'BARNSTON'	7446	5.96	0.02	0.16
	Surrey border	'BARNSTON'	6011	5.81	0.02	0.17
	Jacob-Haldi Bridge	'MCMILLAN'	2644	7.19	0.01	0.11
City of Abbotsford	Abbotsford border	'FRASER'	70804	7.64	0.01	0.10
	Langley border	'FRASER'	70804	7.64	0.01	0.10
	Mission Bridge	'FRASER'	85182	8.89	0.00	0.07
	Sumas Mountain	'FRASER'	92614	9.65	0.01	0.07

- Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

**Table 5.7: Modelled Local Scour Depths
for Scour Sensitivity Test**

Scour Reach	Start Chainage	End Chainage	Scour Depth below Bed (m)
New Westminster	34655	35992	-5
Port Mann	40766	41502	-6
Pitt Meadows	47419	48174	-8
Maple Ridge	57813	58547	-8
Silvermere	76419	77165	-11
Mission	85038	86589	-11
Sumas	92614	93530	-10

Superseded by 2008 nhc report

Table 5.8: Summary of Scour Sensitivity Test (Freshet Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	Local Scour Diff. (m)	
North Fraser					
City of Vancouver	West end UBC	'NORTH ARM'	1238	1.53	0.00
	Burnaby border	'NORTH ARM'	22157	2.55	0.00
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	1.65	0.00
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	1.48	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	1.89	0.00
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	1.48	0.00
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.00
	Vancouver border	'NORTH ARM'	22157	2.55	0.00
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.16	0.00
	Burnaby border	'NORTH ARM'	28764	3.16	0.00
City of Coquitlam	Coquitlam border	'FRASER'	37528	4.21	-0.01
	Burnaby border	'FRASER'	37528	4.21	-0.01
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	4.84	-0.06
	Coquitlam border	'FRASER'	42617	4.84	-0.06
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	-0.05
District of Pitt Meadows	Pitt River at De Bouville Slough	'PITT'	7342	4.90	-0.05
	Pitt River at Sheridan Hill	'PITT'	10817	4.90	-0.04
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	4.93	-0.05
District of Maple Ridge	Maple Ridge border	'FRASER'	53954	6.09	-0.08
	Pitt Meadows border	'FRASER'	53954	6.09	-0.08
	Whonnock Creek	'FRASER'	71256	7.53	-0.08
District of Mission	Mission border	'FRASER'	73842	7.95	-0.06
	Maple Ridge border	'FRASER'	73842	7.95	-0.06
	Silverdale Creek	'FRASER'	80578	8.44	-0.12
	Mission bridge	'FRASER'	85182	8.89	-0.14
FVRD	FVRD border	'FRASER'	89408	9.34	-0.38
	Mission border	'FRASER'	89408	9.34	-0.38
	Nicomen Slough	'FRASER'	95237	9.93	-0.45
South Fraser					
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	1.44	0.00
	Massey Tunnel	'FRASER'	18117	2.17	0.00
	Surrey border	'FRASER'	31926	3.55	0.00
	Westham Island: Roberts Bank at Canoe	'CANOE'	8065	1.44	0.00
	Westham Island: Reifel Island at Ladner	'FRASER'	9650	1.56	0.00
City of Richmond	Westham Island: Upstream end	'LADNER'	4506	1.81	-0.01
	Steveston, Garry Point Park	'FRASER'	7589	1.51	-0.01
	Massey Tunnel	'FRASER'	18117	2.17	0.00
City of New Westminster	New Westminster Border	'ANNACIS'	3136	3.13	0.00
	City of Richmond Border	'ANNACIS'	3136	3.13	0.00
City of Surrey	Trifurcation	'FRASER'	34089	3.61	0.00
	Delta border	'FRASER'	31926	3.55	0.00
Barnston Diking District	Township of Langley border	'BARNSTON'	6011	5.81	-0.08
	Barnston Island: downstream end	'BARNSTON'	0	5.45	-0.11
Township of Langley	Barnston Island: upstream end	'BARNSTON'	7446	5.96	-0.08
	Surrey border	'BARNSTON'	6011	5.81	-0.08
	Jacob-Haldi Bridge	'MCMILLAN'	2644	7.19	-0.09
City of Abbotsford	Abbotsford border	'FRASER'	70804	7.64	-0.07
	Langley border	'FRASER'	70804	7.64	-0.07
	Mission Bridge	'FRASER'	85182	8.89	-0.14
	Sumas Mountain	'FRASER'	92614	9.65	-0.26

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.9: Summary of Roughness Sensitivity Test (Winter Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+10% Roughness Diff. (m)	-10% Roughness Diff. (m)	
North Fraser						
City of Vancouver	West end UBC	'NORTH ARM'	1238	2.88	0.00	0.00
	Burnaby border	'NORTH ARM'	22157	3.02	0.05	-0.06
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	2.86	0.01	0.00
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	2.88	0.01	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	2.88	0.02	-0.02
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	2.88	0.00	0.00
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.08	-0.08
	Vancouver border	'NORTH ARM'	22157	3.02	0.05	-0.06
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.14	0.08	-0.08
	Burnaby border	'NORTH ARM'	28764	3.14	0.08	-0.08
City of Coquitlam	Coquitlam border	'FRASER'	37528	3.32	0.17	-0.12
	Burnaby border	'FRASER'	37528	3.32	0.17	-0.12
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	3.46	0.22	-0.16
	Coquitlam border	'FRASER'	42617	3.46	0.22	-0.16
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	0.24	-0.19
District of Pitt Meadows	Pitt River at De Bouville Slough	'PITT'	7342	3.57	0.23	-0.20
	Pitt River at Sheridan Hill	'PITT'	10817	3.59	0.22	-0.20
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	0.24	-0.19
District of Maple Ridge	Maple Ridge border	'FRASER'	53954	4.12	0.30	-0.28
	Pitt Meadows border	'FRASER'	53954	4.12	0.30	-0.28
	Whonnock Creek	'FRASER'	71256	4.96	0.41	-0.38
District of Mission	Mission border	'FRASER'	73842	5.27	0.40	-0.39
	Maple Ridge border	'FRASER'	73842	5.27	0.40	-0.39
	Silverdale Creek	'FRASER'	80578	5.49	0.43	-0.41
	Mission bridge	'FRASER'	85182	5.82	0.43	-0.41
FVRD	FVRD border	'FRASER'	89408	6.06	0.44	-0.42
	Mission border	'FRASER'	89408	6.06	0.44	-0.42
FVRD	Nicomen Slough	'FRASER'	95237	6.40	0.45	-0.45
		'FRASER'	95237	6.40	0.45	-0.45
South Fraser						
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.00	0.00
	Massey Tunnel	'FRASER'	18117	2.92	0.04	-0.03
	Surrey border	'FRASER'	31926	3.18	0.11	-0.10
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.00	0.00
	Westham Island: Reifel Island at Ladner	'FRASER'	9650	2.81	0.01	0.00
	Westham Island: Upstream end	'LADNER'	4506	2.89	0.02	-0.02
City of Richmond	Steveston, Garry Point Park	'FRASER'	7589	2.80	0.01	0.00
	Massey Tunnel	'FRASER'	18117	2.92	0.04	-0.03
	New Westminster Border	'ANNACIS'	3136	3.09	0.09	-0.08
City of New Westminster	City of Richmond Border	'ANNACIS'	3136	3.09	0.09	-0.08
	Trifurcation	'FRASER'	34089	3.20	0.11	-0.10
City of Surrey	Delta border	'FRASER'	31926	3.18	0.11	-0.10
	Township of Langley border	'BARNSTON'	6011	3.97	0.30	-0.25
Barnston Diking District	Barnston Island: downstream end	'BARNSTON'	0	3.76	0.27	-0.22
	Barnston Island: upstream end	'BARNSTON'	7446	4.05	0.30	-0.27
Township of Langley	Surrey border	'BARNSTON'	6011	3.97	0.30	-0.25
	Jacob-Haldi Bridge	'MCMILLAN'	2644	4.62	0.37	-0.33
	Abbotsford border	'FRASER'	70804	5.01	0.40	-0.38
City of Abbotsford	Langley border	'FRASER'	70804	5.01	0.40	-0.38
	Mission Bridge	'FRASER'	85182	5.82	0.43	-0.41
	Sumas Mountain	'FRASER'	92614	6.24	0.44	-0.44

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.10: Summary of Inflow Sensitivity Test (Winter Design Condition - Standard)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+10% Inflow Diff. (m)	-10% Inflow Diff. (m)
North Fraser					
City of Vancouver	West end UBC	'NORTH ARM'	1238	2.88	0.00
	Burnaby border	'NORTH ARM'	22157	3.02	0.06
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	2.86	0.01
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	2.88	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	2.88	0.02
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	2.88	0.00
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.09
	Vancouver border	'NORTH ARM'	22157	3.02	0.06
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.14	0.09
	Burnaby border	'NORTH ARM'	28764	3.14	0.09
City of Coquitlam	Coquitlam border	'FRASER'	37528	3.32	0.19
	Burnaby border	'FRASER'	37528	3.32	0.19
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	3.46	0.28
	Coquitlam border	'FRASER'	42617	3.46	0.28
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	0.30
District of Pitt Meadows	Pitt River at De Bouville Slough	'PITT'	7342	3.57	0.30
	Pitt River at Sheridan Hill	'PITT'	10817	3.59	0.29
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	0.30
District of Maple Ridge	Maple Ridge border	'FRASER'	53954	4.12	0.35
	Pitt Meadows border	'FRASER'	53954	4.12	0.35
	Whonnock Creek	'FRASER'	71256	4.96	0.43
District of Mission	Mission border	'FRASER'	73842	5.27	0.45
	Maple Ridge border	'FRASER'	73842	5.27	0.45
	Silverdale Creek	'FRASER'	80578	5.49	0.47
	Mission bridge	'FRASER'	85182	5.82	0.49
FVRD	FVRD border	'FRASER'	89408	6.06	0.51
	Mission border	'FRASER'	89408	6.06	0.51
	Nicomen Slough	'FRASER'	95237	6.40	0.52
South Fraser					
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.00
	Massey Tunnel	'FRASER'	18117	2.92	0.04
	Surrey border	'FRASER'	31926	3.18	0.13
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.00
	Westham Island: Reifel Island at Ladner	'FRASER'	9650	2.81	0.00
City of Richmond	Westham Island: Upstream end	'LADNER'	4506	2.89	0.02
	Steveston, Garry Point Park	'FRASER'	7589	2.80	0.00
	Massey Tunnel	'FRASER'	18117	2.92	0.04
City of New Westminster	New Westminster Border	'ANNACIS'	3136	3.09	0.09
	City of Richmond Border	'ANNACIS'	3136	3.09	0.09
City of Surrey	Trifurcation	'FRASER'	34089	3.20	0.13
	Delta border	'FRASER'	31926	3.18	0.13
Barnston Diking District	Township of Langley border	'BARNSTON'	6011	3.97	0.34
	Barnston Island: downstream end	'BARNSTON'	0	3.76	-0.26
Township of Langley	Barnston Island: upstream end	'BARNSTON'	7446	4.05	0.35
	Surrey border	'BARNSTON'	6011	3.97	0.34
	Jacob-Haldi Bridge	'MCMILLAN'	2644	4.62	0.41
City of Abbotsford	Abbotsford border	'FRASER'	70804	5.01	0.44
	Langley border	'FRASER'	70804	5.01	0.44
	Mission Bridge	'FRASER'	85182	5.82	0.49
	Sumas Mountain	'FRASER'	92614	6.24	0.51

- Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.11: Summary of Inflow Sensitivity (Winter Design Condition - Design Events)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	100 Year Inflow Diff. (m)	20 Year Inflow Diff. (m)
North Fraser					
City of Vancouver	West end UBC	'NORTH ARM'	1238	2.88	0.00
	Burnaby border	'NORTH ARM'	22157	3.02	-0.06
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	2.86	-0.01
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	2.88	0.00
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	2.88	-0.01
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	2.88	0.00
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	-0.07
	Vancouver border	'NORTH ARM'	22157	3.02	-0.06
City of New Westminster	Burnaby border	'NORTH ARM'	28764	3.14	-0.07
	Coquitlam border	'FRASER'	37528	3.32	-0.12
City of Coquitlam	Burnaby border	'FRASER'	37528	3.32	-0.12
	Port Coquitlam border	'FRASER'	42617	3.46	-0.17
City of Port Coquitlam	Coquitlam border	'FRASER'	42617	3.46	-0.17
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	-0.20
	Pitt River at De Bouville Slough	'PITT'	7342	3.57	-0.23
District of Pitt Meadows	Pitt River at Sheridan Hill	'PITT'	10817	3.59	-0.23
	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	-0.20
	Maple Ridge border	'FRASER'	53954	4.12	-0.28
District of Maple Ridge	Pitt Meadows border	'FRASER'	53954	4.12	-0.28
	Whonnock Creek	'FRASER'	71256	4.96	-0.34
	Mission border	'FRASER'	73842	5.27	-0.37
District of Mission	Maple Ridge border	'FRASER'	73842	5.27	-0.37
	Silverdale Creek	'FRASER'	80578	5.49	-0.37
	Mission bridge	'FRASER'	85182	5.82	-0.38
	FVRD border	'FRASER'	89408	6.06	-0.40
FVRD	Mission border	'FRASER'	89408	6.06	-0.40
	Nicomen Slough	'FRASER'	95237	6.40	-0.41
South Fraser					
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.00
	Massey Tunnel	'FRASER'	18117	2.92	-0.02
	Surrey border	'FRASER'	31926	3.18	-0.09
	Westham Island: Roberts Bank at Canoe	'CANOE'	8065	2.82	0.00
	Westham Island: Reifel Island at Ladner	'FRASER'	9650	2.81	0.00
City of Richmond	Westham Island: Upstream end	'LADNER'	4506	2.89	-0.01
	Steveston, Garry Point Park	'FRASER'	7589	2.80	0.01
	Massey Tunnel	'FRASER'	18117	2.92	-0.02
	New Westminster Border	'ANNACIS'	3136	3.09	-0.08
	City of Richmond Border	'ANNACIS'	3136	3.09	-0.08
City of New Westminster	Trifurcation	'FRASER'	34089	3.20	-0.09
	Delta border	'FRASER'	31926	3.18	-0.09
City of Surrey	Township of Langley border	'BARNSTON'	6011	3.97	-0.25
	Barnston Island: downstream end	'BARNSTON'	0	4.18	-0.65
Barnston Diking District	Barnston Island: upstream end	'BARNSTON'	7446	4.05	-0.27
	Surrey border	'BARNSTON'	6011	3.97	-0.25
Township of Langley	Jacob-Haldi Bridge	'MCMILLAN'	2644	4.62	-0.33
	Abbotsford border	'FRASER'	70804	5.01	-0.35
City of Abbotsford	Langley border	'FRASER'	70804	5.01	-0.35
	Mission Bridge	'FRASER'	85182	5.82	-0.38
	Sumas Mountain	'FRASER'	92614	6.24	-0.41

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 5.12: Summary of Ocean Level Sensitivity Test (Winter Design Condition)

Municipality/Diking District	Location	MIKE 11 Chainage	Base Model (m GSC)	+60 cm Ocean Water Levels Diff. (m)	
North Fraser					
City of Vancouver	West end UBC	'NORTH ARM'	1238	2.88	0.60
	Burnaby border	'NORTH ARM'	22157	3.02	0.54
City of Richmond	Sea Island: McDonald Slough	'NORTH ARM'	9913	2.86	0.56
	Sea Island: West end at Middle Arm	'MIDDLE ARM'	6788	2.88	0.64
	Middle and North Arm Confluence	'MIDDLE ARM'	14066	2.88	0.58
	Terra Nova Park at Middle Arm	'MIDDLE ARM'	7834	2.88	0.64
City of Burnaby	New Westminster border	'NORTH ARM'	28105	3.14	0.55
	Vancouver border	'NORTH ARM'	22157	3.02	0.54
City of New Westminster	New Westminster border	'NORTH ARM'	28764	3.14	0.55
	Burnaby border	'NORTH ARM'	28764	3.14	0.55
City of Coquitlam	Coquitlam border	'FRASER'	37528	3.32	0.52
	Burnaby border	'FRASER'	37528	3.32	0.52
City of Port Coquitlam	Port Coquitlam border	'FRASER'	42617	3.46	0.48
	Coquitlam border	'FRASER'	42617	3.46	0.48
District of Pitt Meadows	Pitt and Fraser Rivers confluence	'DOUGLAS'	2988	3.51	0.46
	Pitt River at De Bouville Slough	'PITT'	7342	3.57	0.43
	Pitt River at Sheridan Hill	'PITT'	10817	3.59	0.43
District of Maple Ridge	Maple Ridge border	'FRASER'	53954	4.12	0.36
	Whonnock Creek	'FRASER'	71256	4.96	0.29
	Mission border	'FRASER'	73842	5.27	0.27
District of Mission	Mission bridge	'FRASER'	85182	5.82	0.23
	FVRD border	'FRASER'	89408	6.06	0.21
	Silverdale Creek	'FRASER'	80578	5.49	0.26
	Maple Ridge border	'FRASER'	73842	5.27	0.27
FVRD	Mission border	'FRASER'	89408	6.06	0.21
	Nicomen Slough	'FRASER'	95237	6.40	0.19
South Fraser					
Corporation of Delta	Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.63
	Massey Tunnel	'FRASER'	18117	2.92	0.57
	Surrey border	'FRASER'	31926	3.18	0.53
	Westham Island: Roberts Bank at Canoe Pass	'CANOE'	8065	2.82	0.63
	Westham Island: Reifel Island at Ladner	'FRASER'	9650	2.81	0.63
	Westham Island: Upstream end	'LADNER'	4506	2.89	0.57
City of Richmond	New Westminster Border	'ANNACIS'	3136	3.09	0.52
	Massey Tunnel	'FRASER'	18117	2.92	0.57
	Steveston, Garry Point Park	'FRASER'	7589	2.80	0.63
City of New Westminster	Trifurcation	'FRASER'	34089	3.20	0.53
	City of Richmond Border	'ANNACIS'	3136	3.09	0.52
City of Surrey	Delta border	'FRASER'	31926	3.18	0.53
	Township of Langley border	'BARNSTON'	6011	3.97	0.38
Barnston Diking District	Barnston Island: downstream end	'BARNSTON'	0	3.76	0.42
	Barnston Island: upstream end	'BARNSTON'	7446	4.05	0.37
Township of Langley	Abbotsford border	'FRASER'	70804	5.01	0.29
	Jacob-Haldi Bridge	'MCMILLAN'	2644	4.62	0.33
	Surrey border	'BARNSTON'	6011	3.97	0.38
City of Abbotsford	Langley border	'FRASER'	70804	5.01	0.29
	Mission Bridge	'FRASER'	85182	5.82	0.23
	Sumas Mountain	'FRASER'	92614	6.24	0.20

Notes: 1. Difference is calculated as scenario model less base model water level
 2. Flood levels upstream of chainage 28002 are based on Freshet Design Condition

Table 6.1: Summary of Dike Crest Elevations and Water Levels for various Freshet and Winter Flood Events

Municipality	Reach	Model Chainage (m)	Dike Chainage (m)	Dike Crest Elev. (m GSC)	Freshet Inflow 14000 (m GSC)	Freshet Inflow 14500 (m GSC)	Freshet Inflow 15000 (m GSC)	Freshet Inflow 15500 (m GSC)	Freshet Inflow 16000 (m GSC)	Freshet Inflow 16500 (m GSC)	Freshet Inflow 17000 (m GSC)	Freshet Inflow 17500 (m GSC)	Freshet Inflow 18000 (m GSC)	Freshet Design Event (m GSC)	Winter Design Event (m GSC)	0.6m Sea Level Rise (m GSC)
North Fraser and North Shore of Mainstem																
City of Richmond (North Dike)	Middle Arm	7834	5600	3.35	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	2.88	3.52
	Middle Arm	13886	11650	3.35	1.68	1.70	1.71	1.73	1.74	1.77	1.80	1.81	1.83	1.89	2.88	3.46
	North Arm	19540	16500	3.35	1.95	1.98	2.02	2.07	2.11	2.15	2.19	2.24	2.29	2.37	2.97	3.53
	North Arm	23400	21000	3.35	2.11	2.14	2.20	2.25	2.30	2.35	2.41	2.46	2.52	2.63	3.04	3.58
	North Arm	27543	25285	3.96	2.33	2.40	2.46	2.54	2.62	2.68	2.76	2.83	2.92	3.06	3.13	3.69
City of New Westminster (Queensborough)	North Arm	27734	-90	3.87	2.34	2.41	2.47	2.56	2.64	2.70	2.78	2.85	2.94	3.08	3.13	3.69
	Annacis	0	3400	4.21	2.24	2.30	2.36	2.42	2.49	2.57	2.64	2.71	2.77	2.90	3.03	3.58
	Annacis	3543	6705	4.12	2.39	2.46	2.54	2.63	2.69	2.77	2.86	2.95	3.04	3.17	3.09	3.61
City of Coquitlam	Pitt	7462	2000	4.61	3.50	3.64	3.78	3.93	4.08	4.21	4.37	4.51	4.65	4.90	3.57	4.00
	Pitt	8260	3225	4.59	3.50	3.64	3.79	3.93	4.08	4.22	4.37	4.51	4.65	4.90	3.58	4.00
	Pitt	9180	4630	4.62	3.50	3.64	3.79	3.94	4.08	4.22	4.37	4.52	4.66	4.90	3.58	4.01
City of Port Coquitlam	Pitt	7372	1950	5.20	3.50	3.64	3.78	3.93	4.08	4.21	4.37	4.51	4.65	4.90	3.57	4.00
	Pitt	747	8615	5.20	3.51	3.66	3.80	3.94	4.09	4.24	4.38	4.53	4.67	4.93	3.51	3.96
District of Pitt Meadows (South Dike)	Pitt	3310	0	5.15	3.49	3.63	3.78	3.93	4.08	4.22	4.37	4.51	4.65	4.91	3.52	3.95
	Pitt	222	2980	5.28	3.51	3.65	3.80	3.94	4.09	4.24	4.38	4.53	4.66	4.93	3.51	3.97
	Douglas	3568	3150	5.42	3.49	3.64	3.79	3.93	4.07	4.22	4.37	4.51	4.65	4.91	3.50	3.96
	Douglas	4371	3935	5.60	3.63	3.79	3.93	4.08	4.23	4.38	4.53	4.68	4.82	5.09	3.58	4.03
	Fraser	46984	4335	5.66	3.80	3.96	4.11	4.26	4.41	4.57	4.71	4.86	5.00	5.26	3.67	4.11
	Fraser	49815	7000	5.42	3.95	4.10	4.24	4.39	4.55	4.70	4.85	5.00	5.14	5.40	3.75	4.18
District of Pitt Meadows (Pitt Polder Dike)	Fraser	54671	11570	5.92	4.60	4.75	4.90	5.05	5.22	5.39	5.55	5.71	5.87	6.15	4.14	4.51
	Pitt	11360	820	4.77	3.51	3.65	3.80	3.94	4.08	4.22	4.38	4.52	4.66	4.90	3.59	4.03
	Pitt	14702	3660	4.65	3.51	3.66	3.81	3.95	4.09	4.23	4.38	4.53	4.67	4.91	3.61	4.05
	Pitt	17844	6850	4.13	3.52	3.67	3.81	3.96	4.10	4.24	4.39	4.54	4.68	4.92	3.62	4.08
	Pitt	19503	8535	4.41	3.52	3.67	3.82	3.97	4.10	4.25	4.39	4.54	4.68	4.92	3.63	4.09
	Pitt	21662	10515	4.42	3.53	3.68	3.82	3.97	4.11	4.25	4.39	4.54	4.68	4.92	3.64	4.10
District of Pitt Meadows (North Dike)	Pitt	3835	535	5.15	3.48	3.63	3.77	3.92	4.07	4.21	4.36	4.50	4.65	4.89	3.54	3.96
	Pitt	5962	2775	5.24	3.49	3.64	3.78	3.93	4.07	4.21	4.36	4.51	4.65	4.89	3.56	3.99
District of Pitt Meadows (Middle Dike)	Pitt	3330	25	5.15	3.49	3.63	3.78	3.93	4.08	4.22	4.37	4.51	4.65	4.91	3.52	3.95
	Pitt	3693	385	5.15	3.48	3.62	3.77	3.92	4.07	4.21	4.36	4.50	4.64	4.90	3.53	3.96
District of Pitt Meadows (Pitt Dike North of Alouette)	Pitt	10717	0	5.15	3.51	3.65	3.80	3.94	4.08	4.22	4.37	4.52	4.66	4.90	3.59	4.02
	Pitt	6129	4250	5.15	3.49	3.64	3.78	3.93	4.07	4.21	4.37	4.51	4.65	4.90	3.57	3.99
District of Maple Ridge (Albion Dike)	Fraser	60281	0	6.24	5.07	5.22	5.37	5.53	5.70	5.88	6.05	6.22	6.39	6.68	4.42	4.77
	Fraser	61757	1955	4.50	5.18	5.34	5.48	5.64	5.81	6.00	6.17	6.34	6.51	6.80	4.49	4.83
	Fraser	62508	2950	5.48	5.21	5.37	5.51	5.66	5.85	6.03	6.20	6.37	6.54	6.84	4.51	4.85
District of Mission (Silverdale)	Fraser	76811	0	7.84	6.40	6.55	6.68	6.82	7.03	7.22	7.40	7.58	7.77	8.09	5.34	5.60
	Fraser	78043	1200	7.56	6.57	6.73	6.86	7.01	7.22	7.42	7.60	7.78	7.98	8.31	5.42	5.69
	Fraser	80480	3575	6.44	6.69	6.84	6.98	7.12	7.33	7.52	7.71	7.89	8.09	8.42	5.48	5.74
	Fraser	80578	4000	7.97	6.70	6.85	6.99	7.13	7.34	7.54	7.73	7.91	8.11	8.44	5.49	5.75
District of Mission (Mission Dike)	Fraser	85388	1005	8.60	7.27	7.42	7.57	7.68	7.89	8.06	8.23	8.43	8.56	8.88	5.86	6.08
	Fraser	83008	2745	8.38	6.91	7.06	7.20	7.33	7.55	7.74	7.93	8.11	8.30	8.63	5.62	5.87
	Fraser	82780	3595	9.45	6.90	7.05	7.19	7.32	7.54	7.73	7.92	8.10	8.29	8.62	5.61	5.86

- Notes:**
1. Inflows are in m³/s
 2. Water levels were computed using final design model (incorporating variable roughness in Douglas Island to Mission reach). Water levels correspond to unsmoothed profiles.
 3. Points were selected at dike ends, at channel junctions and at random low points.
 4. Dike crest elevations derived from various sources and represent the best data made available. Actual dike crest elevations may vary and should be verified by each diking authority.

Table 6.1 (Continued): Summary of Dike Crest Elevations and Water Levels for various Freshet and Winter Flood Events

Municipality	Reach	Model Chainage (m)	Dike Chainage (m)	Dike Crest Elev. (m GSC)	Freshet Inflow 14000 (m GSC)	Freshet Inflow 14500 (m GSC)	Freshet Inflow 15000 (m GSC)	Freshet Inflow 15500 (m GSC)	Freshet Inflow 16000 (m GSC)	Freshet Inflow 16500 (m GSC)	Freshet Inflow 17000 (m GSC)	Freshet Inflow 17500 (m GSC)	Freshet Inflow 18000 (m GSC)	Freshet Design Event (m GSC)	Winter Design Event (m GSC)	0.6m Sea Level Rise (m GSC)
South Fraser and South Shore of Mainstem																
Corporation of Delta (Westham Island)	Ladner	3474	1310	2.98	1.63	1.64	1.65	1.66	1.68	1.69	1.70	1.71	1.72	1.75	2.88	3.46
	Ladner	1737	3310	3.25	1.59	1.60	1.60	1.61	1.62	1.63	1.64	1.65	1.65	1.67	2.86	3.46
	Canoe	7860	12310	3.25	1.45	1.45	1.45	1.45	1.44	1.44	1.44	1.44	1.44	1.44	2.82	3.45
	Canoe	9211	13735	2.87	1.50	1.51	1.51	1.52	1.53	1.53	1.53	1.53	1.54	1.55	2.81	3.44
	Canoe	11337	15425	2.03	1.66	1.67	1.68	1.69	1.70	1.71	1.73	1.74	1.76	1.79	2.89	3.46
Corporation of Delta (River Road Dike)	Canoe	8313	7415	3.44	1.46	1.46	1.46	1.46	1.45	1.45	1.45	1.45	1.45	1.46	2.81	3.45
	Canoe	10937	4475	2.43	1.64	1.65	1.66	1.67	1.68	1.69	1.71	1.72	1.73	1.77	2.88	3.44
	Ladner	7549	0	3.29	1.77	1.79	1.81	1.84	1.87	1.89	1.92	1.95	1.98	2.03	2.90	3.46
	Fraser	17940	1800	3.24	1.83	1.86	1.89	1.92	1.96	2.00	2.03	2.07	2.10	2.17	2.92	3.49
	Fraser	18017	13135	3.40	1.83	1.86	1.89	1.92	1.96	2.00	2.03	2.07	2.10	2.17	2.92	3.49
	Fraser	19300	11395	3.09	1.93	1.96	2.00	2.04	2.08	2.13	2.18	2.22	2.26	2.34	2.94	3.50
	Fraser	22071	7635	3.70	2.06	2.10	2.15	2.20	2.25	2.31	2.36	2.42	2.47	2.57	2.98	3.53
	Fraser	24360	5125	3.54	2.15	2.20	2.25	2.31	2.37	2.44	2.50	2.57	2.62	2.74	3.00	3.56
	Fraser	29120	0	4.19	2.35	2.42	2.50	2.57	2.64	2.72	2.81	2.88	2.96	3.10	3.06	3.62
Corporation of Delta (Marina Gardens Dike)	Fraser	19749	2437	3.42	1.96	2.00	2.03	2.08	2.12	2.17	2.22	2.27	2.31	2.40	2.95	3.51
	Ladner	7539	0	3.59	1.77	1.79	1.81	1.84	1.87	1.89	1.92	1.95	1.98	2.03	2.90	3.46
City of Richmond (South Dike)	Fraser	9495	48035	3.35	1.53	1.53	1.54	1.54	1.54	1.54	1.55	1.55	1.56	1.56	2.81	3.44
	Fraser	14276	42916	3.35	1.69	1.70	1.72	1.73	1.75	1.77	1.78	1.80	1.82	1.86	2.87	3.46
	Fraser	17744	39106	3.35	1.83	1.85	1.88	1.92	1.95	1.99	2.02	2.06	2.09	2.16	2.91	3.48
	Fraser	21025	35418	3.51	2.01	2.05	2.09	2.14	2.19	2.25	2.30	2.36	2.40	2.50	2.97	3.52
	Fraser	24989	30846	3.90	2.20	2.26	2.32	2.38	2.45	2.52	2.59	2.66	2.72	2.85	3.02	3.57
	Annacis	1115	29322	4.02	2.33	2.40	2.47	2.54	2.62	2.70	2.78	2.85	2.93	3.08	3.06	3.59
City of New Westminster (Queensborough)	Annacis	3543	6706	4.12	2.39	2.46	2.54	2.63	2.69	2.77	2.86	2.95	3.04	3.17	3.09	3.61
	Annacis	6256	3993	4.21	2.52	2.59	2.68	2.78	2.87	2.95	3.04	3.12	3.22	3.38	3.16	3.72
City of Surrey (South Westminster)	Fraser	32132	7759	3.50	2.64	2.72	2.81	2.92	3.02	3.11	3.20	3.30	3.41	3.58	3.19	3.72
	Fraser	33751	5920	3.03	2.65	2.74	2.84	2.95	3.04	3.13	3.23	3.32	3.43	3.61	3.19	3.72
	Fraser	36025	3336	4.44	3.00	3.12	3.23	3.34	3.46	3.59	3.72	3.83	3.95	4.16	3.32	3.83
	Fraser	37926	1692	3.88	3.06	3.18	3.29	3.41	3.53	3.66	3.80	3.91	4.04	4.25	3.33	3.84
	Fraser	39231	100	6.16	3.13	3.25	3.37	3.49	3.62	3.75	3.89	4.01	4.14	4.36	3.35	3.85
Township of Langley (West Langley Dike)	Barnston	6254	100	5.98	4.34	4.49	4.64	4.79	4.95	5.11	5.26	5.42	5.57	5.83	3.98	4.36
	Fraser	53950	1550	5.75	4.44	4.59	4.74	4.90	5.06	5.22	5.38	5.54	5.69	5.96	4.05	4.42
	Fraser	54719	3000	5.99	4.60	4.75	4.90	5.05	5.22	5.39	5.55	5.71	5.87	6.15	4.14	4.51
Township of Langley (CNR Track)	McMillan	2512	100	7.66	5.37	5.53	5.67	5.82	6.02	6.21	6.38	6.55	6.73	7.03	4.60	4.93
	McMillan	1440	1172	7.03	5.25	5.39	5.55	5.72	5.84	6.03	6.23	6.41	6.55	6.81	4.53	4.87
	Fraser	65279	2800	7.60	5.50	5.66	5.80	5.95	6.15	6.33	6.50	6.67	6.86	7.17	4.70	5.02
Township of Langley (Fort Langley)	McMillan	1096	0	6.31	5.24	5.38	5.53	5.71	5.83	6.02	6.22	6.40	6.54	6.80	4.52	4.86
	McMillan	1130	629	6.26	5.24	5.38	5.53	5.71	5.83	6.02	6.22	6.40	6.54	6.80	4.52	4.86
	McMillan	1206	2025	6.89	5.24	5.38	5.54	5.71	5.84	6.03	6.23	6.40	6.55	6.81	4.53	4.87
Township of Langley (Barnston Island)	Fraser	51433	0	4.99	4.17	4.32	4.47	4.62	4.78	4.94	5.10	5.25	5.40	5.67	3.88	4.28
	Barnston	697	2743	5.21	3.97	4.12	4.27	4.43	4.58	4.74	4.89	5.04	5.18	5.44	3.77	4.19
	Barnston	2574	4572	5.05	4.06	4.21	4.35	4.51	4.66	4.81	4.96	5.11	5.25	5.51	3.82	4.22
	Barnston	5203	7000	5.30	4.24	4.39	4.54	4.69	4.84	5.00	5.16	5.31	5.45	5.71	3.92	4.31
	Barnston	6516	8230	5.73	4.36	4.51	4.66	4.81	4.97	5.13	5.29	5.44	5.59	5.86	4.00	4.37
	Fraser	53002	8382	6.13	4.37	4.52	4.67	4.82	4.98	5.15	5.31	5.46	5.62	5.89	4.00	4.38
	Fraser	51690	9754	5.10	4.20	4.35	4.50	4.65	4.81	4.97	5.13	5.28	5.43	5.70	3.90	4.30
	Fraser	69020	0	7.20	5.81	5.97	6.10	6.24	6.45	6.63	6.80	6.97	7.16	7.47	4.92	5.21
Township of Langley (Glen Valley West)	Fraser	69101	470	6.34	5.82	5.98	6.11	6.25	6.46	6.64	6.81	6.98	7.16	7.48	4.93	5.22
	Fraser	69599	3350	8.50	5.85	6.00	6.14	6.28	6.48	6.67	6.84	7.01	7.19	7.51	4.95	5.24
	Fraser	69599	3350	8.50	5.85	6.00	6.14	6.28	6.48	6.67	6.84	7.01	7.19	7.51	4.95	5.24
City of Abbotsford (Glen Valley East)	Crescent	2727	0	7.60	6.24	6.40	6.53	6.67	6.88	7.07	7.24	7.42	7.61	7.92	5.24	5.51
	Crescent	2870	356	7.60	6.26	6.41	6.55	6.69	6.90	7.09	7.26	7.44	7.63	7.94	5.25	5.52
City of Abbotsford (Matsqui)	Matsqui	3902	4877	8.35	6.81	6.97	7.11	7.25	7.46	7.67	7.85	8.04	8.24	8.58	5.55	5.80
	Matsqui	6147	1829	8.46	6.98	7.13	7.26	7.40	7.61	7.81	7.99	8.17	8.37	8.70	5.66	5.90
	Fraser	85293	0	8.53	7.23	7.38	7.52	7.65	7.86	8.00	8.19	8.38	8.56	8.88	5.82	6.06

- Notes:
1. Inflows are in m³/s
 2. Water levels were computed using final design model (incorporating variable roughness in Douglas Island to Mission reach). Water levels correspond to unsmoothed profiles.
 3. Points were selected at dike ends, at channel junctions and at random low points.
 4. Dike crest elevations derived from various sources and represent the best data made available. Actual dike crest elevations may vary and should be verified by each diking authority.

Table 6.2: Dike Information Summary (Downstream of Mission)

Dike	Information Source	Year	Dike Length (km)
Matsqui A	FRFCP O&M Manual	1971	4.9
Glen Valley East Wing	FRFCP O&M Manual	1989	0.4
Silverdale	LIDAR	2004	4.0
Mission	FRFCP O&M Manual	1990	2.4
Albion	LIDAR	2005	2.6
Barnston Island	LIDAR	2005	10.0
Glen Valley West Wing	The Corporation of the Township of Langley Plan 005B002 to 005 and FRFCP O&M Manual	2000 and 1988	1.5 and 1.9
West Langley	The Corporation of the Township of Langley, West Langley Dike Upgrade: 0112B002.dwg, 0209B020.dwg, 0209B021.dwg, 0209B022.dwg, 9808B001.dwg (digital)	2001	3.0
CNR Track, Glover Road to Armstrong Road	The Corporation of the Township of Langley, 0312B001.dwg	2003	2.8
Pitt Polder	LIDAR and 1960's dwg supplied by The Corporation of the District of Pitt Meadows	2005 and 1960's	10.5
Pitt North of Alouette River	The Corporation of the District of Pitt Meadows	1986	4.3
Pitt North	The Corporation of the District of Pitt Meadows	2003	2.9
Pitt Middle	The Corporation of the District of Pitt Meadows	2003	0.4
Pitt South	The Corporation of the District of Pitt Meadows	2003	11.6
Surrey	City of Surrey, Associated Engineering Report "Flood Protection Review"	2003	7.7
New Westminster	FRFCP O&M Manual	1976	6.7
Coquitlam	Underhill&Underhill, Ministry of Environment H-618	2006	2.6
Port Coquitlam	FRFCP O&M Manual	1976	7.5
North, Richmond	FRFCP O&M Manual	1974	20.9
South, Richmond	FRFCP O&M Manual	1973	21.0
River Road	Corporation of Delta	1999-2000	22.2
Westham Island	Corporation of Delta	1999-2000	5.5
Marina Gardens	Corporation of Delta	1999-2000	2.5

