

Actual 15 Minute Traffic Volume

Site no. 0600807 - O/B R.Lane Abbotsford at Folkestone App

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	20	53	49	56	52	45	23	51
6:45 -> 7:00	15	53	51	54	54	46	18	51
7:00 -> 7:15	13	51	63	61	58	64	23	59
7:15 -> 7:30	15	68	68	71	78	69	32	70
7:30 -> 7:45	27	80	87	83	92	84	22	85
7:45 -> 8:00	17	80	73	78	74	77	40	76
8:00 -> 8:15	25	55	74	87	74	88	40	75
8:15 -> 8:30	23	81	80	77	90	90	43	83
8:30 -> 8:45	18	74	83	86	75	72	48	78
8:45 -> 9:00	38	76	73	79	70	71	51	73
9:00 -> 9:15	41	73	70	76	84	78	56	76
9:15 -> 9:30	46	90	110	76	82	75	66	86
9:30 -> 9:45	46	68	85	99	95	85	58	86
9:45 -> 10:00	53	94	84	98	80	75	75	86
10:00 -> 10:15	44	90	74	97	84	79	55	84
10:15 -> 10:30	49	88	76	83	102	120	67	93
10:30 -> 10:45	69	82	98	107	84	105	78	95
10:45 -> 11:00	53	93	98	101	113	112	85	103
11:00 -> 11:15	52	62	93	95	97	142	107	97
11:15 -> 11:30	64	88	80	91	98	134	71	98
11:30 -> 11:45	74	81	85	71	108	99	79	88
11:45 -> 12:00	65	86	98	104	107	87	97	96
12:00 -> 12:15	73	86	100	107	102	106	91	100
12:15 -> 12:30	68	98	99	108	120	123	82	109
12:30 -> 12:45	57	105	92	108	109	126	88	108
12:45 -> 13:00	59	93	104	105	100	113	78	103
13:00 -> 13:15	59	95	105	104	95	94	83	98
13:15 -> 13:30	51	105	112	105	120	136	77	115
13:30 -> 13:45	59	101	118	106	103	99	66	105
13:45 -> 14:00	78	98	89	109	100	107	57	100
14:00 -> 14:15	68	128	137	128	117	124	79	126
14:15 -> 14:30	51	130	127	138	121	132	93	129
14:30 -> 14:45	71	124	122	134	116	124	86	124
14:45 -> 15:00	67	124	122	146	123	130	72	129
15:00 -> 15:15	64	98	127	129	121	121	91	119
15:15 -> 15:30	79	150	135	142	144	137	59	141
15:30 -> 15:45	70	151	180	143	162	139	79	155
15:45 -> 16:00	55	125	156	143	158	150	65	146
16:00 -> 16:15	64	156	162	180	172	163	89	166
16:15 -> 16:30	70	166	174	175	170	162	92	169
16:30 -> 16:45	72	170	192	193	206	165	62	185
16:45 -> 17:00	59	183	195	203	171	192	77	188
17:00 -> 17:15	62	228	227	136	224	211	77	205
17:15 -> 17:30	67	198	198	200	213	152	71	192
17:30 -> 17:45	59	193	183	201	207	143	57	185
17:45 -> 18:00	59	159	169	145	146	149	51	153
18:00 -> 18:15	55	158	130	139	172	116	50	143
18:15 -> 18:30	48	127	110	114	147	108	47	121
Daily Totals:	2511	5215	5417	5471	5590	5419	3153	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600808 - L.Lane Folkstone at Abbotsford

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	2	2	3	4	2	4	0	3
6:45 -> 7:00	2	7	3	2	5	7	0	4
7:00 -> 7:15	0	4	6	7	4	5	2	5
7:15 -> 7:30	0	3	7	6	5	8	0	5
7:30 -> 7:45	3	6	13	12	8	7	1	9
7:45 -> 8:00	2	6	5	11	8	15	5	9
8:00 -> 8:15	2	11	5	12	9	11	4	9
8:15 -> 8:30	3	5	7	6	8	12	6	7
8:30 -> 8:45	3	8	10	12	11	10	3	10
8:45 -> 9:00	3	9	14	11	11	8	3	10
9:00 -> 9:15	6	20	11	8	12	9	7	12
9:15 -> 9:30	3	7	10	8	9	10	5	8
9:30 -> 9:45	3	10	12	8	10	7	3	9
9:45 -> 10:00	0	8	6	8	5	11	7	7
10:00 -> 10:15	1	5	7	7	8	10	2	7
10:15 -> 10:30	4	6	7	3	8	8	4	6
10:30 -> 10:45	2	7	12	10	10	10	5	9
10:45 -> 11:00	3	4	9	9	5	9	4	7
11:00 -> 11:15	2	7	11	10	6	7	5	8
11:15 -> 11:30	4	10	18	8	6	10	5	10
11:30 -> 11:45	7	6	9	8	8	7	6	7
11:45 -> 12:00	6	9	12	7	8	10	11	9
12:00 -> 12:15	6	6	4	9	10	13	2	8
12:15 -> 12:30	2	6	6	6	8	20	4	9
12:30 -> 12:45	4	5	12	12	13	8	6	10
12:45 -> 13:00	4	3	7	7	15	4	5	7
13:00 -> 13:15	2	4	8	11	8	7	3	7
13:15 -> 13:30	6	6	16	7	8	12	7	9
13:30 -> 13:45	3	11	9	4	3	15	5	8
13:45 -> 14:00	7	6	12	9	6	8	2	8
14:00 -> 14:15	3	13	11	12	9	14	1	11
14:15 -> 14:30	0	6	8	4	7	5	5	6
14:30 -> 14:45	0	8	10	7	6	13	1	8
14:45 -> 15:00	1	9	9	11	16	13	5	11
15:00 -> 15:15	4	5	8	9	11	10	1	8
15:15 -> 15:30	3	6	7	13	13	8	4	9
15:30 -> 15:45	5	11	7	12	14	2	1	9
15:45 -> 16:00	2	12	11	7	7	7	3	8
16:00 -> 16:15	2	3	13	11	14	10	4	10
16:15 -> 16:30	1	10	14	6	17	7	1	10
16:30 -> 16:45	3	8	10	14	10	9	2	10
16:45 -> 17:00	4	14	8	8	10	9	3	9
17:00 -> 17:15	4	11	17	10	8	12	6	11
17:15 -> 17:30	2	18	20	18	16	14	5	17
17:30 -> 17:45	2	8	14	11	13	8	1	10
17:45 -> 18:00	2	6	8	5	9	8	4	7
18:00 -> 18:15	2	8	6	4	7	6	5	6
18:15 -> 18:30	3	9	7	5	7	11	4	7
Daily Totals:	138	372	459	409	431	448	178	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600809 - R.Lane Folkstone at Abbotsford

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	0	4	6	4	3	3	3	4
6:45 -> 7:00	2	4	2	5	6	4	2	4
7:00 -> 7:15	1	7	9	7	2	6	2	6
7:15 -> 7:30	0	9	8	3	7	7	8	6
7:30 -> 7:45	2	7	12	7	14	5	3	9
7:45 -> 8:00	4	10	8	10	10	7	7	9
8:00 -> 8:15	5	12	5	5	12	6	4	8
8:15 -> 8:30	1	10	9	10	4	8	3	8
8:30 -> 8:45	3	5	14	10	9	11	6	9
8:45 -> 9:00	10	10	14	12	6	10	6	10
9:00 -> 9:15	7	9	13	9	9	4	5	8
9:15 -> 9:30	3	11	7	8	13	11	5	10
9:30 -> 9:45	7	9	10	6	8	8	6	8
9:45 -> 10:00	15	6	11	6	7	7	9	7
10:00 -> 10:15	4	12	10	11	10	10	8	10
10:15 -> 10:30	6	10	10	8	9	11	8	9
10:30 -> 10:45	5	8	12	13	12	9	12	10
10:45 -> 11:00	2	8	4	14	11	9	12	9
11:00 -> 11:15	8	7	7	10	7	6	7	7
11:15 -> 11:30	15	7	6	9	11	15	12	9
11:30 -> 11:45	7	10	8	6	6	10	9	8
11:45 -> 12:00	13	10	9	3	10	12	14	8
12:00 -> 12:15	1	8	7	11	10	14	12	10
12:15 -> 12:30	1	7	19	8	12	12	9	11
12:30 -> 12:45	6	5	9	7	10	10	8	8
12:45 -> 13:00	3	8	9	9	9	11	6	9
13:00 -> 13:15	6	5	8	16	5	9	8	8
13:15 -> 13:30	9	11	12	12	12	13	8	12
13:30 -> 13:45	6	14	9	10	11	15	4	11
13:45 -> 14:00	7	9	17	9	7	18	4	12
14:00 -> 14:15	8	8	7	14	12	16	8	11
14:15 -> 14:30	3	12	10	10	6	16	6	10
14:30 -> 14:45	5	5	9	12	5	5	9	7
14:45 -> 15:00	9	11	10	9	17	12	7	11
15:00 -> 15:15	4	8	12	13	16	16	5	13
15:15 -> 15:30	4	16	6	16	9	11	3	11
15:30 -> 15:45	8	8	7	8	14	11	10	9
15:45 -> 16:00	7	9	6	10	15	16	4	11
16:00 -> 16:15	4	8	14	17	18	13	4	14
16:15 -> 16:30	3	24	13	19	28	16	4	20
16:30 -> 16:45	3	15	12	21	13	13	8	14
16:45 -> 17:00	2	17	17	16	17	14	5	16
17:00 -> 17:15	5	24	18	15	19	14	7	18
17:15 -> 17:30	3	26	15	35	56	13	3	29
17:30 -> 17:45	6	21	13	18	19	10	3	16
17:45 -> 18:00	4	11	12	11	13	13	8	12
18:00 -> 18:15	4	5	15	8	10	11	1	9
18:15 -> 18:30	2	8	7	13	4	6	5	7
Daily Totals:	243	488	487	523	553	507	310	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600851 - Total I/B Abbotsford at Folkstone

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	47	304	321	326	299	274	100	304
6:45 -> 7:00	49	402	384	399	398	353	91	387
7:00 -> 7:15	41	412	428	406	435	416	104	419
7:15 -> 7:30	40	448	469	491	457	485	100	470
7:30 -> 7:45	85	462	465	492	464	457	111	468
7:45 -> 8:00	89	470	501	393	516	501	156	476
8:00 -> 8:15	92	475	479	371	470	487	170	456
8:15 -> 8:30	83	475	516	466	508	462	160	485
8:30 -> 8:45	120	468	447	476	448	435	170	454
8:45 -> 9:00	135	493	456	456	457	349	206	442
9:00 -> 9:15	131	334	411	418	327	317	203	361
9:15 -> 9:30	127	254	262	342	269	291	204	283
9:30 -> 9:45	166	247	261	251	286	274	195	263
9:45 -> 10:00	152	217	250	221	231	261	206	236
10:00 -> 10:15	148	200	224	200	213	232	191	213
10:15 -> 10:30	127	223	242	247	244	218	181	234
10:30 -> 10:45	141	203	241	214	233	230	220	224
10:45 -> 11:00	131	197	247	238	242	236	212	232
11:00 -> 11:15	142	217	221	230	235	221	198	224
11:15 -> 11:30	135	183	225	200	239	235	175	216
11:30 -> 11:45	164	224	212	229	212	236	214	222
11:45 -> 12:00	175	243	245	241	232	282	189	248
12:00 -> 12:15	193	186	200	228	220	221	183	211
12:15 -> 12:30	149	192	179	219	224	247	191	212
12:30 -> 12:45	160	215	220	195	218	206	174	210
12:45 -> 13:00	131	186	201	228	203	217	216	207
13:00 -> 13:15	146	169	200	201	217	230	180	203
13:15 -> 13:30	140	189	188	191	222	217	201	201
13:30 -> 13:45	147	172	209	214	217	218	218	206
13:45 -> 14:00	147	224	221	228	353	268	205	258
14:00 -> 14:15	129	214	215	197	357	217	170	240
14:15 -> 14:30	151	177	199	180	330	218	188	220
14:30 -> 14:45	140	200	204	201	367	251	195	244
14:45 -> 15:00	127	175	220	187	312	215	195	221
15:00 -> 15:15	111	216	218	209	277	245	147	233
15:15 -> 15:30	115	205	227	205	275	224	187	227
15:30 -> 15:45	128	196	188	169	211	231	161	199
15:45 -> 16:00	142	174	166	182	205	199	162	185
16:00 -> 16:15	117	177	177	214	304	230	149	220
16:15 -> 16:30	121	174	187	205	222	224	164	202
16:30 -> 16:45	124	185	204	233	237	244	132	220
16:45 -> 17:00	131	178	176	189	209	185	176	187
17:00 -> 17:15	117	196	206	137	221	231	146	198
17:15 -> 17:30	119	160	155	175	196	210	170	179
17:30 -> 17:45	114	199	205	207	190	233	142	206
17:45 -> 18:00	111	171	169	184	183	180	177	177
18:00 -> 18:15	97	165	178	188	208	226	178	193
18:15 -> 18:30	114	144	169	153	171	215	169	170
Daily Totals:	5941	11990	12588	12426	13764	13054	8332	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600852 - Total O/B Abbotsford at Folkstone

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	37	137	104	135	124	118	56	123
6:45 -> 7:00	32	126	116	125	122	133	44	124
7:00 -> 7:15	32	133	152	143	149	162	49	147
7:15 -> 7:30	42	157	174	158	172	189	67	170
7:30 -> 7:45	48	198	191	199	212	192	70	198
7:45 -> 8:00	35	172	189	205	187	192	83	189
8:00 -> 8:15	54	172	199	210	192	230	90	200
8:15 -> 8:30	56	199	176	201	195	226	94	199
8:30 -> 8:45	54	185	197	218	187	199	114	197
8:45 -> 9:00	82	180	205	205	206	184	116	196
9:00 -> 9:15	86	164	184	196	200	208	116	190
9:15 -> 9:30	102	205	210	181	180	170	144	189
9:30 -> 9:45	99	207	201	222	207	191	144	205
9:45 -> 10:00	112	186	186	217	194	200	148	196
10:00 -> 10:15	113	207	185	214	198	201	137	201
10:15 -> 10:30	109	188	177	189	232	235	164	204
10:30 -> 10:45	128	180	233	217	202	226	156	211
10:45 -> 11:00	118	206	231	204	235	232	193	221
11:00 -> 11:15	144	178	186	202	215	301	231	216
11:15 -> 11:30	147	197	188	195	220	318	164	223
11:30 -> 11:45	163	195	195	197	217	225	184	205
11:45 -> 12:00	158	205	217	229	223	228	200	220
12:00 -> 12:15	163	179	208	237	236	257	211	223
12:15 -> 12:30	145	252	224	221	241	266	162	240
12:30 -> 12:45	147	215	201	247	242	264	193	233
12:45 -> 13:00	145	209	238	227	248	223	180	229
13:00 -> 13:15	134	195	237	233	216	221	179	220
13:15 -> 13:30	127	217	245	223	237	260	181	236
13:30 -> 13:45	157	220	240	233	233	250	154	235
13:45 -> 14:00	155	221	223	239	246	246	147	235
14:00 -> 14:15	151	259	268	276	264	289	185	271
14:15 -> 14:30	128	258	274	259	260	300	184	270
14:30 -> 14:45	167	286	273	315	299	296	213	293
14:45 -> 15:00	139	270	307	296	298	307	145	295
15:00 -> 15:15	135	262	298	287	300	295	201	288
15:15 -> 15:30	166	328	334	339	370	340	148	342
15:30 -> 15:45	166	332	379	357	388	321	159	355
15:45 -> 16:00	130	313	332	345	375	341	131	341
16:00 -> 16:15	153	383	382	429	421	392	181	401
16:15 -> 16:30	149	379	413	391	411	379	179	394
16:30 -> 16:45	145	430	449	460	479	401	142	443
16:45 -> 17:00	154	429	449	449	428	433	153	437
17:00 -> 17:15	144	532	518	322	541	484	152	479
17:15 -> 17:30	133	474	473	459	439	365	146	442
17:30 -> 17:45	134	423	432	442	440	338	122	415
17:45 -> 18:00	129	369	382	377	372	334	126	366
18:00 -> 18:15	130	364	338	317	395	276	127	338
18:15 -> 18:30	104	286	268	275	347	255	109	286
Daily Totals:	5681	12062	12481	12517	12995	12693	6974	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600853 - Total Folkstone at Abbotsford

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	2	6	9	8	5	7	3	7
6:45 -> 7:00	4	11	5	7	11	11	2	9
7:00 -> 7:15	1	11	15	14	6	11	4	11
7:15 -> 7:30	0	12	15	9	12	15	8	12
7:30 -> 7:45	5	13	25	19	22	12	4	18
7:45 -> 8:00	6	16	13	21	18	22	12	18
8:00 -> 8:15	7	23	10	17	21	17	8	17
8:15 -> 8:30	4	15	16	16	12	20	9	15
8:30 -> 8:45	6	13	24	22	20	21	9	20
8:45 -> 9:00	13	19	28	23	17	18	9	21
9:00 -> 9:15	13	29	24	17	21	13	12	20
9:15 -> 9:30	6	18	17	16	22	21	10	18
9:30 -> 9:45	10	19	22	14	18	15	9	17
9:45 -> 10:00	15	14	17	14	12	18	16	15
10:00 -> 10:15	5	17	17	18	18	20	10	18
10:15 -> 10:30	10	16	17	11	17	19	12	16
10:30 -> 10:45	7	15	24	23	22	19	17	20
10:45 -> 11:00	5	12	13	23	16	18	16	16
11:00 -> 11:15	10	14	18	20	13	13	12	15
11:15 -> 11:30	19	17	24	17	17	25	17	20
11:30 -> 11:45	14	16	17	14	14	17	15	15
11:45 -> 12:00	19	19	21	10	18	22	25	18
12:00 -> 12:15	7	14	11	20	20	27	14	18
12:15 -> 12:30	3	13	25	14	20	32	13	20
12:30 -> 12:45	10	10	21	19	23	18	14	18
12:45 -> 13:00	7	11	16	16	24	15	11	16
13:00 -> 13:15	8	9	16	27	13	16	11	16
13:15 -> 13:30	15	17	28	19	20	25	15	21
13:30 -> 13:45	9	25	18	14	14	30	9	20
13:45 -> 14:00	14	15	29	18	13	26	6	20
14:00 -> 14:15	11	21	18	26	21	30	9	23
14:15 -> 14:30	3	18	18	14	13	21	11	16
14:30 -> 14:45	5	13	19	19	11	18	10	16
14:45 -> 15:00	10	20	19	20	33	25	12	23
15:00 -> 15:15	8	13	20	22	27	26	6	21
15:15 -> 15:30	7	22	13	29	22	19	7	21
15:30 -> 15:45	13	19	14	20	28	13	11	18
15:45 -> 16:00	9	21	17	17	22	23	7	20
16:00 -> 16:15	6	11	27	28	32	23	8	24
16:15 -> 16:30	4	34	27	25	45	23	5	30
16:30 -> 16:45	6	23	22	35	23	22	10	25
16:45 -> 17:00	6	31	25	24	27	23	8	26
17:00 -> 17:15	9	35	35	25	27	26	13	29
17:15 -> 17:30	5	44	35	53	72	27	8	46
17:30 -> 17:45	8	29	27	29	32	18	4	27
17:45 -> 18:00	6	17	20	16	22	21	12	19
18:00 -> 18:15	6	13	21	12	17	17	6	16
18:15 -> 18:30	5	17	14	18	11	17	9	15
Daily Totals:	381	860	946	932	984	955	488	

Note: Volumes are in number of vehicles.

Actual 15 Minute Traffic Volume

Site no. 0600854 - Total - Abbotsford at Folkstone

Actual 15 Minute Volumes in one week of November 2010

Time Period	Sun Nov14	Mon Nov15	Tue Nov16	Wed Nov17	Thu Nov18	Fri Nov19	Sat Nov20	Average WeekDay
6:30 -> 6:45	86	447	434	469	428	399	159	435
6:45 -> 7:00	85	539	505	531	531	497	137	520
7:00 -> 7:15	74	556	595	563	590	589	157	578
7:15 -> 7:30	82	617	658	658	641	689	175	652
7:30 -> 7:45	138	673	681	710	698	661	185	684
7:45 -> 8:00	130	658	703	619	721	715	251	683
8:00 -> 8:15	153	670	688	598	683	734	268	674
8:15 -> 8:30	143	689	708	683	715	708	263	700
8:30 -> 8:45	180	666	668	716	655	655	293	672
8:45 -> 9:00	230	692	689	684	680	551	331	659
9:00 -> 9:15	230	527	619	631	548	538	331	572
9:15 -> 9:30	235	477	489	539	471	482	358	491
9:30 -> 9:45	275	473	484	487	511	480	348	487
9:45 -> 10:00	279	417	453	452	437	479	370	447
10:00 -> 10:15	266	424	426	432	429	453	338	432
10:15 -> 10:30	246	427	436	447	493	472	357	455
10:30 -> 10:45	276	398	498	454	457	475	393	456
10:45 -> 11:00	254	415	491	465	493	486	421	470
11:00 -> 11:15	296	409	425	452	463	535	441	456
11:15 -> 11:30	301	397	437	412	476	578	356	460
11:30 -> 11:45	341	435	424	440	443	478	413	444
11:45 -> 12:00	352	467	483	480	473	532	414	487
12:00 -> 12:15	363	379	419	485	476	505	408	452
12:15 -> 12:30	297	457	428	454	485	545	366	473
12:30 -> 12:45	317	440	442	461	483	488	381	462
12:45 -> 13:00	283	406	455	471	475	455	407	452
13:00 -> 13:15	288	373	453	461	446	467	370	440
13:15 -> 13:30	282	423	461	433	479	502	397	459
13:30 -> 13:45	313	417	467	461	464	498	381	461
13:45 -> 14:00	316	460	473	485	612	540	358	514
14:00 -> 14:15	291	494	501	499	642	536	364	534
14:15 -> 14:30	282	453	491	453	603	539	383	507
14:30 -> 14:45	312	499	496	535	677	565	418	554
14:45 -> 15:00	276	465	546	503	643	547	352	540
15:00 -> 15:15	254	491	536	518	604	566	354	543
15:15 -> 15:30	288	555	574	573	667	583	342	590
15:30 -> 15:45	307	547	581	546	627	565	331	573
15:45 -> 16:00	281	508	515	544	602	563	300	546
16:00 -> 16:15	276	571	586	671	757	645	338	646
16:15 -> 16:30	274	587	627	621	678	626	348	627
16:30 -> 16:45	275	638	675	728	739	667	284	689
16:45 -> 17:00	291	638	650	662	664	641	337	651
17:00 -> 17:15	270	763	759	484	789	741	311	707
17:15 -> 17:30	257	678	663	687	707	602	324	667
17:30 -> 17:45	256	651	664	678	662	589	268	648
17:45 -> 18:00	246	557	571	577	577	535	315	563
18:00 -> 18:15	233	542	537	517	620	519	311	547
18:15 -> 18:30	223	447	451	446	529	487	287	472
Daily Totals:	12003	24912	26015	25875	27743	26702	15794	

Note: Volumes are in number of vehicles.

Our Ref: B07195.W.01.AMcP.azh

28 February 2011

Daniel Farquhar
Seymour Group Pty Ltd
GPO Box 2487
Brisbane QLD 4001

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 5 / 10 / 11

ATTENTION: DANIEL FARQUHAR

Dear Sir,

**PROPOSED MIXED USED DEVELOPMENT 58-66 ABBOTSFORD ROAD BOWEN HILLS
FLOODING & STORMWATER CONSTRAINTS ASSESSMENT**

Brown Consulting (QLD) Pty Ltd was commissioned by Seymour Group to undertake a flood constraints assessment for the proposed mixed used development at 58-66 Abbotsford Road, Bowen Hills.

Assessment of flood conditions was performed with recommendations made to the proposed commercial high rise development. It is noted that the investigations were a desktop analysis based on the available flood data mainly from Brisbane City Council (BCC).

Followed by a site inspection on 21 November 2010, we based our flood analysis on review of the following documents.

- BCC FloodWise Report.
- BCC Flood Flag Map
- BCC Subdivision and Development Guidelines (2008)
- BCC eBIMAP Mapping Service
- Google Earth
- Detail and Level Survey of Lot 2 on RP133342, Lot 1 on RP127538, and Lot 1 RP155441 provided by Aurecon Australia Pty Ltd (Drawing No. 005-SU1) shown in **Attachment A**.

The development site is located to the west of the intersection of Abbotsford Road and Folkestone Street. This intersection is a sag in the road network with minimal stormwater infrastructure. A 750mm diameter RCP drains the intersection. Preliminary investigations indicate the site is beyond the Regional River and Storm Surge level of RL 2.5m AHD.

Local flood conditions for the site and adjacent properties have been determined for this sag and low point Abbotsford Road. This has been undertaken by:

- Determining peak flows for a range of Average Recurrence Intervals (ARIs) using the Queensland Rational Method in accordance with the BCC Subdivision and Development Guidelines (2008);
- Estimate the full pipe capacity of the existing 750mm RCP and determine the overland flow by subtracting the piped flows from the total peak flows derived from the Rational Method; and
- Calculating preliminary flood levels using first order analysis (manning's and weir calculations).

The catchment to the low point adjacent to the site encompasses an area of 15.25ha. Various land uses are identified in the catchment; multi purpose centre, low medium density residential, and community use area. The peak flows determined at the downstream extent of the site are summarised in **Table 1** below and detail calculations are presented in **Attachment B**. For this analysis, we have ignored the two minor pipelines (300mm diameter) firstly at the intersection of Folkestone Street and Cintra Road and secondly at the southern end of Cintra Road. This is considered conservative assumption.

Table 1: Peak Flows

ARI	Total Peak Flow (m ³ /s)
5	4.33
20	6.28
50	8.01
100	8.94

The capacity of the piped stormwater drainage at the sag in Abbotsford Road was determined from hydraulic grade line calculations based on high tail water level within Perry Park. Using the peak overland flow values the corresponding flood levels over the site and adjacent properties were determined. Analysis occurred at the cross section shown in **Figure 1** below and detailed calculations are presented in **Attachment C**. This cross section corresponds to the fence line along the Perry Park and is considered critical boundary conditions dictating flood levels at the low point in Abbotsford Road. Surface levels for this cross section were extracted from survey provided by Aurecon Australia Pty Ltd.

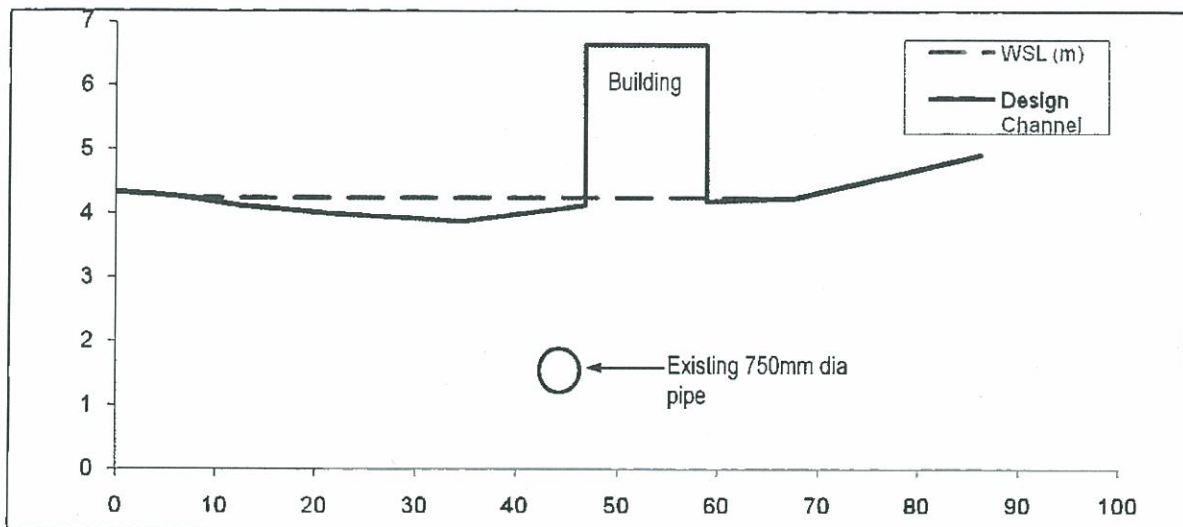


Figure 1. Cross-section of the Weir, showing Flood levels for 50 year ARI

The following preliminary flood levels shown in **Table 2** below were determined from Weir flow calculations. Please note due to high tailwater level and wide weir the flood levels are similar for each scenario with or without pipelines.

Table 2: Preliminary Flood Levels

ARI	Flood Levels		
	With Pipe	Pipe 50% Blocked	Without Pipe
5	4.12	4.14	4.16
20	4.18	4.2	4.21
50	4.22	4.24	4.25
100	4.24	4.26	4.27

Minimum floor levels for the proposed development have been determined in accordance with Section 2 of the Subdivision and Development Guidelines. The proposed development involves the intensification of land use.

Minimum design floor levels have been determined in accordance with Tables A1.2, A1.3 and Section 2.3.3 of the guidelines. Two development proposals are being considered for development site, however in both options, the lower floor levels are commercial development (office and retail) that is class 5 or 6 Building Code. Based on a Building Code, the immunity levels for the proposed building are summarised in **Table 3** below.

Table 3: Flood Impact Building Immunity Levels

Feature	Local Flooding
Building Floor Level (Category C)	RL 4.25m AHD
	50 Year ARI
Underground carpark Entry* (Category C)	RL 4.27m AHD
	100 Year ARI
Vehicular Access/ manoeuvring Areas (Category D)	RL 4.25m AHD
	50 Year ARI
Accessibility Required (Local/Industrial Access)	RL 4.21m AHD
	20 Year ARI

* Basement car parks can be constructed to below the specified levels provided that suitably waterproofed perimeter walls, air vents, and entry/exit ramps at the carpark entrance are above the Define Flood Level (DFL) for Brisbane River and 100 year ARI flood levels for all the other flooding sources (BCC Guidelines).

Concerning accessibility, BCC Guidelines require roadway access within 200m, which achieves the immunity standards Table A1.6. is flood free within 200m of the proposed driveway.

BCC Guidelines indicate the acceptable degrees of hazard are inundation depth $\leq 0.5\text{m}$, flow velocity of $\leq 2.0\text{m/s}$, and depth velocity product $\leq 0.6\text{m}^2/\text{s}$. Abbotsford Road has ponding depth less than 500mm in the 100 year ARI event. The velocity in the sag is near zero and depth velocity product is lower than the criteria. Therefore site complies with the BCC Guideline.

Based on flood criteria for class 5 and 6 building the minimum floor level required is RL 4.25m and there is suitable access to and from the site during flood events. The lowest shop floor level is at 4.8m AHD, therefore, complying with BCC's requirements.

It is revealed from the latest architectural drawing No. 3013-DA 24&25 that the ground level is at RL4.8m, thus, a freeboard of 530mm is provided for the driveway entry for the 100-year ARI flood event. Thus, it is compliant with Council's Subdivision and Development Guidelines.

Building near Stormwater and Sewer Infrastructure

The existing buildings are already situated over existing infrastructure. A 675mm diameter sewer pipeline crosses the site. The pipeline is approximately 10 metres deep. It may be possible to build over the existing sewer line if it can be ensured that no load is placed on the sewer. However Qld Urban Utility may require the existing sewer to be replaced or relocated, depending on age and condition. This would create further constraints for the development due to the proximity of adjacent buildings.

BCC eBIMAP indicates a stormwater pipeline also crosses the site, refer to **Attachment D**. Invert levels of this pipeline however are unknown. This stormwater pipeline may need to be relocated due to possible conflicts with the lower basement levels.

It is recommended before detailed design that further investigation of the stormwater infrastructure be undertaken, this will assist with design and compliance with BCC guidelines. The following details are required as per BCC Subdivision and Development Guidelines, for building over/near stormwater facilities;

1. *Pipe Survey*: Before further development proceeds a CCTV inspection report and video of the pipelines should be compiled to review the current conditions of the pipe drainage network underneath the existing building.
2. Determine levels of pipelines.
3. *Pipe Rehabilitation*: Following the pipe survey pipe rehabilitation works may be required.
4. *Access and Clearance*: Access to the existing and proposed stormwater infrastructure should be maintained.
5. *Foundation Clearance*: During the design of the new infrastructure impact on existing building need to be addressed.

Conclusion

In conclusion, this site is constrained by flooding and existing infrastructure. The development will need to be designed to ensure no adverse impact on adjoining sites and buildings. Minimum floor levels and carparking entry levels shall be design to maintain appropriate flood immunity.

We trust the information provided within this document is satisfactory and await your further instruction.

Yours faithfully

BROWN CONSULTING (QLD) PTY LTD



Andrew McPhail

Manager – Water and Environment

Encl.

List of Attachments

Attachment A:	Survey Plan
Attachment B:	Hydrology Analysis
Attachment C:	Hydraulic Analysis
Attachment D:	BCC e-BIMAP Service Indicating Pipelines under Building

ATTACHMENT A: SURVEY PLAN



- DANGER -
UNDERGROUND SERVICES MAY EXIST
PLEASE REFER TO NOTES

Coordinate Notes:

1. Azimuth for this survey is MGA
2. Level datum for the survey is based on:
- PM53056, R.L. 7.507m AHD
3. Origin of Coordinates:
503713.688 E
6964337.444 N PM 53056 (Zone 56)

SYMBOL LEGEND

Feature	Description
	Permanent mark
	Primary Control Mark
	Power Pole
	Inspection box (pt) - Electricity
	Street Light
	Telecommunications Pit
	Gully Pit
	Street Advertising sign
	Traffic / Road Sign
	Traffic Lights
	Manhole - Sewer
	Manhole - Stormwater
	Manhole - Telecommunications
	Water meter
	Fire hydrant
	Water Valve
	Gas Valve
	Tree
	SCC Monitoring Station
	Main Road Inspection Box

SERVICE LEGEND

	HIGH PRESSURE GAS
	LOW & MEDIUM PRESSURE GAS
	SEWER
	U/G DRAINAGE
	U/G ELECTRICITY
	U/G TELEFONE
	WATER
	U/G HIGH PRESSURE GAS
	DRYD LOW & MEDIUM PRESSURE GAS
	DRYD SEWER
	DRYD U/G DRAINAGE
	DRYD U/G ELECTRICITY
	DRYD U/G TELEFONE
	DRYD U/G OIL
	DRYD WATER
	DRYD SEWER RISING MAIN
	DRYD UNCOM. CABLE (OPTIC FIBRE)
	EDGE OF BITUMEN
	KERB AND CHANNEL
	VEGETATION LINE

NOTES:

1. Date of Survey - 18th October 2010
2. No DBYD or local authority services information was supplied at the time of survey.
Features have been located where visible.
No responsibility is accepted for the accuracy or completeness of the underground services shown. Verification of these services must be obtained prior to any earthworks commencing.
3. No local authority flood information was searched prior to the completion of this plan.

No.	Date	Revision Details	SC	PWK
1	12.10.10	FOR INFORMATION		

aurecon

Aurecon Australia Pty Ltd ABN 54 005 139 873 Telephone: +61 7 3173 8000
114, 32 Turbot St, (Locked Bag 331) Brisbane Facsimile: +61 7 3173 8001
Queensland 4001 Australia Email: brisbane@aurecongroup.com

Client:



Project:

Drawing Title:

DETAIL SURVEY OF
58-66 ABBOTSFORD ROAD
BOWEN HILLS

Drawn	SC	Date	19.10.10
Designed	GN/GD	Scale	1:250
Verified	PWK	Sheet Size	A1
Approved		Project No.	208243-005
		Drawing No.	005-SU1
		Rev.	01

SURVEY
FOR INFORMATION ONLY

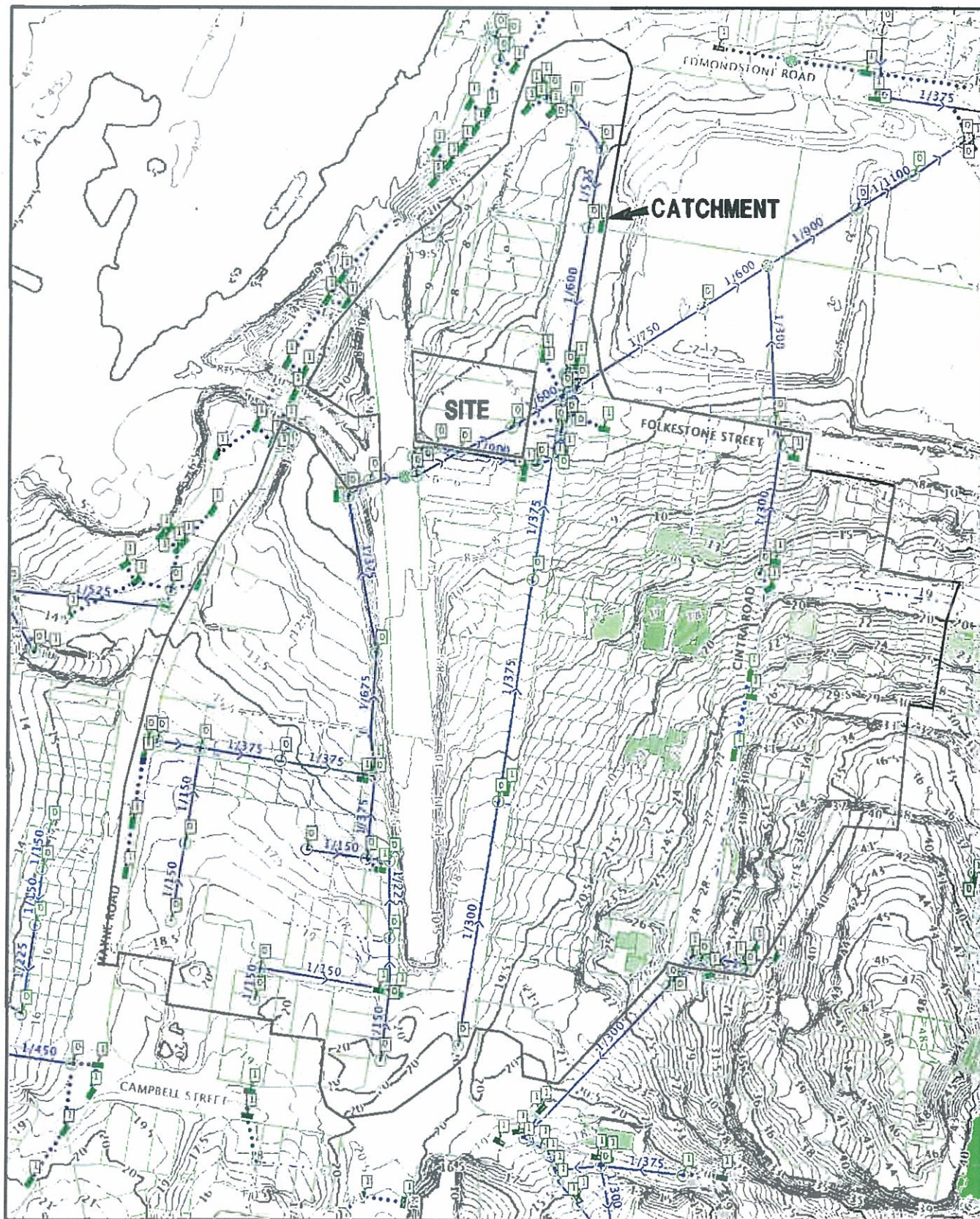
20 10 0 10 20 30 40 50mm

Scale 1:250 - Lengths are in Metres.

ATTACHMENT B: HYDROLOGY ANALYSIS

Catchment Plan

Rational Method Calculations for upstream Catchment



Bowen Hills

Disclaimer :

Location :

Date : 20/12/2010

User : brownbris#414346

Scale = 1:2,000

Metres 50 100

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 2002 Imagery (c) 2002 Mapbox Pty Ltd

Council then may access the locations of unrecorded underground
 utilities pipes. Council gives no warranty in the completeness or
 accuracy of these records. Appropriate care should be taken in all
 cases.

6,964,595
 503,248
 504,286
 6,963,916



Copyright BCC, 2006



URBAN CHANNEL FLOW CALCULATIONS - CATCHMENT

File: H:\B07\150-199\B07195.W\Stormwater\B07195.W Rational Method Calculations - IFD.xls\Catchment B
 Date: 1/03/2011
 Job: B07195.W
 By: TS
 Locality: BCC
 IFD Ref: IFD_BCC
 IFD Source: BCC Subdivision and Development Guidelines Part B (2008)

TIME OF CONCENTRATION CALCULATIONS

Reference	Equation Type / Method	Area (ha) 15.25	Length (m)	Av. Slope (%)	Pipe Diameter (mm)	Velocity (m/s)	Wetted Area (m ²)	Wetted Perimeter (m)	Hydraulic Radius R	Slope Modifier	Rs	Roughness (Mannings/Hortons)	Sub Total (mins)	tc (min)
Table 4.06.1 QUDM	QUDM Standard Inlet Times			4.4									13	
4.06.3 a(iii) QUDM	Assumed Pipe Flow Velocity		424			2.5							3	16
													Adopted tc	16

C10 VALUE

SELECT DEVELOPMENT CATEGORY!					
Select Development Category	Development Category	f _i	i ₁₀ (mm/hr)	C10	
Table B2.2 BCC Subdivision and Development Guidelines		0.9	70	#N/A	
Multi Purpose Centre area in Cat. B (ha) =		6.1		C10 Value for Multipurpose area =	
LMR area in Cat. B (ha) =		8.35		C10 Value for LMR area =	
Community use in Cat. B (ha) =		0.8		C10 Value for Community use area =	
Total Area (ha) =		15.25		Adopted C10 0.882	

FLOW CALCULATIONS

4.03.1 QUDM

Queensland Rational Method

Adopted Time of Concentration (mins) 16				
ARI	Cy	t _{cy}	A (ha)	Q (m ³ /s)
1	0.71	73	15.3	2.18
2	0.75	95	15.3	3.02
5	0.84	122	15.3	4.33
10	0.88	138	15.3	5.16
20	0.93	160	15.3	6.28
50	1.00	189	15.3	8.01
100	1.00	211	15.3	8.94

ATTACHMENT C: HYDRAULIC ANALYSIS

- C1 Weir Calculation for 50 year ARI with 750mm diameter Pipe
- C2 Weir Calculation for 50 year ARI with 50% blocked 750mm diameter Pipe
- C3 Weir Calculation for 50 year ARI without 750mm diameter Pipe

C1 WEIR CALCULATIONS WITH PIPE

Filename: H:\B07\150-199\B07195.W\Stormwater\B07195.W Weir Calcs.xls\Weir Calc With Pipe
Date: 1/03/2011
By: TS

58-66 Abbotsford Road, Bowen Hills

50 Y ARI

WSL (m) 4.22

Pipe Details

U/S WSL (m) 4.2221
TW (m) 2.2
H (m) 2.0221
L (m) 77.667
No. Cells 1
Dia (m) 0.75
A (m²) 0.442
U/S IL
D/S IL
n 0.013
ke 0.5
g (m/s²) 9.81

Q Inlet (m³/s) 2.402
Q Outlet (m³/s) 1.410

Pipe Flow (m³/s) 1.41

Box 1 Details

Width
No.
Dia (m)
Height (m)
Area (m²)
Invert Level (R.L.)
Inflow Level (R.L.)

Box Flow (m³/s) 0.00

Box 2 Details

Width
No.
Dia (m)
Height (m)
Area (m²)
Invert Level (R.L.)
Inflow Level (R.L.)

Box Flow (m³/s) 0.00

Weir Flow (m³/s) 6.60

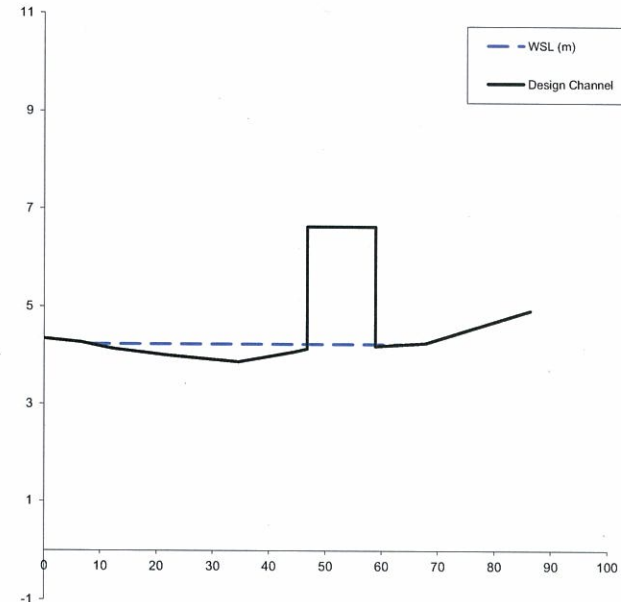
Results
Total Flow (m³/s) 8.01
Actual Flow (m³/s) 8.01
% Difference 0.02%

Weir Details

Chainage RL (m) P (m) D (m)
1 0 4.34
2 6.61 4.26
3 12.28 4.13 4.02 0.05
4 21.88 4 9.60 0.16
5 34.66 3.87 12.78 0.29
6 44.43 4.07 9.77 0.25
7 46.81 4.13 2.38 0.12
8 46.82 6.63 0.00 0.05
9 58.88 6.63
10 58.89 4.19 0.00 0.02
11 67.77 4.25 4.75 0.02
12 86.36 4.92

Weir Coefficient

1.67
Q (m³/s) wA (m²) V (m/s) V.D (m²/s)
0.066 0.18 0.36 0.02
0.998 1.51 0.66 0.10
3.283 3.67 0.89 0.26
2.065 2.46 0.84 0.21
0.170 0.29 0.58 0.07
0.000 0.00 0.36 0.02
0.000 0.00 0.21 0.00
0.016 0.08 0.21 0.00



C2 WEIR CALCULATIONS WITH PIPE 50% BLOCKED

Filename: H:\B07\150-199\B07195.W\Stormwater\B07195.W Weir Calcs.xls\Weir Calc With Pipe 50%
 Date: 1/03/2011
 By: TS

58-66 Abbotsford Road, Bowen Hills

50 Y ARI

WSL (m) 4.24

Pipe Details

U/S WSL (m) 4.2386
 TW (m) 2.5
 H (m) 1.7386
 L (m) 77.667
 No. Cells 0.5
 Dia (m) 0.75
 A (m²) 0.442
 U/S IL
 D/S IL
 n 0.013
 ke 0.5
 g (m/s²) 9.81

Q Inlet (m³/s) 1.204
 Q Outlet (m³/s) 0.654

Pipe Flow (m³/s) 0.65

Box 1 Details

Width
 No.
 Dia (m)
 Height (m)
 Area (m²)
 Invert Level (R.L.)
 Inflow Level (R.L.)

Box Flow (m³/s) 0.00

Box 2 Details

Width
 No.
 Dia (m)
 Height (m)
 Area (m²)
 Invert Level (R.L.)
 Inflow Level (R.L.)

Box Flow (m³/s) 0.00

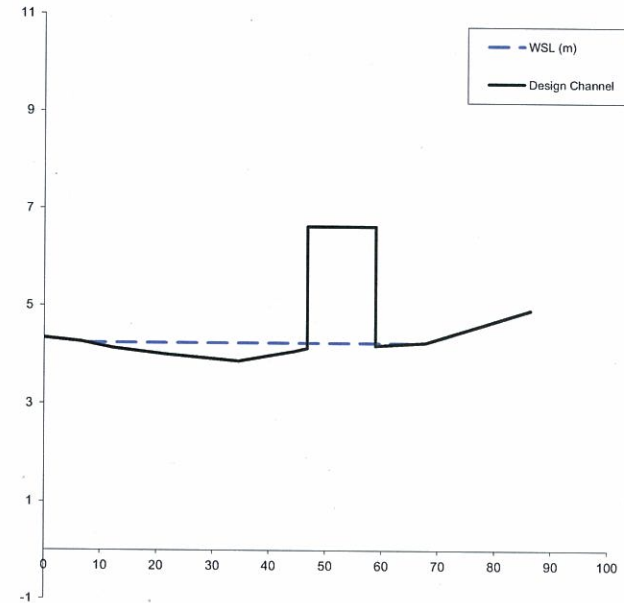
Weir Flow (m³/s) 7.35

Results	
Total Flow (m ³ /s)	8.01
Actual Flow (m ³ /s)	8.01
% Difference	0.06%

Weir Details

Chainage	RL (m)	P (m)	D (m)	Q (m ³ /s)	wA (m ²)	V (m/s)	V.D (m ² /s)
1	0	4.34					
2	6.61	4.26					
3	12.28	4.13	4.74	0.100	0.26	0.39	0.02
4	21.88	4	9.60	0.17	1.160	0.70	0.12
5	34.66	3.87	12.78	0.30	3.570	0.92	0.28
6	44.43	4.07	9.77	0.27	2.271	0.87	0.23
7	46.81	4.13	2.38	0.14	0.205	0.62	0.09
8	46.82	6.63	0.00	0.05	0.000	0.39	0.02
9	58.88	6.63					
10	58.89	4.19	0.00	0.02	0.000	0.26	0.01
11	67.77	4.25	7.19	0.02	0.046	0.17	0.01
12	86.36	4.92					

Controlling



C3 WEIR CALCULATIONS WITHOUT PIPE

Filename: H:\B07\150-199\B07195.W\Stormwater\B07195.W Weir Calcs.xls\Weir Calcs Without Pipe
Date: 1/03/2011
By: TS

58-66 Abbotsford Road, Bowen Hills

50 Y ARI

WSL (m) 4.25

Pipe Details

U/S WSL (m)
TW (m)
H (m)
L (m)
No. Cells
Dia (m)
A (m²)
U/S IL
D/S IL
n
ke
g (m/s²)

Q Inlet (m³/s)
Q Outlet (m³/s)

Pipe Flow (m³/s) 0.00

Box 1 Details

Width
No.
Dia (m)
Height (m)
Area (m²)
Invert Level (R.L.)
Inflow Level (R.L.)

Box Flow (m³/s) 0.00

Box 2 Details

Width
No.
Dia (m)
Height (m)
Area (m²)
Invert Level (R.L.)
Inflow Level (R.L.)

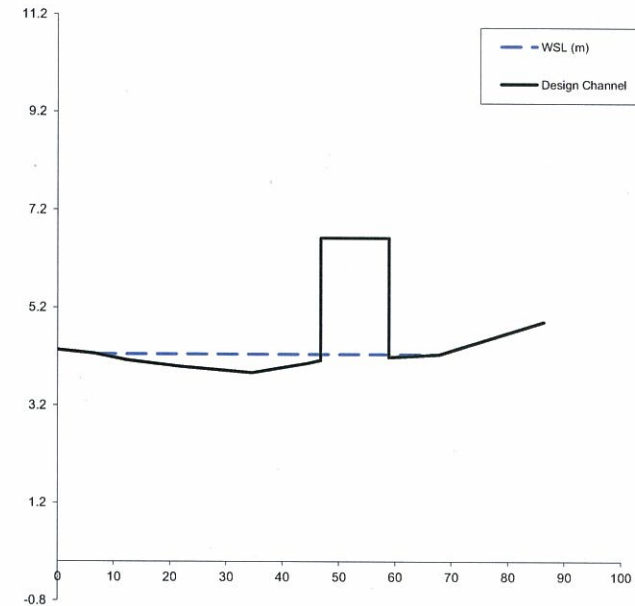
Box Flow (m³/s) 0.00

Weir Flow (m³/s) 8.01

Results	
Total Flow (m ³ /s)	8.01
Actual Flow (m ³ /s)	8.01
% Difference	0.02%

Weir Details

Chainage	RL (m)	Weir Coefficient		1.67	wA (m ²)	V (m/s)	V.D (m ² /s)
		P (m)	D (m)	Q (m ³ /s)			
1	0	4.34					
2	6.61	4.26					
3	12.28	4.13	5.33	0.134	0.33	0.41	0.03
4	21.88	4	9.60	1.297	1.80	0.72	0.14
5	34.66	3.87	12.78	3.811	4.05	0.94	0.30
6	44.43	4.07	9.77	2.445	2.76	0.89	0.25
7	46.81	4.13	2.38	0.236	0.36	0.65	0.10
8	46.82	6.63	0.00	0.000	0.00	0.41	0.03
9	58.88	6.63					
10	58.89	4.19	0.00	0.000	0.00	0.29	0.01
11	67.77	4.25	8.88	0.085	0.29	0.30	0.01
12	86.36	4.92	0.06	0.000	0.00	0.05	0.00
13							
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**ATTACHMENT D: BCC E-BIMAP SERVICE INDICATING PIPELINES UNDER
BUILDING**



BROWN
CONSULTING

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 5 / 10 / 11

ENGINEERING SERVICES REPORT

FOR

Commercial Development at

58 - 66 Abbotsford Road

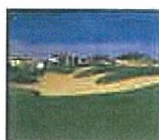
Bowen Hills

Prepared for

Seymour Group

February 2011

Report Number B07195.W.01.Services Report



BROWN CONSULTING

Engineers & Managers

ABN 38 109 428 506

Telephone: 07 3895 3444 Facsimile 07 3895 3400

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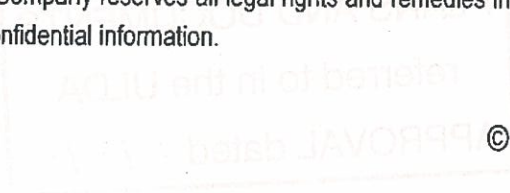
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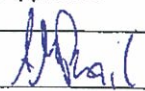


Brown Consulting (Qld) Pty Ltd

2011

DOCUMENT CONTROL

Report Number B08075-01D

Issue	Date	Issue Details	Author	Checked	Approved
A	01/03/11	Issue for Approval	AzH	AMcP (RPEQ 6921)	

ENGINEERING SERVICES REPORT COMMERCIAL DEVELOPMENT AT 58 – 66 ABBOTSFORD ROAD, BOWEN HILLS

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ATTACHMENT: BIMAP LAYOUT WITH EXISTING SERVICES

ENGINEERING SERVICES REPORT COMMERCIAL DEVELOPMENT AT 58 – 66 ABBOTSFORD ROAD, BOWEN HILLS

1.0 INTRODUCTION

Brown Consulting (QLD) Pty Ltd was commissioned by Seymour Group to investigate the proposed engineering servicing for the development and prepare an Engineering Services Report for inclusion in the Preliminary Approval submission to Brisbane City Council.

The proposed development is for a commercial high rise development occupying 58-66 Abbotsford Road, Bowen Hills, which can also be described as follows:

- Lot 2 on RP133342
- Lot 1 on RP127538
- Lot 1 on RP155441

The subject site is located to the west of the intersection of Abbotsford Road and Folkestone Street, and bound by railway line to the west. The existing land use is for low-rise commercial with similar commercial buildings bound to both north and south of the subject site.

2.0 ROADWORKS

Main vehicular access to the car parking for the proposed development can be provided directly from Abbotsford Road frontage.

No major external roadworks is expected to be required to facilitate the proposed development.

3.0 STORMWATER DRAINAGE

It is revealed from Council's BIMAP that an existing stormwater pipe traverses the south-eastern corner of the subject site. The upstream diameter is 450mm before increasing to a 600mm RCP pipe at a manhole before exiting the site.

The site is currently occupied by low set commercial buildings with roofwater generally discharging to existing on-site drainage system and eventually enters the stormwater trunk main.

Further detailed levels to the existing trunk drainage traversing the site cannot be found from the BIMAP records. Accordingly, detailed survey information to the existing drainage line will be required to be undertaken before detailed design phase.

Building over/near stormwater facilities will need to be complied in accordance with BCC Subdivision and Development Guidelines. Alternatively, diversion may be considered.

It is further argued that the existing land use for the site is office buildings, car parks with other hard standing areas. As such, the proposed commercial development does not envisaged to result in any significant increase in impervious area. Thus, the runoff generated from the subject site is expected to be in similar frequency and intensity. Accordingly, it is believed that the existing drainage capacity is sufficient in itself to service future development. No change to existing drainage infrastructure is proposed.

Best management practice for water quality can be applied to this development, including the applications of water collection, storage and harvesting facilities.

For details of the flooding & stormwater constraints on site, refer to Report B07195.W.01.AMcP.azh.

4.0 SEWERAGE RETICULATION

An existing 675mm un-reinforced concrete sewer pipe traverses the southeastern corner of the site at a grade of 1:500 with invert levels from -5.828m AHD to -5.995m AHD, approximately 10m depth from existing ground level.

The proposed high-rise building comprises 24 levels above ground with two basement car parking level. The lowest basement car parking level is at 0.30m AHD, which is a minimum 6.13m to the invert of the sewer within the site. As such, it is believed that the basement levels can be designed and built in a way to ensure no loading be imposed upon the existing sewer trunk main traversing the site.

Queensland Urban Utilities (QUU) may require existing sewer to be replaced and/or relocated due to its age or current conditions.

Alternatively, a sewer diversion could be opted for, with three new sewer manholes of approximately 10m depth to be located within the site to enable the diversion. The diverted sewer will run in parallel along the southern and eastern site boundaries with standard 1.5m offset on a general grade of 1:630 without drop within manholes. Due to proximity to existing buildings this may not be a suitable solution.

However, as demonstrated above, the building can be designed and constructed so as to maintain the existing condition of the sewer without imposing additional loading during both construction and operational stage, therefore, no relocation of existing sewer is proposed.

Consultation with Principal Engineer Mr. Sebastian Horvath was made to determine the appropriate EP for estimating the water & sewer demand. It is advised that a demand generating rate of 150EP per ha gross floor area (GFA) shall be used. The proposed development has a total GFA of 33736m², thus, the calculated sewer demand for the development is 506EP.

As the proposed development will significantly increase the waste water discharge from the subject site, further discussions are required to be held with QUU regarding servicing options during the approval process.

5.0 WATER RETICULATION

A 150mm water main exists along Abbotsford Road on a 1.6m alignment. A 225mm water main also exist on the other side of Abbotsford Road on a 2.82m alignment.

Internal boost pump may be required to allow for servicing the entire building.

As the proposed development will significantly increase the water demand for the subject site, discussions with QUU is required to ascertain detailed water reticulation configurations to cater for the proposed development.

As discussed previously, based on the total GFA of 33736m², the calculated water demand for the development is 506EP.

The size of the water mains within the development will be subject to a future detailed water network analysis by QUU upon submission of a Development Application.

6.0 CONCLUSION

The subject site is well serviced by existing water, sewer and stormwater infrastructure. Servicing options to cater for the proposed commercial high-rise development has been explored. It is concluded that stormwater from the proposed development will be collected, stored and reused appropriately on site, thus will not impose additional and more frequent flows to the existing drainage network. For sewer, the building structure can be designed and constructed to ensure no loading to be added to existing sewer, thus, no relocation is proposed at this stage. Existing water mains exist at both sides of Abbotsford Road to provide options of servicing the future building. Further advice from QUU is required to determine the necessary water and sewer reticulation service to fully cater for the proposed development.

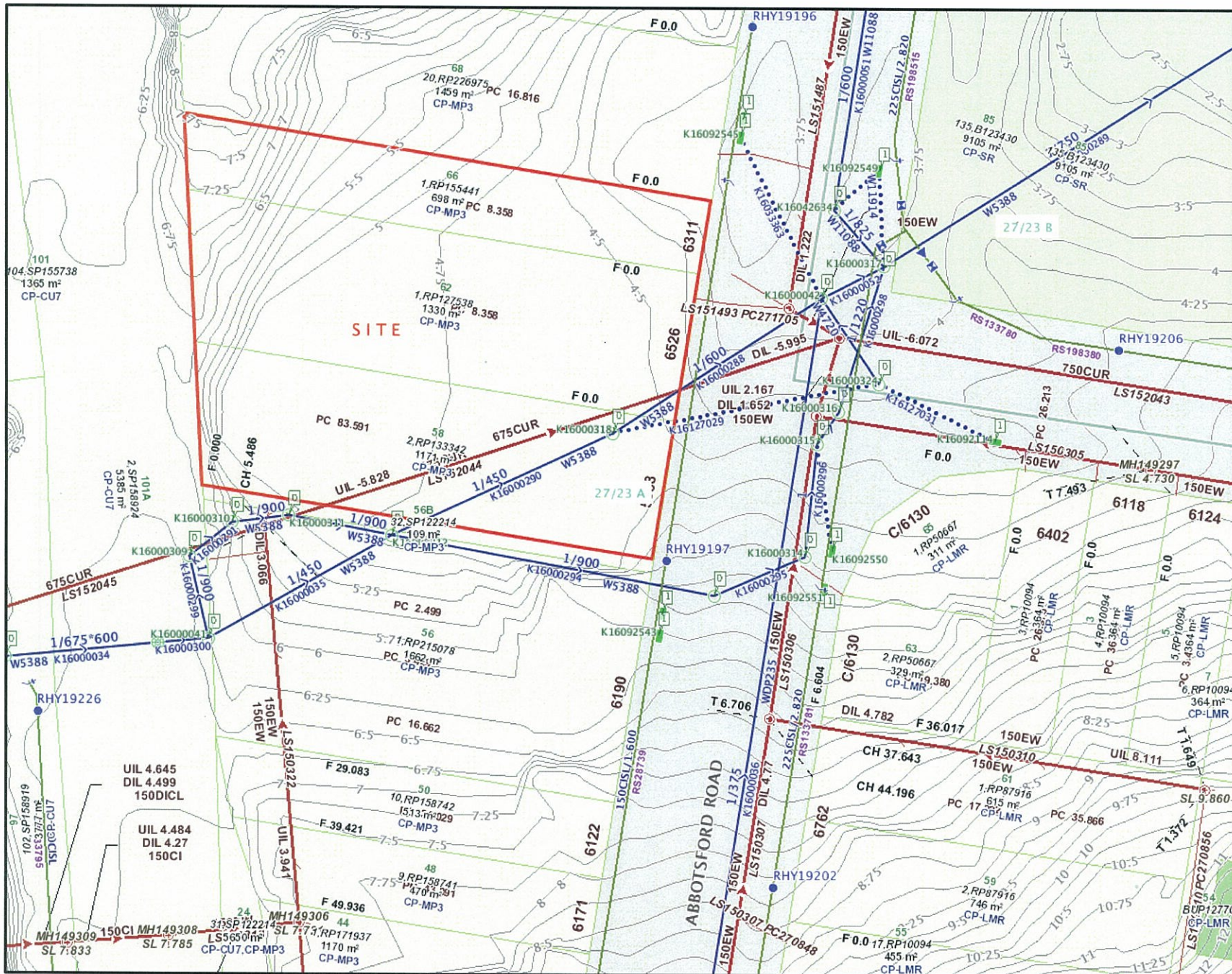
Signed _____

Dated _____

for and on behalf

Brown Consulting (QLD) Pty Ltd

Attachment: BIMAP showing existing infrastructure



Services Map

Date : 28/02/2011
User : brownbris428768

Scale = 1:500

Metres 10 20

Location :

6,964,416
503,656
N
503,896
6,964,284

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Caution: This map may contain the locations of abandoned underground asbestos pipes. Council gives no warranty to the completeness or accuracy of these records. Appropriate care needs to be taken in all cases.

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Site Context	DA-02	nts	1	1			
Site Views	DA-03	nts	1	1			
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DEVELOPMENT SUMMARY

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 5/10/11

SITE AREA	3,199sqm
PLOT RATIO	12.4
BUILDING HEIGHT	21 + ROOFED PLANT
BUILDING BULK ABOVE LEVEL 6	2354 sqm
PROPOSED USES	SHOP, FOOD PREMISES, INDOOR SPORT OFFICE
TOTAL GFA	39,934 sqm
TARGET NLA	35,640 sqm
CARPARKING	198 TOTAL (1:200) 115 REG. SPACES 33 TANDEM 43 SMALL SPACES 4 DISABLED 3 VANS 1 RCV, 1 SRV
SERVICING	
BICYCLE PARKING	100 BIKE SPACES WITH ASSOCIATED LOCKERS/CHANGING/SHOWER FACILITIES

Client



Project

proposed mixed use development
58 - 66 ABBOTSFORD ROAD, BOWEN HILLS

Title DEVELOPMENT SUMMARY

Scale

Date

Number

12.05.2011

3013_ DA01 (1)

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