## **Appendix E**

Replacement Pages of Revised Sewerage Impact

Assessment

Scenario	Upstream Manhole	Downstream Manhole	Sewer size (mm)	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Freeboard at upstream manhole (m)
freeboard >=	FMH4042115	FMH4042116	300	7.42	7.16	-1.62
Im	FMH4042116	FMH4042117	300	7.15	7.03	-0.69
	FMH4042117	FMH4042118	300	7.02	6.85	-0.10
	FMH4042118	FMH4042119	300	6.83	6.75	0.40
	FMH4042119	FMH4042120	300	6.72	6.57	0.91
	FMH4042120	FMH4042121	300	6.55	6.39	1.27
	FMH4042114	FMH4042126	300	8.01	7.78	-5.92
	FMH4042126	FMH4042115	300	7.76	7.45	-4.64
Peak flow x	FMH4042115	FMH4042116	300	7.42	7.16	-3.29
1.15 FOS while	FMH4042116	FMH4042117	300	7.15	7.03	-1.96
Freeboard >= 0m	FMH4042117	FMH4042118	300	7.02	6.85	-1.11
	FMH4042118	FMH4042119	300	6.83	6.75	-0.38
	FMH4042119	FMH4042120	300	6.72	6.57	0.34
	FMH4042120	FMH4042121	300	6.55	6.39	0.97

3.4.4 As there are no sufficient freeboard in the concerned manholes, sewerage upgrade is proposed by upgrading the sewers from manhole FMH4042114 to FMH4042124, from 300mm dia. to 375mm dia. HDPE pipes. As the maximum velocity of the sewerage from manhole FMH4042121 to FMH4042124 exceed 3 m/s, new invert levels are proposed to keep the maximum within 3 m/s. Detailed calculation is supplemented in Appendix A.

Table 3.6 Sewerage Capacity Checking after Proposed Upgrading Works

Location option	Upstream Manhole	Downstream Manhole	Sewer size (mm)	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	% of Max. Peak flow to sewer capacity
Proposed	FMH4042114	FMH4042126	375	8.01	7.78	85%
Sewerage Upgrading	FMH4042126	FMH4042115	375	7.76	7.45	79%
Works	FMH4042115	FMH4042116	375	7.42	7.16	84%
	FMH4042116	FMH4042117	375	7.15	7.03	84%
	FMH4042117	FMH4042118	375	7.02	6.85	60%
	FMH4042118	FMH4042119	375	6.83	6.75	80%
	FMH4042119	FMH4042120	375	6.72	6.57	80%
	FMH4042120	FMH4042121	375	6.55	6.39	84%
	FMH4042121	FMH4042122	375	<mark>6.13</mark>	5.72	51%
	FMH4042122	FMH4042123	375	<mark>5.45</mark>	5.10	50%
	FMH4042123	FMH4042124	375	4.91	4.87	77%

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development in Area Shown as 'Road', Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

FMH4042115	FMH4042116	10.24	9.92	7.42	7.16	2.52	2.46	38.3	0.007	147.3	300	0.071	10%	0.064	0.400	0.942	0.075	0.300	1.402	0.099	0.0	911.6	3,376	6	0.063	0.0862	151%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	1.09E+00	1.65	3.53	8.08	-3.29	review
FMH4042116	FMH4042117	9.92	9.70	7.15	7.03	2.47	2.37	17.8	0.007	148.3	300	0.071	10%	0.064	0.398	0.942	0.075	0.300	1.397	0.099	0.0	911.6	3,376	6	0.063	0.0862	151%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	5.08E-01	1.07	1.88	7.75	-1.96	review
FMH4042117	FMH4042118	9.70	9.50	7.02	6.85	2.38	2.35	13.0	0.013	76.5	300	0.071	10%	0.064	0.555	0.942	0.075	0.300	1.954	0.138	0.0	911.6	3,376	6	0.063	0.0862	108%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	3.71E-01	0.93	0.81	7.46	-1.11	review
FMH4042118	FMH4042119	9.50	9.36	6.83	6.75	2.37	2.31	10.8	0.007	135.0	300	0.071	10%	0.064	0.418	0.942	0.075	0.300	1.465	0.104	0.0	911.6	3,376	6	0.063	0.0862	144%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	3.08E-01	0.87	9.88	7.33	-0.38	review
FMH4042119	FMH4042120	9.36	8.86	6.72	6.57	2.34	1.99	20.1	0.007	134.0	300	0.071	10%	0.064	0.419	0.942	0.075	0.300	1.471	0.104	0.0	911.6	3,376	6	0.063	0.0862	144%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	5.74E-01	1.13	9.02	7.15	0.34	freeboard >0, OK
FMH4042120	FMH4042121	8.86	8.32	6.55	6.39	2.01	1.63	23.4	0.007	146.3	300	0.071	10%	0.064	0.401	0.942	0.075	0.300	1.407	0.099	0.0	911.6	3,376	6	0.063	0.0862	150%	0.2700	0.5	1	0.1860 0.3721	6.40E+	05 7	0.02	6.68E-01	1.23	7.89	7.05	0.97	freeboard >0, OK
FMH4042121	FMH4042122	8.32	7.84	6.28	5.72	1.74	1.82	22.4	0.025	40.0	300	0.071	10%	0.064	0.767	0.942	0.075	0.300	2.712	0.192	0.0	911.6	3,376	6	0.063	0.0862	78%			ι					ļ. ļ		, ,			
FMH4042122	FMH4042123	7.84	7.52	5.66	5.1	1.88	2.12	18.7	0.030	33.4	300	0.071	10%	0.064	0.840	0.942	0.075	0.300	2.970	0.210	0.0	911.6	3,376	6	0.063	0.0862	71%													
FMH4042123	FMH4042124	7.52	7.35	4.98	4.87	2.24	2.18	5.0	0.022	45.5	300	0.071	10%	0.064	0.720	0.942	0.075	0.300	2.542	0.180	0.0	911.6	3,376	6	0.063	0.0862	83%													
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Proposed Sewe	rage Upgrading	5																																						
TM	FMH4042114	11.00	10.88	8.30	8.20	2.48	2.46	10.0	0.010	100.0	225	0.040	10%	0.036	0.420	0.707	0.056	0.300	1.422	0.057	285.0	285.0	1,056	6	0.020	0.0098	52%													
FMH4042114	FMH4042126	10.88	10.60	8.01	7.78	2.50	2.45	35.0	0.007	152.2	375	0.110	10%	0.099	0.440	1.178	0.094	0.300	1.587	0.175	626.6	911.6	3,376	6	0.063	0.0862	85%													
FMH4042126	FMH4042115	10.60	10.24	7.76	7.45	2.47	2.42	40.4	0.008	130.3	375	0.110	10%	0.099	0.475	1.178	0.094	0.300	1.716	0.190	0.0	911.6	3,376	6	0.063	0.0862	79%													
FMH4042115	FMH4042116	10.24	9.92	7.42	7.16	2.45	2.39	38.3	0.007	147.3	375	0.110	10%	0.099	0.447	1,178	0.094	0.300	1.613	0.178	0.0	911.6	3.376	6	0.063	0.0862	84%													
FMH4042116	FMH4042117	9.92	9.70	7.15	7.03	2.40	2.30	17.8	0.007	148.3	375	0.110	10%	0.099	0.445	1.178	0.094	0.300	1.607	0.178	0.0	911.6	3,376	6	0.063	0.0862	84%													
FMH4042117	FMH4042118	9.70	9.50	7.02	6.85	2.10	2.28	13.0	0.013	76.5	375	0.110	10%	0.099	0.620	1 178	0.094	0.300	2 248	0.248	0.0	911.6	3 376	6	0.063	0.0862	60%													
ЕМПИОЛО118	EMH4042110	9.50	0.36	6.83	6.75	2.31	2.20	10.0	0.013	125.0	275	0.110	10%	0.000	0.020	1.170	0.004	0.300	1 686	0.186	0.0	011.6	2 276	6	0.003	0.0862	80%													
T WITH042110	EN (114042117)	9.50	9.50	0.85	0.75	2.50	1.02	10.8	0.007	133.0	275	0.110	1070	0.033	0.407	1.170	0.094	0.300	1.000	0.105	0.0	911.0	2,370	0	0.003	0.0802	000/													
FMH4042119	FMH4042120	9.36	8.86	6.72	6.57	2.27	1.92	20.1	0.007	134.0	3/5	0.110	10%	0.099	0.469	1.1/8	0.094	0.300	1.692	0.187	0.0	911.6	3,376	6	0.063	0.0862	80%													
FMH4042120	FMH4042121	8.86	8.32	6.55	6.39	1.94	1.56	23.4	0.007	146.3	375	0.110	10%	0.099	0.449	1.178	0.094	0.300	1.619	0.179	0.0	911.6	3,376	6	0.063	0.0862	84%													
FMH4042121	FMH4042122	8.32	7.84	6.13	5.72	1.82	1.75	22.4	0.018	54.6	375	0.110	10%	0.099	0.734	1.178	0.094	0.300	2.664	0.294	0.0	911.6	3,376	6	0.063	0.0862	51%													
FMH4042122	FMH4042123	7.84	7.52	5.45	5.1	2.02	2.05	18.7	0.019	53.4	375	0.110	10%	0.099	0.742	1.178	0.094	0.300	2.694	0.298	0.0	911.6	3,376	6	0.063	0.0862	50%													
FMH4042123	FMH4042124	7.52	7.35	4.91	4.87	2.24	2.11	5.0	0.008	125.0	375	0.110	10%	0.099	0.485	1.178	0.094	0.300	1.753	0.194	0.0	911.6	3,376	6	0.063	0.0862	77%													
Notes:				<u> </u>	ļ		<u> </u>	I				<u> </u>		ļ									<u>                                     </u>			1	<u> </u>	J												

(1) Refer to Catchment calculations.