Appendix 3.5b

Model Input Parameters

Outfall/Effluent Parameters			
Scenario 1 – existing	Unit	Value	Remarks
Port diameter	m	0.2	
Port elevation	m	1	
Vertical angle	deg	90	Corresponds to vertically upwards
Horizontal angle	deg	0	No horizontal angle
Number of ports		1	
Port depth (below surface)	m	19.39	
Effluent flow	m^3/s	1.018	
Effluent salinity	psu	11	Based on sampled effluent conductivity
Effluent temperature	C	20	
Scenario 2 – modified	Unit	Value	Remarks
Port diameter	m	0.2	
Port elevation	m	0.5	
Vertical angle	deg	90	Corresponds to vertically upwards
Horizontal angle	deg	0	No horizontal angle
Number of ports		1	
Port depth (below surface)	m	21.15	
Effluent flow	m^3/s	1.018	
Effluent salinity	psu	11	Based on sampled effluent conductivity
Effluent temperature	C	20	

Appendix 3.5b

Scenario 1 - Ambient Marine Conditions						
Dry			*Current Speed (m/s)			
Depth (m)	Salinity (psu)	Temperature (^{o}C)	10th percentile	50th percentile	90th percentile	Remarks
0	31.8	14.9	0.03	0.13	0.42	Based on Feb'2008 EPD marine water quality data for VM12 for 'surface'
10	31.8	14.9	0.03	0.10	0.37	Based on Feb'2008 EPD marine water quality data for VM12 for 'middle'
19.3	31.8	14.9	0.03	0.11	0.29	Based on Feb'2008 EPD marine water quality data for VM12 for 'bottom'
Wet			*Current Speed (m/s)			
Depth (m)	Salinity (psu)	Temperature (^{o}C)	10th percentile	50th percentile	90th percentile	Remarks
0	28	28.1	0.06	0.42	0.98	Based on Sep'2008 EPD marine water quality data for VM12 for 'surface'
10	28.9	27.7	0.04	0.09	0.50	Based on Sep'2008 EPD marine water quality data for VM12 for 'middle'
19.3	29.8	27.4	0.02	0.05	0.16	Based on Sep'2008 EPD marine water quality data for VM12 for 'bottom'

*Current speed adopted from Delft 3D hydrodynamic model.

Appendix 3.5b

Scenario 2 - Ambient Marine Conditions						
Dry			*Current Speed (m/s)			
Depth (m)	Salinity (psu)	Temperature (^{o}C)	10th percentile	50th percentile	90th percentile	Remarks
0	31.8	14.9	0.03	0.12	0.33	Based on Feb'2008 EPD marine water quality data for VM12 for 'surface'
10	31.8	14.9	0.03	0.10	0.33	Based on Feb'2008 EPD marine water quality data for VM12 for 'middle'
20.65	31.8	14.9	0.03	0.10	0.26	Based on Feb'2008 EPD marine water quality data for VM12 for 'bottom'
Wet			*Current Speed (m/s)			
Depth (m)	Salinity (psu)	Temperature (^{o}C)	10th percentile	50th percentile	90th percentile	Remarks
0	28	28.1	0.06	0.39	0.98	Based on Sep'2008 EPD marine water quality data for VM12 for 'surface'
10	28.9	27.7	0.03	0.08	0.49	Based on Sep'2008 EPD marine water quality data for VM12 for 'middle'
20.65	29.8	27.4	0.02	0.05	0.14	Based on Sep'2008 EPD marine water quality data for VM12 for 'bottom'

Appendix 3.5b

Summary of Model Results

	Current speed	Effluent Dilution
Scenario 1 – before modification works		
Dry Season	10th percentile	40.72
	50th percentile	39.92
	90th percentile	52.66
Wet Season	10th percentile	24.95
	50th percentile	24.95
	90th percentile	29.23
Scenario 2 – after modification works		
Dry Season	10th percentile	44.07
	50th percentile	44.07
	90th percentile	55.89
Wet Season	10th percentile	26.47
	50th percentile	26.47
	90th percentile	30.41