

Table 2.2.1 Summary of Baseline (Pre Operational) Surface Water– Sub Program

Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
Baseline gross chemical and physico-chemical condition of streams	Build a statistical dataset of baseline gross condition of streams during storm events	As approved by the Director.	1 Monthly, subject to flow	Sample sites defined as SW4 & SW11 on Figure 2.2.1	Automatic sampler actuated by stream level or rainfall sensor. Grab sample of first flush run-off sampled during storm events at dedicated weirs.	pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Total Suspended Solids (mg.L ⁻¹) TPH	Annual Return. Full data set with statistical summaries.	Sampling will be opportunistic and sample analysis frequency will be reduced when a statistically sound dataset has developed. Sampling period to be recorded for each sample event.
	Supplement the above sampling with field measurements of dissolved oxygen and temperature	As above	As above	As above	Manual field measurements during retrieval of auto-samples. A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions. Flow by surveyed gauge board, V-notch weir or similar.	Dissolved oxygen (% Saturation) Temperature (Deg C) Volumetric Flow (Ls ⁻¹)	As above	Meter calibration records to be maintained and made available to The Director of Environmental Management on request.

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Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
	Supplement the auto-sampling dataset with manual grab sampling at other monitoring sites.	As above	As above	Sample sites defined as SW1,2,3,5,6,7,8,9,10, & 12 Figure 2.2.1	Manual storm event grab sampling A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions or Laboratory Analysis* Flow by surveyed gauge board, V-notch weir or similar.	Volumetric Flow (Ls ⁻¹) pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Dissolved oxygen (% Saturation) Temperature (Deg C)	As above	As above
Baseline detailed physicochemical condition of streams	Build a periodic dataset of baseline detailed condition of streams	As above	Phased 1-6 Monthly	Sample sites defined as SW1 to SW12 on Figure 2.2.1	Manual grab sampling as stream flow allows:	Analyte Groups B,C,D,E and F as per Table 2.2.3 1-monthly for Analyte Groups B,C; 3-monthly for Groups D,E; 6-monthly for Group F or as required by The Director	As above	

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Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
	Supplement the above sampling with field measurements of gross condition	As above	As above	As above	A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions	pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Total Suspended Solids* (mg.L ⁻¹), Dissolved oxygen (% Saturation) Temperature (Deg C)	As above	Meter calibration records to be maintained and made available to The Director of Environmental Management on request.
	Build a periodic dataset of additional baseline chemical condition of streams which may have higher environmental risk profiles or significance.	As above	Phased 6-12 Monthly	Sample sites defined as SW4,8,11,12 Figure 2.2.1	Manual grab sampling as stream flow allows:	Analyte Groups G and H as per Table 2.2.3 6-monthly Analyte for Group G; 12-monthly for Group H or as required by The Director	As above	
Baseline Stream Flow	Supplement the above information with field measurements of flow	As above	Monthly	Sample sites defined as SW1 to 12 on Figure 2.2.1	Calculated by reference to surveyed gauge board, V-notch weir or similar.	Volumetric Flow (Ls ⁻¹)	As above	Flow to be recorded irrespective of sample collection for other requirements (ie Nil flow when apparent).

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Table 2.2.2 Summary of Operational Surface Water– Sub Program

Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
Operational phase gross physicochemical condition of streams	Monitor surface water physico-chemical condition indicators post disturbance.	Ongoing, Commencing at start of commissioning period, with first review after 3 years.	1 Monthly, subject to flow	Sample sites defined as SW4 & SW11 Figure 2.2.1	Automatic sampler actuated by stream level or rainfall sensor. Grab sample of first flush run-off sampled during storm events at dedicated weirs.	pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Total Suspended Solids (mg.L ⁻¹) TPH	Annual Return. Full data set with statistical summaries.	Sampling will be opportunistic and sample analysis frequency will be reduced when a statistically sound dataset has developed. Sampling period to be recorded for each sample event.
	Supplement the above sampling with field measurements of dissolved oxygen and temperature	As above	As above	As above	Manual field measurements during retrieval of auto-samples. A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions. Flow by surveyed gauge board, V-notch weir or similar.	Dissolved oxygen (% Saturation) Temperature (Deg C) Volumetric Flow (Ls ⁻¹)	As above	Meter calibration records to be maintained and made available to The Director of Environmental Management on request.

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Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
	Supplement the auto-sampling dataset with manual grab sampling at other monitoring sites.	As above	As above	Sample sites defined as SW1,2,3,5,6,7,8,9,10, & 12 Figure 2.2.1	Manual storm event grab sampling A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions or Laboratory Analysis* Flow by surveyed gauge board, V-notch weir or similar.	Volumetric Flow (Ls ⁻¹) pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Total Suspended Solids* (mg.L ⁻¹), Dissolved oxygen (% Saturation) Temperature (Deg C)	As above	As above
Operational phase detailed physicochemical condition of streams	Monitor surface water physico-chemical condition indicators post disturbance.	As above	Phased 1-6 Monthly	Sample sites defined as SW1 to 12 Figure 2.2.1	Manual grab sampling as stream flow allows:	Analyte Groups B,C,D,E and F as per Table 2.2.3 1-monthly for Analyte Groups B,C; 3-monthly for Groups D,E; 6-monthly for Group F or as required by The Director	As above	

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Sub Program	Objective	Period	Frequency	Location(s)	Methodology	Parameters	Interpretation & reporting	Other details
	Supplement the above sampling with field measurements of gross condition	As above	As above	As above	A suitable Water Quality Meter, maintained and operated in accordance with manufacturers instructions	pH (pH scale), Electrical Conductivity (mS.cm ⁻¹), Turbidity (NTU), Total Suspended Solids* (mg.L ⁻¹), Dissolved oxygen (% Saturation) Temperature (Deg C)	As above	Meter calibration records to be maintained and made available to The Director of Environmental Management on request.
	Monitor surface water physico-chemical condition indicators post disturbance in streams which may have higher environmental risk profiles or significance.	As above	Phased 6-12 Monthly	Sample sites defined as SW4,8,11,12 on Figure 2.2.1	Manual grab sampling as stream flow allows:	Analyte Groups G and H as per Table 2.2.3 6-monthly Analyte for Group G; 12-monthly for Group H or as required by The Director	As above	
Operational phase Stream Flow	Supplement the above information with field measurements of flow	As above	Monthly	Sample sites defined as SW1 to 12 Figure 2.2.1	Calculated by reference to surveyed gauge board, V-notch weir or similar.	Volumetric Flow (Ls ⁻¹)	As above	Flow to be recorded irrespective of sample collection for other requirements (ie Nil flow when apparent).

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