





**Photograph 1: B1 facing upstream**



**Photograph 2: B2 facing upstream**



**Photograph 3: B3 facing upstream**



**Photograph 4: B4 facing upstream**



**Photograph 5: B5 facing downstream**



**Photograph 6: B6 facing downstream**



**Photograph 7: B7 facing downstream**





**Photograph 8: B8 facing upstream**



**Photograph 9: T1 in dry weather facing upstream**



**Photograph 10: T1 in wet weather facing upstream**



**Photograph 11: T2 in dry weather facing downstream**



**Photograph 12: T2 in wet weather facing downstream**



**Photograph 13: T3 in dry weather facing downstream**



**Photograph 14: T3 in wet weather facing downstream**



**Photograph 15: T4 in dry weather facing upstream**



**Photograph 16: T4 in wet weather facing upstream**



**Photograph 17: T5 in dry weather**



**Photograph 18: T5 in wet weather**



**Photograph 19: T6 in dry weather facing upstream**



**Photograph 20: T6 in wet weather facing upstream**





Table B1. Mid-catchment Dry Weather Physicochemistry Results (B-Sites)												
Sample Name	Units	B1	B2	B3	B4	B5	B6	B7	B8	TANK (Schedule 26.2 Ahuriri Catchment - Taipo Stream) Target Attribute State (TAS) Values <sup>1</sup>	NPS-FM (Target Attribute State Band) <sup>2</sup>	ANZG DGV (WD-L) <sup>3</sup>
Date		11-July-2024	11-July-2024	11-July-2024	11-July-2024	11-July-2024	11-July-2024	11-July-2024	11-July-2024			
Time		11:15 am	11:45 am	12:05 pm	11:00 am	10:40 am	10:20 am	10:00 am	9:15 am			
<b>Field Results</b>												
Temperature	°C	8.5	8.2	9.7	7.5	8.6	7.8	7.6	7.5	-	-	-
Dissolved Oxygen	%	99.9	111.8	97.9	99.3	99.5	99	100.1	95.4	> 80	C	100
Dissolved Oxygen	mg/L	11.66	13.15	11.12	11.89	11.6	11.74	11.95	11.43	-	C	-
Electrical Conductivity	SPC, µS/cm	528	442	5.22	557	615	623	574	601	-	-	86
pH	pH Units	7.93	7.78	7.82	8.03	7.86	7.89	8.02	7.8	-	-	7.27-7.8
Turbidity	FNU	0.81	1.68	1.06	0.94	2.68	1.07	13.82	0.95	-	-	-

Notes:

1. Water Quality Standards for Target Attribute State 2040 from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
2. Water Quality Target Attribute Band for 2040 from the National Policy Statement for Freshwater Management (MfE, 2020). <https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/>
3. ANZG Derived Guideline Values (DGV's) for Physical and Chemical Stressors - 80th Percentile for River Environment Classification 'Warm Dry Low-elevation' (WD-L) (ANZG, 2018)- <https://www.waterquality.gov.au/anz-guidelines/your-location/new-zealand>

## **Appendix C: Lower Catchment Water Quality Results**

Table C1. Lower Catchment Dry Weather Water Quality Sampling Results											
Sample Name	Units	T1	T2	T3	T4	T6	TANK (Schedule 26.2 Ahuriri Catchment - Taipo Stream) Target Attribute State (TAS) Values <sup>1</sup>			NPS-FM (Target Attribute State Band) <sup>5</sup>	ANZG DGV (WD-L) <sup>6</sup>
Date		18-Apr-2024	18-Apr-2024	18-Apr-2024	18-Apr-2024	18-Apr-2024	Median <sup>2</sup>	Max <sup>3</sup>	95th Percentile <sup>4</sup>		
Time		9:45 am	11:30 am	12:30 pm	1:30 pm	2:45 pm					
Lab Report Number		3550092.1	3550092.2	3550092.3	3550092.4	3550092.5					
<b>Laboratory Results</b>											
Turbidity	NTU	0.7	1.71	6.5	2.6	2	-	-	-	-	4.2
pH	pH Units	8.1	8.2	8.2	8.4	8.1	-	-	-	-	7.27-7.8
Volatile Suspended Solids	g/m <sup>3</sup>	< 3	< 3	13	< 3	< 3	-	-	-	-	-
Total Suspended Solids	g/m <sup>3</sup>	< 3	< 3	25	< 3	5	-	-	-	-	4.6
Dissolved Organic Carbon (DOC)	g/m <sup>3</sup>	2.1	1	0.7	< 0.5	2.4	-	-	-	-	-
Escherichia coli	MPN / 100mL	411	214	≥ 2,420	162	1,046	<130	-	≤1200	C	-
Enterococci	MPN / 100mL	345	299	326	31	517	-	-	-	-	-
Chlorophyll a	g/m <sup>3</sup>	< 0.003	< 0.003	0.005	0.012	< 0.003	-	-	-	-	-
<b>Nutrient Profile</b>											
Total Ammoniacal-N	g/m <sup>3</sup>	< 0.010	< 0.010	0.017	< 0.010	0.017	< 0.03	< 0.05	-	A	0.017
Nitrite-N	g/m <sup>3</sup>	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	-	-	-	-	-
Nitrate-N	g/m <sup>3</sup>	0.013	0.004	0.002	< 0.002	0.004	< 1.0	-	≤1.5	A	0.195
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.014	0.004	0.003	0.002	0.006	-	-	±	-	-
Dissolved Inorganic Nitrogen	g/m <sup>3</sup>	0.024	0.014	0.02	0.012	0.023	<0.356	< 0.444	±	-	-
Dissolved Reactive Phosphorus	g/m <sup>3</sup>	0.088	0.068	0.168	0.039	0.068	< 0.018	-	≤0.054	C	-
Total Phosphorus	g/m <sup>3</sup>	0.097	0.084	0.21	0.049	0.082	-	-	-	-	0.023
<b>Field Results</b>											
Temperature	°C	14.1	14.5	20.1	15.8	16.1	-	-	-	-	-
Dissolved Oxygen	%	94.3	87.5	93.7	170.9	106.3	> 80	-	-	C	100
Dissolved Oxygen	mg/L	9.68	8.9	8.49	16.93	10.46	-	-	-	C	-
Electrical Conductivity	SPC µS/cm	537	738	729	576	567	-	-	-	-	86
pH	pH Units	7.93	7.94	7.95	8.34	8.15	-	-	-	-	7.27-7.8
Turbidity	FNU	2.87	2.97	9.59	10.69	3.87	-	-	-	-	-

Notes:

1. Water Quality Standards for Target Attribute State 2040 from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
2. Median Value from the 2040 Target Attribute State (TAS) for available parameters from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
3. Max Value from the 2040 Target Attribute State (TAS) for available parameters from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
4. 95th Percentile from the 2040 Target Attribute State (TAS) for available parameters from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
5. Water Quality Target Attribute Band from the National Policy Statement for Freshwater Management (MfE, 2020). <https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/>
6. ANZG Derived Guideline Values (DGV's) for Physical and Chemical Stressors - 80th Percentile for River Environment Classification 'Warm Dry Low-elevation' (WD-L) (ANZG, 2018) - <https://www.waterquality.gov.au/anz-guidelines/your-location/new-zealand>

Table C2. Lower Catchment Wet Weather Water Quality Sampling Results												
Sample Name	Units	T1_FF	T2_FF	T3_FF	T4_FF	T5_FF	T6_FF	TANK (Schedule 26.2 Ahuriri Catchment - Taipo Stream) Target Attribute State (TAS) Values <sup>1</sup>			NPS-FM (Target Attribute State Band) <sup>5</sup>	ANZG DGV (WD-L) <sup>6</sup>
Date		21-May-2024	21-May-2024	21-May-2024	21-May-2024	21-May-2024	21-May-2024	Median <sup>2</sup>	Max <sup>3</sup>	95th Percentile <sup>4</sup>		
Time		8:30 am	8:55 am	9:40 am	10:40 am	11:10 am	11:30 am					
Lab Report Number		3587824.1	3587824.2	3587824.3	3587824.4	3587824.5	3587824.6					
<b>Laboratory Results</b>												
Turbidity	NTU	940.0	130	60	770	21	350	-			-	4.2
pH	pH Units	7.9	8	8.2	7.9	7.7	7.9	-			-	7.27-7.8
Volatile Suspended Solids	g/m <sup>3</sup>	89	< 13	12	70	9	< 30	-			-	-
Total Suspended Solids	g/m <sup>3</sup>	770	99	100	760	30	270	-			-	4.6
Dissolved Organic Carbon (DOC)	g/m <sup>3</sup>	9.2	12	8.6	12.4	5.9	15	-			-	-
Escherichia coli	MPN / 100mL	≥2420	≥2420	≥2420	≥2420	≥2420	≥2420	<130		<1200	C	-
Enterococci	MPN / 100mL	> 2420	> 2420	> 2420	> 2420	> 2420	> 2420	-			-	-
Chlorophyll a	g/m <sup>3</sup>	< 0.04	< 0.006	0.014	< 0.05	0.083	< 0.03	-			-	-
<b>Nutrient Profile</b>												
Total Ammoniacal-N	g/m <sup>3</sup>	0.012	< 0.010	< 0.010	< 0.010	0.049	0.029	< 0.03	< 0.05		A	0.017
Nitrite-N	g/m <sup>3</sup>	0.016	0.014	0.009	0.009	0.011	0.013	-			-	-
Nitrate-N	g/m <sup>3</sup>	0.55	0.50	0.50	0.59	0.29	0.63	< 1.0		<1.5	A	0.195
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.57	0.51	0.51	0.60	0.30	0.64	-			-	-
Dissolved Inorganic Nitrogen	g/m <sup>3</sup>	0.582	0.520	0.520	0.610	0.349	0.669	<0.356	< 0.444		-	-
Dissolved Reactive Phosphorus	g/m <sup>3</sup>	0.25	0.35	0.31	0.23	0.26	0.29	< 0.018		<0.054	C	-
Total Phosphorus	g/m <sup>3</sup>	0.98	0.55	0.5	0.58	0.38	0.55	-			-	0.023
<b>Field Results</b>												
Temperature	°C	13.1	13.4	13.3	13.1	14.1	13.1	-			-	-
Dissolved Oxygen	%	97.9	88.5	88.2	85	78.2	79.9	> 80			C	100
Dissolved Oxygen	mg/L	10.3	9.24	9.22	8.92	8.04	8.39				C	-
Electrical Conductivity	SPC µS/cm	202.7	388.1	476.2	262.2	181.2	131.6	-			-	86
pH	pH Units	7.71	7.6	7.66	8.62	7.69	7.44	-			-	7.27-7.8
Turbidity	FNU	569.4	96.68	45.64	500.51	23.54	248.25	-			-	-

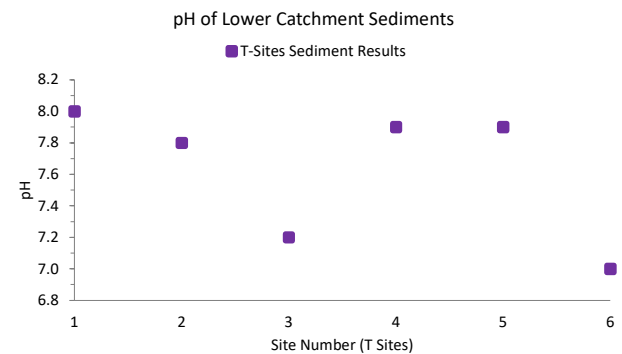
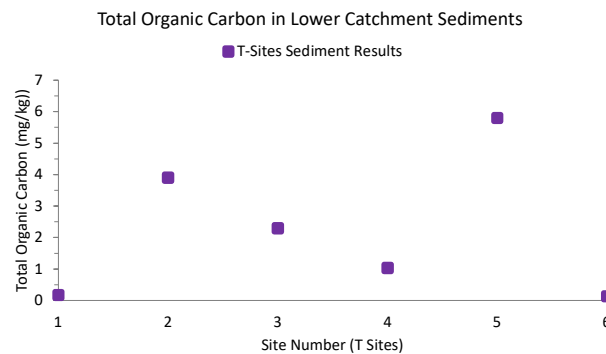
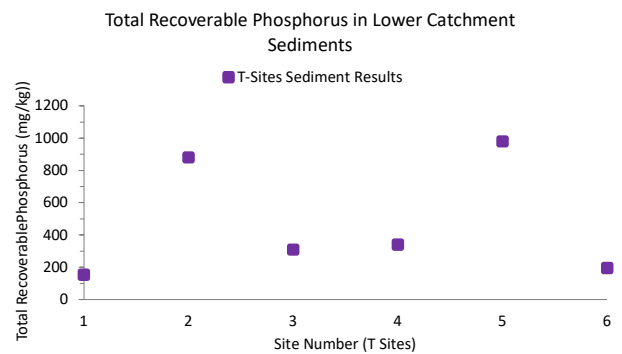
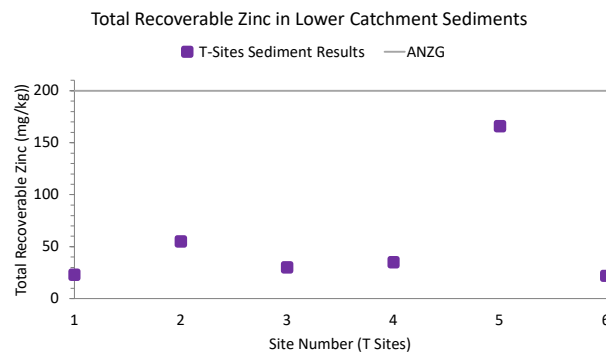
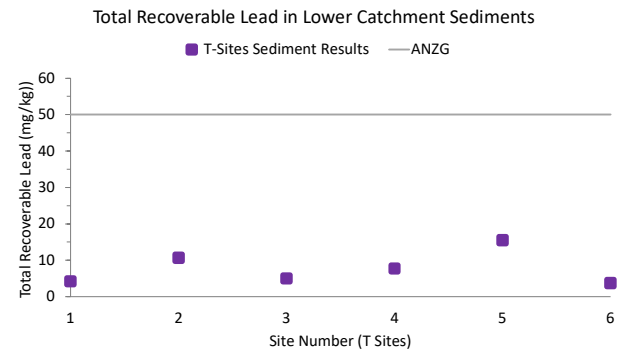
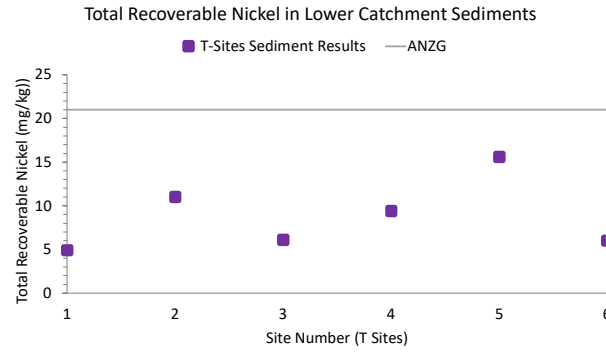
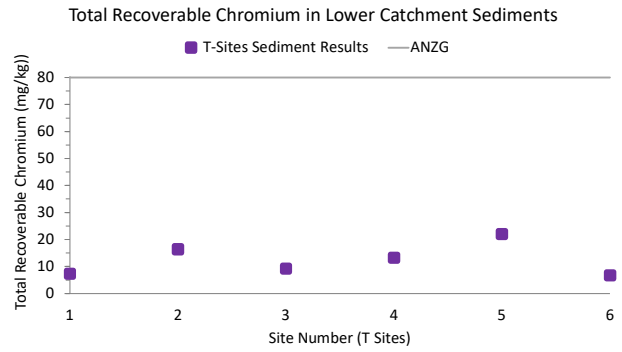
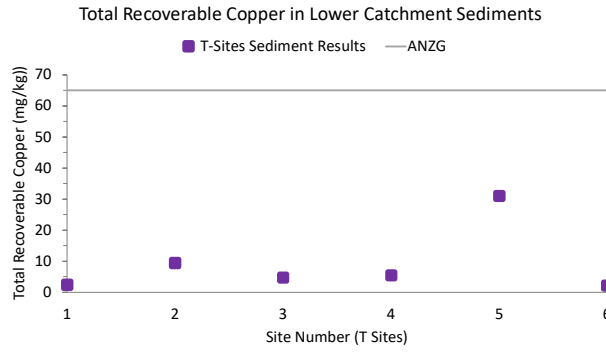
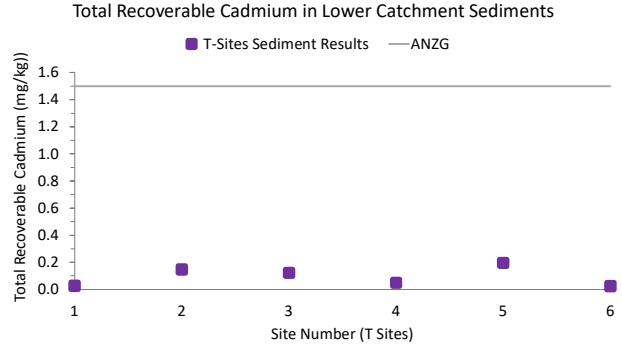
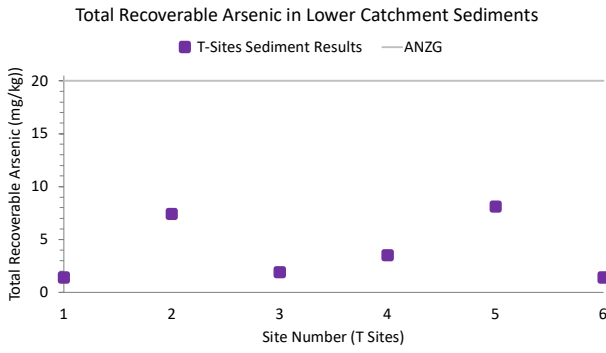
Notes:

- Water Quality Standards for Target Attribute State 2040 from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
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- 95th Percentile from the 2040 Target Attribute State (TAS) for available parameters from TANK (HBRC, 2022) <https://www.hbrc.govt.nz/assets/Uploads/PPC9-Commissioners-Decisions-Clean-Version-Aug22.pdf>
- Water Quality Target Attribute Band for 2040 from the National Policy Statement for Freshwater Management (MfE, 2020). <https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/>
- ANZG Derived Guideline Values (DGV's) for Physical and Chemical Stressors - 80th Percentile for River Environment Classification 'Warm Dry Low-elevation' (WD-L) (ANZG, 2018)- <https://www.waterquality.gov.au/anz-guidelines/your-location/new-zealand>



Table D1. Lower Catchment Sediment Sampling Results								
Sample Name	Units	T1	T2	T3	T4	T5	T6	ANZG <sup>1</sup>
Date		18-Apr-2024	18-Apr-2024	18-Apr-2024	18-Apr-2024	18-Apr-2023	18-Apr-2024	
Time		9:45 am	11:30 am	12:30 pm	1:30 pm	2:15pm	2:45 pm	
Lab Report Number		3550145.1	3550145.2	3550145.3	3550145.4	3550145.5	3550145.6	
<b>Laboratory Results</b>								
Dry Matter	mg/kg	67.0	30	47	51	27	71	-
pH	mg/kg	8	7.8	7.2	7.9	7.9	7	-
Nitrite-N	mg/kg	< 1.0	< 1.6	< 1.0	< 1.0	< 1.8	< 1.0	-
Nitrate-N	mg/kg	< 1.5	< 2.2	< 1.5	< 1.5	< 2.5	< 1.5	-
Nitrate-N + Nitrite-N	mg/kg	< 1.0	< 1.6	< 1.0	< 1.0	< 1.8	< 1.0	-
Total Recoverable Phosphorus	mg/kg	154	880	310	340	980	195	-
Total Organic Carbon	mg/kg	0.18	3.9	2.3	1.04	5.8	0.14	-
<b>Heavy metal, trace level As, Cd, Cr, Cu, Ni, Pb, Zn</b>								
Total Recoverable Arsenic	mg/kg	1.4	7.4	1.9	3.5	8.1	1.4	20
Total Recoverable Cadmium	mg/kg	0.027	0.147	0.122	0.049	0.195	0.024	1.5
Total Recoverable Chromium	mg/kg	7.3	16.4	9.2	13.2	22	6.7	80
Total Recoverable Copper	mg/kg	2.4	9.4	4.7	5.4	31	2.1	65
Total Recoverable Lead	mg/kg	4.2	10.7	5	7.7	15.5	3.7	50
Total Recoverable Nickel	mg/kg	4.9	11	6.1	9.4	15.6	6	21
Total Recoverable Zinc	mg/kg	23	55	30	35	166	22	200
<b>Organochlorine Pesticides Screening in Solids</b>								
Aldrin	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
alpha-BHC	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
beta-BHC	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
delta-BHC	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
gamma-BHC (Lindane)	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
cis-Chlordane	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
trans-Chlordane	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
2,4'-DDD	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
4,4'-DDD	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
2,4'-DDE	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
4,4'-DDE	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
2,4'-DDT	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
4,4'-DDT	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Total DDT Isomers	mg/kg	< 0.09	< 0.2	< 0.13	< 0.12	< 0.5	< 0.09	12
Dieldrin	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	2.8
Endosulfan I	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Endosulfan II	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Endosulfan sulphate	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Endrin	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	2.7
Endrin aldehyde	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Endrin ketone	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Heptachlor	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Heptachlor epoxide	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Hexachlorobenzene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Methoxychlor	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
<b>Polycyclic Aromatic Hydrocarbons Screening in Solids</b>								
Total of Reported PAHs in Soil	mg/kg	< 0.4	< 0.8	< 0.6	< 0.5	< 1.8	< 0.4	10,000
1-Methylnaphthalene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
2-Methylnaphthalene	mg/kg	< 0.015	< 0.05	< 0.04	< 0.019	< 0.08	< 0.014	-
Acenaphthylene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Acenaphthene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Anthracene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[a]anthracene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[a]pyrene (BAP)	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg	< 0.036	< 0.077	< 0.050	< 0.046	< 0.18	< 0.033	-
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg	< 0.036	< 0.077	< 0.050	< 0.046	< 0.18	< 0.033	-
Benzo[b]fluoranthene + Benzo[k]fluoranthene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[e]pyrene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[g,h,i]perylene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Benzo[k]fluoranthene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Chrysene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Dibenzo[a,h]anthracene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Fluoranthene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Fluorene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Indeno[1,2,3-c,d]pyrene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Naphthalene	mg/kg	< 0.08	< 0.16	< 0.11	< 0.10	< 0.4	< 0.07	-
Perylene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Phenanthrene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
Pyrene	mg/kg	< 0.015	< 0.04	< 0.03	< 0.019	< 0.08	< 0.014	-
<b>Total Petroleum Hydrocarbons in Solids</b>								
C7 - C9	mg/kg	< 30	< 50	< 30	< 30	< 110	< 20	-
C10 - C14	mg/kg	< 20	< 40	< 30	< 30	< 90	< 20	-
C15 - C36	mg/kg	< 40	< 80	< 50	< 50	< 180	< 40	-
Total hydrocarbons (C7 - C36)	mg/kg	< 90	< 160	< 110	< 100	< 400	< 80	280

ANZG Recommended toxicant default guideline values for sediment quality, Table 1 (ANZG, 2018) <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/sediment-quality-toxicants>







**Table E1: Rapid Habitat Assessment (RHA) B**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	8
2. Invertebrate habitat diversity	4
3. Invertebrate habitat abundance	4
4. Fish cover diversity	7
5. Fish cover abundance	4
6. Hydraulic Heterogeneity	7
7. Bank Erosion	5
8. Bank vegetation	2
9. Riparian width	5
10. Riparian shade	1
<b>Total</b>	<b>47</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E2: Rapid Habitat Assessment (RHA) B 2**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Slightly turbid
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	1
2. Invertebrate habitat diversity	5
3. Invertebrate habitat abundance	1
4. Fish cover diversity	1
5. Fish cover abundance	2
6. Hydraulic Heterogeneity	1
7. Bank Erosion	4
8. Bank vegetation	1
9. Riparian width	1
10. Riparian shade	1
<b>Total</b>	<b>18</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E3: Rapid Habitat Assessment (RHA) B 3**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	8
2. Invertebrate habitat diversity	7
3. Invertebrate habitat abundance	8
4. Fish cover diversity	8
5. Fish cover abundance	7
6. Hydraulic Heterogeneity	7
7. Bank Erosion	7
8. Bank vegetation	7
9. Riparian width	7
10. Riparian shade	5
<b>Total</b>	<b>71</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E4: Rapid Habitat Assessment (RHA) B 4**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless, some foams
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	6
2. Invertebrate habitat diversity	8
3. Invertebrate habitat abundance	5
4. Fish cover diversity	6
5. Fish cover abundance	6
6. Hydraulic Heterogeneity	6
7. Bank Erosion	2
8. Bank vegetation	1
9. Riparian width	1
10. Riparian shade	1
<b>Total</b>	<b>42</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E5: Rapid Habitat Assessment (RHA) B 5**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	8
2. Invertebrate habitat diversity	2
3. Invertebrate habitat abundance	4
4. Fish cover diversity	2
5. Fish cover abundance	2
6. Hydraulic Heterogeneity	2
7. Bank Erosion	3
8. Bank vegetation	1
9. Riparian width	1
10. Riparian shade	1
<b>Total</b>	<b>26</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E6: Rapid Habitat Assessment (RHA) B 6**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	7
2. Invertebrate habitat diversity	8
3. Invertebrate habitat abundance	7
4. Fish cover diversity	6
5. Fish cover abundance	5
6. Hydraulic Heterogeneity	7
7. Bank Erosion	5
8. Bank vegetation	5
9. Riparian width	4
10. Riparian shade	7
<b>Total</b>	<b>61</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E7: Rapid Habitat Assessment (RHA) B 7**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Slightly turbid
Water Colour	Light brown
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	6
2. Invertebrate habitat diversity	4
3. Invertebrate habitat abundance	7
4. Fish cover diversity	4
5. Fish cover abundance	2
6. Hydraulic Heterogeneity	5
7. Bank Erosion	5
8. Bank vegetation	5
9. Riparian width	5
10. Riparian shade	5
<b>Total</b>	<b>48</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	

**Table E8: Rapid Habitat Assessment (RHA) B 8**

<b>Attribute</b>	<b>Condition Score</b>
Water Clarity	Clear
Water Colour	Colourless
<b>Rapid Habitat Assessment</b>	
1. Deposited sediment (<2mm)	3
2. Invertebrate habitat diversity	6
3. Invertebrate habitat abundance	7
4. Fish cover diversity	5
5. Fish cover abundance	4
6. Hydraulic Heterogeneity	7
7. Bank Erosion	6
8. Bank vegetation	2
9. Riparian width	5
10. Riparian shade	2
<b>Total</b>	<b>47</b>
<i>Notes:</i>	
1. All categories are scored out of 10, the total score is out of 100. Values above 75% indicate 'optimal' stream habitat; 50-75% indicates 'suboptimal' stream habitat; 25-50% indicates 'marginal' stream habitat and <25% indicates 'poor' stream habitat.	



## Rapid Habitat Assessment

1	Deposited sediment	The percentage of the stream bed covered by fine sediment.										SCORE
		0	5	10	15	20	30	40	50	60	>75	
	SCORE	10	9	8	7	6	5	4	3	2	1	
2	Invertebrate habitat density	The number of different substrate types such as boulders, cobbles, gravel, sand, wood, leaves, root mats, macrophytes, periphyton. Presence of interstitial space score higher.										
		>5	5	5	4	4	3	3	2	2	1	
	SCORE	10	9	8	7	6	5	4	3	2	1	
3	Invertebrate habitat abundance	The percentage of substrate favourable for EPT colonisation, for example flowing water over gravel-cobbles clear of filamentous algae/macrophytes.										
		95	75	70	60	50	40	30	25	15	5	
	SCORE	10	9	8	7	6	5	4	3	2	1	
4	Fish cover diversity	The number of different substrate types such as woody debris, root mats, undercut banks, overhanging/encroaching vegetation, macrophytes, boulders, cobbles. Presence of substrates providing spatial complexity score higher.										
		>5	5	5	4	4	3	3	2	2	1	
	SCORE	10	9	8	7	6	5	4	3	2	1	
5	Fish cover abundance	The percentage of fish cover available.										
		95	75	60	50	40	30	20	10	5	0	
	SCORE	10	9	8	7	6	5	4	3	2	1	
6	Hydraulic heterogeneity	The number of hydraulic components such as pool, riffle, fast run, slow run, rapid, cascade/waterfall, turbulence, backwater. Presence of deep pools score higher.										
		>5	5	4	4	3	3	2	2	2	1	
	SCORE	10	9	8	7	6	5	4	3	2	1	
7	Bank erosion	The percentage of the stream bank recently/actively eroding due to scouring at the water line, slumping of the bank or stock pugging.										
	Left bank	0	<5	5	15	25	35	50	65	75	> 75	
	Right bank	0	<5	5	15	25	35	50	65	75	> 75	
	SCORE	10	9	8	7	6	5	4	3	2	1	
8	Bank vegetation	The maturity, diversity and naturalness of bank vegetation										
		Mature native trees with diverse and intact understorey		Regenerating native or flaxes/sedges/tussock > dense exotic			Mature shrubs, sparse tree cover > young exotic, long grass			Heavily grazed or mown grass > bare/impervious ground.		
	SCORE	10	9	8	7	6	5	4	3	2	1	
9	Riparian width	The width (m) of the riparian buffer constrained by vegetation, fence or other structure(s).										
	Left bank	> 30	15	10	7	5	4	3	2	1	0	
	Right bank	> 30	15	10	7	5	4	3	2	1	0	
	SCORE	10	9	8	7	6	5	4	3	2	1	
10	Riparian shade	The percentage of shading of the stream bed throughout the day due to vegetation, banks or other structure(s).										
		> 90	80	70	60	50	40	25	15	10	< 5	
	SCORE	10	9	8	7	6	5	4	3	2	1	
										TOTAL SCORE		