

Environment Protection Licence Monitoring Data

Project Name:	WestConnex Stage 3A - M4-M5 Link Mainline Tunnels
Monitoring Period:	18 October 2018 – 31 December 2021
Licensee:	Acciona Infrastructure Projects Australia Pty Ltd, Samsung C&T Corporation, Bouygues Construction Australia Pty Ltd
Environment Protection Licence Number:	21149
Premise Address:	WestConnex between M4 East at Haberfield and The New M5 at St. Peters, Marrickville NSW 2204
Public Register:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21149&id=21149&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

Monitoring Type: Water Discharge Monitoring

Discharge / Monitoring Point: 3 - Pyrmont Bridge Road Tunnel Site (C9)

1. Surface Water Discharge

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
1	19/03/2019	N/A	N/A	50	22	6.5 - 8.5	7.02	Not Visible	None	Each Discharge	Compliant
2	19/03/2019	N/A	N/A	50	27	6.5 - 8.5	6.97	Not Visible	None	Each Discharge	Compliant
3	19/03/2019	N/A	N/A	50	16	6.5 - 8.5	8.06	Not Visible	None	Each Discharge	Compliant
4	19/03/2019	47	19.6	50	NTU*	6.5 - 8.5	7.30	Not Visible	None	Each Discharge	Compliant
5	19/03/2019	47	28.1	50	NTU*	6.5 - 8.5	7.03	Not Visible	None	Each Discharge	Compliant
6	19/03/2019	47	29.9	50	NTU*	6.5 - 8.5	8.45	Not Visible	None	Each Discharge	Compliant
7	20/03/2019	47	26.7	50	NTU*	6.5 - 8.5	8.29	Not Visible	None	Each Discharge	Compliant
8	22/03/2019	N/A	9.5	50	17	6.5 - 8.5	7.99	Not Visible	None	Each Discharge	Compliant
9	22/03/2019	47	24.3	50	NTU*	6.5 - 8.5	8.40	Not Visible	None	Each Discharge	Compliant
10	1/04/2019	N/A	2.45	50	5	6.5 - 8.5	8.09	Not Visible	None	Each Discharge	Compliant
11	1/04/2019	N/A	3.17	50	<5	6.5 - 8.5	8.00	Not Visible	None	Each Discharge	Compliant
12	1/04/2019	N/A	27.1	50	7	6.5 - 8.5	7.30	Not Visible	None	Each Discharge	Compliant
13	1/04/2019	N/A	27.1	50	29	6.5 - 8.5	7.00	Not Visible	None	Each Discharge	Compliant
14	1/04/2019	N/A	3.8	50	12	6.5 - 8.5	7.51	Not Visible	None	Each Discharge	Compliant
15	8/04/2019	N/A	25.8	50	22	6.5 - 8.5	7.15	Not Visible	None	Each Discharge	Compliant
16	9/04/2019	N/A	12.1	50	14	6.5 - 8.5	7.02	Not Visible	None	Each Discharge	Compliant
17	22/05/2019	47	14.7	50	NTU*	6.5 - 8.5	7.07	Not Visible	None	Each Discharge	Compliant
18	23/05/2019	47	9.66	50	NTU*	6.5 - 8.5	7.61	Not Visible	None	Each Discharge	Compliant
19	30/05/2019	N/A	8.07	50	20.0	6.5 - 8.5	7.14	Not Visible	None	Each Discharge	Compliant
20	31/05/2019	N/A	7.5	50	16.0	6.5 - 8.5	7.72	Not Visible	None	Each Discharge	Compliant
21	8/06/2019	N/A	18.66	50	28.0	6.5 - 8.5	6.86	Not Visible	None	Each Discharge	Compliant
22	11/06/2019	N/A	17.5	50	NTU*	6.5 - 8.5	7.24	Not Visible	None	Each Discharge	Compliant
23	13/06/2019	N/A	17.5	50	28	6.5 - 8.5	7.05	Not Visible	None	Monthly	Compliant
24	12/07/2019	N/A	15.64	50	14	6.5 - 8.5	7.50	Not Visible	None	Monthly	Compliant
25	25/07/2019	N/A	3.98	50	20	6.5 - 8.5	7.27	Not Visible	None	Monthly	Compliant
26	19/09/2019	47	22.4	50	NTU*	6.5 - 8.5	6.83	Not Visible	None	Each Discharge	Compliant

*A correlation between TSS and Turbidity (NTU) has been established for the Pyrmont Bridge Road tunnel site.

2. Water Treatment Plant Commissioned to Process Groundwater

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003	0.3	0.0066	2.5	0.0007	0.2	0.023 / 0.04*	N/A	Licence Limit
1	28/08/2019	16	7.36	None	<0.001	<0.0001	<0.004	<0.005	<0.001	<0.005	<0.001	0.019	<0.0001	<0.001	<0.005	Monthly	Compliant
2	26/09/2019	<5	6.99	None	<0.001	<0.0001	<0.004	<0.005	<0.001	<0.005	<0.001	0.006	<0.0001	<0.001	<0.005	Monthly	Compliant
3	28/10/2019	17	6.96	None	<0.001	<0.0001	<0.004	<0.005	<0.001	<0.005	<0.001	0.33	<0.0001	0.001	0.013	Monthly	Compliant
4	28/11/2019	<5	8.12	None	<0.001	<0.0001	<0.004	<0.005	<0.001	<0.005	<0.001	0.37	<0.0001	0.002	0.008	Monthly	Compliant
5	13/12/2019	<5	8.26	None	<0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.027	<0.0001	0.001	0.014	Monthly	Compliant
6	8/01/2020	<5	6.90	None	0.002	<0.0001	0.007	<0.005	0.002	0.019	0.001	0.230	<0.0001	0.001	0.037	Monthly	Non-Compliant for Zinc
7	13/01/2020	<5	8.09	None	<0.001	<0.0001	0.016	<0.005	0.001	<0.005	<0.001	0.002	<0.0001	<0.001	0.012	Following Non-Complaint Result	Compliant
8	4/02/2020	26	7.37	None	0.002	<0.0002	0.012	<0.005	<0.001	<0.005	<0.001	0.034	<0.0001	<0.001	0.014	Monthly	Compliant
9	13/03/2020	<5	7.42	None	0.001	0.0001	0.02	<0.01	<0.001	<0.005	<0.001	0.018	0.0003	<0.001	0.013	Monthly	Compliant
10	16/04/2020	<5	6.74	None	0.001	<0.0001	<0.004	0.017	<0.001	<0.005	<0.001	0.065	<0.0001	<0.001	0.017	Monthly	Compliant
11	8/05/2020	<5	7.54	None	0.002	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	<0.001	<0.0001	<0.001	<0.005	Monthly	Compliant
12	9/06/2020	<5	6.85	None	<0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.002	<0.0001	<0.001	0.009	Monthly	Compliant
13	6/07/2020	<5	7.48	None	<0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.003	<0.0001	<0.001	0.005	Monthly	Compliant
14	6/08/2020	22	7.43	None	<0.001	<0.0002	0.012	<0.005	<0.001	<0.05	<0.001	<0.005	<0.0001	<0.001	<0.005	Monthly	Compliant
15	4/09/2020	6	7.35	None	0.001	<0.0002	<0.005	0.033	<0.001	<0.05	<0.001	0.006	<0.0001	<0.001	0.025	Monthly	Compliant
16	7/10/2020	<5	6.82	None	0.001	<0.0002	<0.005	<0.005	<0.001	<0.05	<0.001	0.015	<0.0001	<0.001	0.006	Monthly	Compliant
17	6/11/2020	<5	6.78	None	<0.001	<0.0002	<0.005	<0.005	<0.001	<0.05	<0.001	0.015	<0.0001	<0.001	0.01	Monthly	Compliant
18	8/12/2020	8	7.05	None	0.002	<0.0001	<0.01	0.03	<0.001	<0.05	<0.001	0.018	<0.0001	<0.001	0.008	Monthly	Compliant
19	12/01/2021	<5	6.98	None	0.001	<0.0002	0.01	0.01	<0.001	<0.05	<0.001	0.032	<0.0001	0.001	0.019	Monthly	Compliant
20	8/02/2021	5	7.09	None	0.002	<0.0001	<0.01	0.04	<0.001	<0.05	<0.001	0.008	<0.0001	0.001	0.017	Monthly	Compliant
21	3/03/2021	<5	7.02	None	0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.018	<0.0001	<0.001	0.023	Monthly	Compliant
22	13/04/2021	<5	8.07	None	0.002	<0.0002	0.01	0.03	<0.001	<0.05	<0.001	<0.005	<0.0001	<0.001	0.009	Monthly	Compliant
23	12/05/2021	<5	6.71	None	<0.001	<0.0001	<0.01	0.04	<0.001	<0.05	<0.001	<0.001	<0.0001	<0.001	0.012	Monthly	Compliant
24	2/06/2021	10	7.17	None	<0.001	<0.0001	<0.01	0.04	<0.001	<0.05	<0.001	0.004	<0.0001	<0.001	0.008	Monthly	Compliant
25	6/07/2021	<5	7.45	None	0.002	<0.0002	0.015	0.024	0.003	<0.05	<0.001	0.012	<0.0001	0.001	0.006	Monthly	Compliant
26	16/08/2021	<5	7.38	None	0.001	<0.0001	0.01	<0.01	<0.001	<0.05	<0.001	0.031	<0.0001	0.002	0.011	Monthly	Compliant
27	6/09/2021	9	7.62	None	<0.001	<0.0001	<0.01	0.03	<0.001	<0.05	<0.001	0.007	<0.0001	0.002	0.008	Monthly	Compliant
28	11/10/2021	<5	6.80	None	<0.001	<0.0001	0.02	<0.01	<0.001	<0.05	<0.001	0.007	<0.0001	0.001	0.020	Monthly	Compliant
29	9/11/2021	10	7.60	None	0.001	<0.0001	<0.01	0.03	0.002	<0.05	<0.001	0.002	<0.0001	<0.001	0.028	Monthly	Compliant
30	1/12/2021	10	6.96	None	0.002	<0.0001	<0.01	0.03	<0.001	<0.05	<0.001	0.004	<0.0001	<0.001	0.025	Monthly	Compliant

*The Project EPL was varied on 15 May 2020 to increase the zinc concentration limit for discharge point 3 from 0.023 mg/L to 0.04 mg/L.

3. Explanation of Exceedances

8/01/2019: Monthly water treatment plant (WTP) samples were taken on the 8/01/2020. Results were received on 10/01/2020 and returned elevated zinc results in excess of the EPL criteria.

Following this result, discharge from the WTP ceased immediately. This zinc result was less than median zinc level of the receiving waterway (Johnstons Creek) and therefore no environmental harm occurred. The Environment Protection Authority (EPA) was notified and the exceedance will be recorded in the relevant annual return. Works were carried out on the WTP and additional samples were taken on 13/01/2020 with all results compliant with EPL limits. The EPA was advised of the successful WTP works and discharge recommenced.

Discharge / Monitoring Point: 4 – Water Treatment Plant at Campbell Road Civil and Tunnel Site (C10)

1. Surface Water Discharge

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
1	18/10/2018	N/A	N/A	50	15	6.5 - 8.5	8.21	Not Visible	None	Each Discharge	Compliant
2	29/10/2018	N/A	N/A	50	33	6.5 - 8.5	8.46	Not Visible	None	Each Discharge	Compliant
3	30/10/2018	N/A	N/A	50	33	6.5 - 8.5	7.55	Not Visible	None	Each Discharge	Compliant
4	21/11/2018	N/A	N/A	50	44	6.5 - 8.5	8.31	Not Visible	None	Each Discharge	Compliant
5	14/01/2019	N/A	N/A	50	14	6.5 - 8.5	8.03	Not Visible	None	Each Discharge	Compliant
6	22/01/2019	N/A	N/A	50	<5	6.5 - 8.5	8.39	Not Visible	None	Each Discharge	Compliant
7	7/02/2019	N/A	N/A	50	9	6.5 - 8.5	8.13	Not Visible	None	Each Discharge	Compliant
8	11/02/2019	N/A	N/A	50	6	6.5 - 8.5	8.33	Not Visible	None	Each Discharge	Compliant
9	18/03/2019	N/A	N/A	50	28	6.5 - 8.5	7.34	Not Visible	None	Each Discharge	Compliant
10	18/03/2019	N/A	N/A	50	38	6.5 - 8.5	7.34	Not Visible	None	Each Discharge	Compliant
11	18/03/2019	N/A	N/A	50	29	6.5 - 8.5	7.12	Not Visible	None	Each Discharge	Compliant
12	19/03/2019	N/A	N/A	50	28	6.5 - 8.5	7.68	Not Visible	None	Each Discharge	Compliant
13	19/03/2019	N/A	N/A	50	29	6.5 - 8.5	7.15	Not Visible	None	Each Discharge	Compliant
14	20/03/2019	N/A	N/A	50	31	6.5 - 8.5	7.68	Not Visible	None	Each Discharge	Compliant
15	20/03/2019	N/A	N/A	50	30	6.5 - 8.5	6.66	Not Visible	None	Each Discharge	Compliant
16	21/03/2019	N/A	N/A	50	25	6.5 - 8.5	7.59	Not Visible	None	Each Discharge	Compliant
17	22/03/2019	111	15.6	50	NTU*	6.5 - 8.5	8.30	Not Visible	None	Each Discharge	Compliant
18	25/03/2019	111	25.3	50	NTU*	6.5 - 8.5	6.90	Not Visible	None	Each Discharge	Compliant
19	26/03/2019	111	3.8	50	NTU*	6.5 - 8.5	7.27	Not Visible	None	Each Discharge	Compliant
20	30/03/2019	111	14.9	50	NTU*	6.5 - 8.5	8.45	Not Visible	None	Each Discharge	Compliant
21	1/04/2019	111	8.6	50	NTU*	6.5 - 8.5	7.40	Not Visible	None	Each Discharge	Compliant
22	1/04/2019	111	3.9	50	NTU*	6.5 - 8.5	7.78	Not Visible	None	Each Discharge	Compliant
23	2/04/2019	111	17	50	NTU*	6.5 - 8.5	7.75	Not Visible	None	Each Discharge	Compliant
24	4/04/2019	111	20.7	50	NTU*	6.5 - 8.5	7.89	Not Visible	None	Each Discharge	Compliant
25	5/04/2019	111	42.4	50	NTU*	6.5 - 8.5	8.46	Not Visible	None	Each Discharge	Compliant
26	6/04/2019	111	6	50	NTU*	6.5 - 8.5	7.66	Not Visible	None	Each Discharge	Compliant
27	8/04/2019	111	3.3	50	NTU*	6.5 - 8.5	8.17	Not Visible	None	Each Discharge	Compliant
28	9/04/2019	111	35.3	50	NTU*	6.5 - 8.5	8.49	Not Visible	None	Each Discharge	Compliant
29	9/04/2019	111	19.4	50	NTU*	6.5 - 8.5	8.34	Not Visible	None	Each Discharge	Compliant
30	9/04/2019	111	6.7	50	NTU*	6.5 - 8.5	7.85	Not Visible	None	Each Discharge	Compliant
31	13/04/2019	111	17.2	50	NTU*	6.5 - 8.5	7.42	Not Visible	None	Each Discharge	Compliant

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
32	16/04/2019	111	5	50	NTU*	6.5 - 8.5	7.32	Not Visible	None	Each Discharge	Compliant
33	17/04/2019	N/A	18.5	50	22	6.5 - 8.5	8.32	Not Visible	None	Each Discharge	Compliant
34	18/04/2019	111	27.5	50	NTU*	6.5 - 8.5	8.17	Not Visible	None	Each Discharge	Compliant
35	18/04/2019	111	14.5	50	NTU*	6.5 - 8.5	7.19	Not Visible	None	Each Discharge	Compliant
36	18/04/2019	111	50.4	50	NTU*	6.5 - 8.5	7.00	Not Visible	None	Each Discharge	Compliant
37	24/04/2019	111	52.1	50	NTU*	6.5 - 8.5	7.17	Not Visible	None	Each Discharge	Compliant
38	29/04/2019	111	66.8	50	NTU*	6.5 - 8.5	8.07	Not Visible	None	Each Discharge	Compliant
39	2/05/2019	111	9.9	50	NTU*	6.5 - 8.5	8.12	Not Visible	None	Each Discharge	Compliant
40	3/05/2019	111	17.7	50	NTU*	6.5 - 8.5	8.31	Not Visible	None	Each Discharge	Compliant
41	6/05/2019	111	68.4	50	NTU*	6.5 - 8.5	8.14	Not Visible	None	Each Discharge	Compliant
42	14/05/2019	N/A	67.8	50	14	6.5 - 8.5	8.48	Not Visible	None	Each Discharge	Compliant
43	20/05/2019	111	24.6	50	NTU*	6.5 - 8.5	8.20	Not Visible	None	Each Discharge	Compliant
44	3/06/2019	111	44.7	50	NTU*	6.5 - 8.5	8.29	Not Visible	None	Each Discharge	Compliant
45	4/06/2019	N/A	62.4	50	18	6.5 - 8.5	7.66	Not Visible	None	Each Discharge	Compliant
46	6/06/2019	111	39.7	50	NTU*	6.5 - 8.5	6.97	Not Visible	None	Each Discharge	Compliant
47	7/06/2019	111	47.6	50	NTU*	6.5 - 8.5	8.18	Not Visible	None	Each Discharge	Compliant
48	14/06/2019	111	38.9	50	NTU*	6.5 - 8.5	8.36	Not Visible	None	Each Discharge	Compliant
49	17/06/2019	111	68.8	50	NTU*	6.5 - 8.5	7.98	Not Visible	None	Each Discharge	Compliant
50	18/06/2019	N/A	21	50	8	6.5 - 8.5	8.33	Not Visible	None	Each Discharge	Compliant
51	18/06/2019	111	60.6	50	NTU*	6.5 - 8.5	7.10	Not Visible	None	Each Discharge	Compliant
52	24/06/2019	111	67.7	50	NTU*	6.5 - 8.5	8.07	Not Visible	None	Each Discharge	Compliant
53	20/06/2019	111	58	50	NTU*	6.5 - 8.5	7.31	Not Visible	None	Each Discharge	Compliant
54	21/06/2019	111	39.8	50	NTU*	6.5 - 8.5	8.06	Not Visible	None	Each Discharge	Compliant
55	26/06/2019	111	67	50	NTU*	6.5 - 8.5	6.64	Not Visible	None	Each Discharge	Compliant
56	27/06/2019	111	59.1	50	NTU*	6.5 - 8.5	7.12	Not Visible	None	Each Discharge	Compliant
57	3/07/2019	111	6.4	50	NTU*	6.5 - 8.5	6.80	Not Visible	None	Each Discharge	Compliant
58	5/07/2019	N/A	52.3	50	28	6.5 - 8.5	8.46	Not Visible	None	Each Discharge	Compliant
59	8/07/2019	111	34.7	50	NTU*	6.5 - 8.5	6.85	Not Visible	None	Each Discharge	Compliant
60	18/07/2019	111	43.3	50	NTU*	6.5 - 8.5	8.15	Not Visible	None	Each Discharge	Compliant
61	31/07/2019	111	49.8	50	NTU*	6.5 - 8.5	6.60	Not Visible	None	Each Discharge	Compliant
62	1/08/2019	111	63.7	50	NTU*	6.5 - 8.5	8.21	Not Visible	None	Each Discharge	Compliant
63	7/08/2019	111	12.4	50	NTU*	6.5 - 8.5	6.92	Not Visible	None	Each Discharge	Compliant
64	10/08/2019	111	40.1	50	NTU*	6.5 - 8.5	6.73	Not Visible	None	Each Discharge	Compliant
65	22/08/2019	111	8.4	50	NTU*	6.5 - 8.5	8.47	Not Visible	None	Each Discharge	Compliant
66	28/08/2019	111	39.1	50	NTU*	6.5 - 8.5	7.76	Not Visible	None	Each Discharge	Compliant
67	29/08/2019	111	15.9	50	NTU*	6.5 - 8.5	8.30	Not Visible	None	Each Discharge	Compliant
68	30/08/2019	111	30.8	50	NTU*	6.5 - 8.5	7.40	Not Visible	None	Each Discharge	Compliant
69	30/08/2019	111	29	50	NTU*	6.5 - 8.5	8.22	Not Visible	None	Each Discharge	Compliant

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
70	30/08/2019	111	35.3	50	NTU*	6.5 - 8.5	8.50	Not Visible	None	Each Discharge	Compliant
71	31/08/2019	111	26.1	50	NTU*	6.5 - 8.5	8.20	Not Visible	None	Each Discharge	Compliant
72	6/09/2019	111	15	50	NTU*	6.5 - 8.5	8.30	Not Visible	None	Each Discharge	Compliant
73	10/09/2019	111	20.3	50	NTU*	6.5 - 8.5	8.50	Not Visible	None	Each Discharge	Compliant
74	18/09/2019	111	33.4	50	NTU*	6.5 - 8.5	8.12	Not Visible	None	Each Discharge	Compliant
75	18/09/2019	111	31.3	50	NTU*	6.5 - 8.5	8.10	Not Visible	None	Each Discharge	Compliant
76	18/09/2019	111	23	50	NTU*	6.5 - 8.5	7.02	Not Visible	None	Each Discharge	Compliant
77	18/09/2019	111	35.9	50	NTU*	6.5 - 8.5	6.73	Not Visible	None	Each Discharge	Compliant
78	18/09/2019	111	10.4	50	NTU*	6.5 - 8.5	6.58	Not Visible	None	Each Discharge	Compliant
79	19/09/2019	111	35.4	50	NTU*	6.5 - 8.5	7.40	Not Visible	None	Each Discharge	Compliant
80	19/09/2019	111	56.4	50	NTU*	6.5 - 8.5	8.06	Not Visible	None	Each Discharge	Compliant
81	19/09/2019	111	43.8	50	NTU*	6.5 - 8.5	6.81	Not Visible	None	Each Discharge	Compliant
82	20/09/2019	111	9.6	50	NTU*	6.5 - 8.5	6.61	Not Visible	None	Each Discharge	Compliant
83	23/09/2019	111	10.7	50	NTU*	6.5 - 8.5	8.50	Not Visible	None	Each Discharge	Compliant
84	25/09/2019	N/A	9.8	50	10	6.5 - 8.5	6.52	Not Visible	None	Each Discharge	Compliant
85	30/09/2019	111	21.1	50	NTU*	6.5 - 8.5	7.84	Not Visible	None	Each Discharge	Compliant
86	8/10/2019	111	27.6	50	NTU*	6.5 - 8.5	7.76	Not Visible	None	Each Discharge	Compliant
87	11/10/2019	111	28	50	14	6.5 - 8.5	7.90	Not Visible	None	Each Discharge	Compliant
88	14/10/2019	111	40.9	50	34	6.5 - 8.5	7.56	Not Visible	None	Each Discharge	Compliant
89	19/10/2019	111	29.4	50	NTU*	6.5 - 8.5	8.30	Not Visible	None	Each Discharge	Compliant
90	25/10/2019	111	21	50	NTU*	6.5 - 8.5	7.80	Not Visible	None	Each Discharge	Compliant

*A correlation between TSS and Turbidity (NTU) has been established for the Campbell Road civil and tunnel site.

The Project's EPL was varied on the 1 November 2019 to include an additional discharge point for surface water run-off at Campbell Road site. Discharges after this date are reported under Discharge Point 8 below. Discharges from the WTP will continue to be reported under Discharge Point 4.

2. Water Treatment Plant Commissioned to Process Groundwater

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Ammonia (mg/L)	Monitoring Frequency	Comment
		50	6.5 - 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003 / 0.008*	0.3	0.0066	2.5	0.0007	0.2	0.023	1.2	N/A	Licence Limit
1.	12/12/2019	18	7.19	None	0.004	0.0001	0.02	<0.01	<0.001	<0.05	<0.001	<0.001	<0.0001	0.001	<0.005	0.09	Monthly	Compliant
2.	11/02/2020	17	7.89	None	0.004	<0.0001	0.01	<0.01	0.003	<0.05	<0.001	0.008	<0.0001	0.002	<0.005	0.54	Monthly	Compliant
3.	6/03/2020	35	7.62	None	0.010	<0.0001	0.02	<0.01	0.007	<0.05	<0.001	0.029	<0.0001	0.006	0.014	0.72	Monthly	Non-Compliant for Copper
4.	24/03/2020	38	8.04	None	0.005	0.0001	<0.01	0.02	0.001	<0.05	<0.001	0.015	<0.0001	0.007	0.020	0.79	Following Non-Compliant Result	Compliant
5.	24/04/2020	5	7.70	None	0.006	<0.0002	<0.005	<0.005	0.002	<0.05	<0.001	0.036	<0.0001	0.002	0.012	1.1	Monthly	Compliant
6.	26/05/2020	5	7.9	None	0.006	<0.0001	0.02	0.01	<0.001	<0.05	<0.001	<0.001	<0.0001	0.003	<0.005	1.2	Monthly	Compliant
7.	26/06/2020	8	7.78	None	0.006	<0.0001	0.02	<0.01	<0.001	<0.05	<0.001	<0.001	<0.0001	0.003	0.006	0.87	Monthly	Compliant

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Ammonia (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003 / 0.008*	0.3	0.0066	2.5	0.0007	0.2	0.023	1.2	N/A	Licence Limit
8.	30/07/2020	10	7.27	None	0.005	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.002	<0.0001	0.004	0.008	2.1	Monthly	Non-Compliant for Ammonia
9.	4/08/2020	5	7.40	None	0.006	0.002	0.006	<0.005	<0.001	0.008	<0.001	0.002	<0.0001	0.004	0.007	0.63	Following Non-Compliant Result	Compliant
10.	25/08/2020	<5	7.92	None	0.005	<0.0001	0.02	<0.01	<0.001	<0.05	<0.001	0.002	<0.0001	0.003	0.02	0.16	Monthly	Compliant
11.	18/09/2020	<5	7.98	None	0.006	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.002	<0.0001	0.004	<0.005	0.38	Monthly	Compliant
12.	28/10/2020	18	7.40	None	0.005	<0.0002	0.02	<0.005	0.002	<0.05	<0.001	0.005	<0.0001	0.003	0.006	0.04	Monthly	Compliant
13.	24/11/2020	6.8	7.40	None	0.007	<0.0002	0.02	<0.005	0.002	<0.05	<0.001	<0.005	<0.0001	0.003	0.02	0.15	Monthly	Compliant
14.	9/12/2020	6.8	7.40	None	0.006	<0.0002	0.02	<0.005	0.002	<0.05	<0.001	0.006	<0.0001	0.002	0.007	0.07	Monthly	Compliant
15.	22/01/2021	<5	7.50	None	0.005	<0.0002	0.005	<0.005	<0.001	<0.05	<0.001	<0.005	<0.0001	0.003	0.015	0.78	Monthly	Compliant
16.	25/02/2021	6	7.3	None	<0.001	<0.0002	0.02	<0.005	0.003	<0.05	<0.001	<0.005	<0.0001	<0.001	0.019	0.18	Monthly	Compliant
17.	16/03/2021	<5	7.90	None	0.004	<0.0002	0.02	<0.005	0.005	<0.05	<0.001	<0.005	<0.0001	0.004	0.017	0.27	Monthly	Compliant
18.	13/04/2021	7	7.60	None	0.005	<0.0002	0.013	<0.005	0.004	<0.05	<0.001	0.008	<0.0001	0.004	0.023	0.65	Monthly	Compliant
19.	12/05/2021	16	8.10	None	0.007	<0.0002	<0.005	0.038	0.006	<0.05	<0.001	<0.005	<0.0001	0.003	0.017	<0.01	Monthly	Compliant
20.	16/06/2021	19	7.60	None	0.005	<0.0002	0.02	0.001	0.006	<0.05	<0.001	0.006	<0.0001	0.003	<0.005	0.38	Monthly	Compliant
21.	28/07/2021	<5	7.70	None	0.002	<0.0002	0.01	0.007	0.004	<0.05	<0.001	0.006	<0.0001	0.003	0.01	0.12	Monthly	Compliant
22.	26/08/2021	21	7.90	None	0.003	<0.0002	0.01	0.03	0.003	<0.05	<0.001	<0.005	<0.0001	0.002	0.009	0.36	Monthly	Compliant
23.	29/09/2021	21	7.70	None	0.003	<0.0002	0.009	0.026	0.008	<0.05	<0.001	0.015	<0.0001	0.005	0.022	0.12	Monthly	Compliant
24.	27/10/2021	17	7.6	None	0.002	<0.002	0.011	<0.005	0.005	<0.05	<0.001	0.012	<0.0001	0.003	0.013	0.31	Monthly	Compliant
25.	26/11/2021	15	8.26	None	<0.001	<0.0001	0.01	<0.01	0.002	<0.05	<0.001	0.006	<0.0001	0.004	0.017	<0.01	Monthly	Compliant
26.	3/12/2021	42	8.29	None	<0.001	<0.0001	<0.01	<0.01	0.004	<0.05	<0.001	0.005	<0.0001	0.004	0.014	<0.01	Monthly	Compliant

*The Project EPL was varied on 15 May 2020 to increase the copper concentration limit for discharge point 4 from 0.003 mg/L to 0.008 mg/L.

Note: Due to on site mechanical issues, discharging from the WTP ceased in January 2020. Discharges recommenced 11 February 2020 following a compliant monthly sample.

3. Explanation of Exceedances

6/03/2020: Monthly WTP samples were taken on the 6/03/2020. Results were received on 9/03/2020 and returned elevated copper results in excess of the EPL criteria.

Following this result, discharge from the WTP ceased immediately. This copper result was less than median copper level of the receiving waterway (Alexandra Canal) and therefore no environmental harm occurred. The EPA was notified and the exceedance will be recorded in the relevant annual return. Works were carried out on the WTP and discharge did not recommence until a compliant sample was received.

30/07/2020: Monthly WTP samples were taken on the 30/07/2020. Results were received on 31/07/2020 and returned elevated ammonia results in excess of the EPL criteria.

Following this result, additional samples were taken immediately to confirm the accuracy of the ammonia exceedance, and the EPA were contacted. Results from the second sample were received on 3/08/2020 and confirmed an ammonia level in excess of the EPL criteria and were discussed with EPA. Following further works on the WTP, a third sample was taken on the 4/08/2020 with all results compliant with EPL limits. The EPA was advised of the successful WTP works and the exceedance will be recorded in the relevant annual return.

Discharge / Monitoring Point: 5 – Northcote Street Tunnel Site (C3a)

1. Surface Water Discharge

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
1	15/03/2019	N/A	N/A	50	10	6.5 - 8.5	7.86	Not Visible	None	Each Discharge	Compliant
2	19/03/2019	N/A	N/A	50	9	6.5 - 8.5	6.80	Not Visible	None	Each Discharge	Compliant
3	20/03/2019	N/A	N/A	50	12	6.5 - 8.5	7.80	Not Visible	None	Each Discharge	Compliant
4	21/03/2019	59	32.3	50	NTU*	6.5 - 8.5	7.80	Not Visible	None	Each Discharge	Compliant
5	22/03/2019	N/A	N/A	50	16	6.5 - 8.5	7.69	Not Visible	None	Each Discharge	Compliant
6	25/03/2019	N/A	N/A	50	20	6.5 - 8.5	7.15	Not Visible	None	Each Discharge	Compliant
7	27/03/2019	59	14.7	50	NTU*	6.5 - 8.5	7.65	Not Visible	None	Each Discharge	Compliant
8	29/03/2019	N/A	N/A	50	<5	6.5 - 8.5	7.74	Not Visible	None	Each Discharge	Compliant
9	1/04/2019	59	18.8	50	NTU*	6.5 - 8.5	7.54	Not Visible	None	Each Discharge	Compliant
10	2/04/2019	N/A	N/A	50	11	6.5 - 8.5	7.65	Not Visible	None	Each Discharge	Compliant
11	5/04/2019	N/A	N/A	50	22	6.5 - 8.5	8.13	Not Visible	None	Each Discharge	Compliant
12	6/04/2019	N/A	N/A	50	23	6.5 - 8.5	6.62	Not Visible	None	Each Discharge	Compliant
13	9/04/2019	59	9.2	50	NTU*	6.5 - 8.5	8.06	Not Visible	None	Each Discharge	Compliant
14	13/05/2019	N/A	N/A	50	10	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
15	1/06/2019	N/A	N/A	50	17	6.5 - 8.5	7.03	Not Visible	None	Each Discharge	Compliant
16	6/06/2019	N/A	N/A	50	35	6.5 - 8.5	6.66	Not Visible	None	Each Discharge	Compliant
17	7/06/2019	59	5	50	NTU*	6.5 - 8.5	7.47	Not Visible	None	Each Discharge	Compliant
18	13/06/2019	59	30	50	NTU*	6.5 - 8.5	6.80	Not Visible	None	Each Discharge	Compliant
19	22/06/2019	59	2.5	50	NTU*	6.5 - 8.5	6.71	Not Visible	None	Each Discharge	Compliant
20	26/06/2019	N/A	N/A	50	28	6.5 - 8.5	7.62	Not Visible	None	Each Discharge	Compliant
21	27/06/2019	N/A	N/A	50	26	6.5 - 8.5	8.19	Not Visible	None	Each Discharge	Compliant
22	28/06/2019	59	19.5	50	NTU*	6.5 - 8.5	7.64	Not Visible	None	Each Discharge	Compliant
23	28/06/2019	59	30.1	50	NTU*	6.5 - 8.5	8.29	Not Visible	None	Each Discharge	Compliant
24	1/07/2019	59	5.9	50	NTU*	6.5 - 8.5	8.07	Not Visible	None	Each Discharge	Compliant
25	2/07/2019	59	23.5	50	NTU*	6.5 - 8.5	8.50	Not Visible	None	Each Discharge	Compliant
26	4/07/2019	59	20.2	50	NTU*	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
27	5/07/2019	59	9.7	50	NTU*	6.5 - 8.5	7.61	Not Visible	None	Each Discharge	Compliant
28	5/07/2019	59	18.9	50	NTU*	6.5 - 8.5	8.40	Not Visible	None	Each Discharge	Compliant
29	6/07/2019	59	11.7	50	NTU*	6.5 - 8.5	6.96	Not Visible	None	Each Discharge	Compliant
30	8/07/2019	59	5.5	50	NTU*	6.5 - 8.5	6.70	Not Visible	None	Each Discharge	Compliant
31	9/07/2019	59	12.6	50	NTU*	6.5 - 8.5	7.14	Not Visible	None	Each Discharge	Compliant
32	9/07/2019	59	20	50	NTU*	6.5 - 8.5	8.20	Not Visible	None	Each Discharge	Compliant
33	11/07/2019	59	11	50	NTU*	6.5 - 8.5	7.70	Not Visible	None	Each Discharge	Compliant
34	19/07/2019	59	25.7	50	NTU*	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
35	21/07/2019	59	13	50	NTU*	6.5 - 8.5	8.20	Not Visible	None	Each Discharge	Compliant
36	22/07/2019	59	11.9	50	NTU*	6.5 - 8.5	7.29	Not Visible	None	Each Discharge	Compliant

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
37	26/07/2019	59	24.1	50	NTU*	6.5 - 8.5	7.25	Not Visible	None	Each Discharge	Compliant
38	29/07/2019	59	21.9	50	NTU*	6.5 - 8.5	8.40	Not Visible	None	Each Discharge	Compliant
39	2/08/2019	59	16.2	50	NTU*	6.5 - 8.5	8.01	Not Visible	None	Each Discharge	Compliant
40	7/08/2019	59	4.8	50	NTU*	6.5 - 8.5	7.85	Not Visible	None	Each Discharge	Compliant
41	8/08/2019	59	2.4	50	NTU*	6.5 - 8.5	7.51	Not Visible	None	Each Discharge	Compliant
42	9/08/2019	59	10.4	50	NTU*	6.5 - 8.5	8.35	Not Visible	None	Each Discharge	Compliant
43	9/08/2019	59	6.5	50	NTU*	6.5 - 8.5	8.08	Not Visible	None	Each Discharge	Compliant

*A correlation between TSS and Turbidity (NTU) has been established for the Northcote Street tunnel site.

2. Water Treatment Plant Commissioned to Process Groundwater

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003	0.3	0.0066	2.5	0.0007	0.2	0.023	N/A	Licence Limit
1	29/08/2019	24	7.17	None	<0.001	<0.0001	0.01	<0.01	<0.001	<0.05	<0.001	0.106	<0.0001	0.003	0.013	Monthly	Compliant
2	29/09/2019	12	8.05	None	0.001	<0.0001	0.01	<0.01	<0.001	<0.05	<0.001	0.096	<0.0001	0.003	<0.005	Monthly	Compliant
3	31/10/2019	21	8.00	None	<0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.105	<0.0001	0.004	<0.005	Monthly	Compliant
4	2/12/2019	<5	7.96	None	0.002	<0.0001	0.008	0.001	<0.001	<0.05	<0.001	0.079	<0.0001	0.001	<0.005	Monthly	Compliant
5	12/12/2019	<5	7.80	None	0.003	<0.0002	0.019	<0.005	<0.001	<0.05	<0.001	<0.005	<0.0001	0.001	<0.005	Monthly	Compliant
6	28/01/2020	24	7.83	None	<0.001	<0.0001	0.003	<0.001	<0.001	<0.05	<0.001	0.225	<0.0001	0.003	0.022	Monthly	Compliant
7	24/02/2020	7	8.04	None	0.002	<0.0001	0.005	<0.01	<0.001	<0.05	<0.001	0.021	<0.0001	0.002	<0.005	Monthly	Compliant
8	23/03/2020	<5	7.33	None	0.002	<0.001	0.015	<0.001	<0.001	<0.05	<0.001	0.031	<0.0001	0.001	0.013	Monthly	Compliant
9	21/04/2020	<5	7.22	None	0.003	<0.001	0.02	<0.01	<0.001	<0.05	<0.001	0.028	<0.001	0.004	0.007	Monthly	Compliant
10	22/05/2020	5	7.65	None	0.004	0.0002	0.001	0.021	<0.001	<0.05	<0.001	0.093	<0.0001	0.003	0.016	Monthly	Compliant
11	19/06/2020	14	7.72	None	0.001	<0.0001	0.011	<0.001	0.002	<0.05	<0.001	0.078	<0.0001	0.003	0.006	Monthly	Compliant
12	23/07/2020	6	7.97	None	0.002	<0.0001	0.007	0.003	<0.001	<0.05	<0.001	0.035	<0.0001	0.002	0.005	Monthly	Compliant
13	20/08/2020	8	7.51	None	0.003	<0.0001	0.011	<0.01	0.002	<0.05	<0.001	0.036	<0.0001	0.003	0.015	Monthly	Compliant
14	10/09/2020	5	7.36	None	0.004	<0.0001	0.01	<0.001	0.002	<0.05	0.001	0.068	<0.0001	0.003	0.014	Monthly	Compliant
15	19/10/2020	11	7.35	None	0.003	<0.0001	0.004	<0.01	<0.001	<0.05	<0.001	0.039	<0.0001	0.002	0.014	Monthly	Compliant
16	18/11/2020	<5	7.09	None	0.004	<0.0002	0.02	<0.005	0.002	<0.05	<0.001	0.006	<0.0001	0.001	0.015	Monthly	Compliant
17	18/12/2020	6	7.14	None	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.0001	<0.001	0.014	Monthly	Compliant
18	15/01/2021	<5	7.66	None	0.003	<0.0001	0.02	<0.01	<0.001	<0.05	<0.001	0.104	<0.0001	0.003	0.015	Monthly	Compliant
19	18/02/2021	<5	7.14	None	0.001	<0.0001	0.003	0.03	<0.001	<0.05	<0.001	0.037	<0.0001	0.002	0.012	Monthly	Compliant
20	23/03/2021	16	6.85	None	0.001	<0.0001	0.017	0.03	0.002	<0.05	<0.001	0.039	<0.0001	0.002	0.020	Monthly	Compliant
21	19/04/2021	<5	7.6	None	0.002	<0.0001	0.008	0.012	<0.001	<0.05	<0.001	0.068	<0.0001	0.002	0.012	Monthly	Compliant
22	13/05/2021	12	7.59	None	0.002	<0.0001	0.003	0.009	<0.001	<0.05	<0.001	0.182	<0.0001	0.004	<0.005	Monthly	Compliant
23	16/06/2021	6	7.71	None	0.002	<0.0001	0.011	<0.001	0.001	<0.05	<0.001	0.277	<0.0001	0.007	0.01	Monthly	Compliant
24	14/07/2021	<5	7.66	None	<0.001	<0.0001	0.019	<0.01	<0.001	<0.05	<0.001	0.193	<0.0001	0.006	0.005	Monthly	Compliant
25	19/08/2021	16	7.09	None	0.003	<0.0002	0.01	<0.005	0.001	<0.05	0.001	0.16	<0.0001	0.004	0.022	Monthly	Compliant
26	14/09/2021	<5	7.64	None	<0.001	<0.0001	0.006	<0.001	<0.001	<0.05	<0.001	0.156	<0.0001	0.004	0.018	Monthly	Compliant

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003	0.3	0.0066	2.5	0.0007	0.2	0.023	N/A	Licence Limit
27	29/10/2021	<5	7.02	None	<0.001	<0.001	0.018	<0.001	<0.001	<0.05	<0.001	0.069	<0.001	0.008	0.022	Monthly	Compliant
28	2/11/2021	6	7.26	None	<0.001	<0.0001	0.018	0.003	<0.001	<0.05	<0.001	0.059	<0.0001	0.003	0.012	Monthly	Compliant
29	9/12/2021	<5	7.21	None	0.002	<0.0001	<0.001	0.027	0.001	<0.05	<0.001	0.013	<0.0001	0.001	0.011	Monthly	Compliant

Discharge / Monitoring Point: 6 – Wattle Street Ramps Tunnel Site (C1a)

1. Surface Water Discharge

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
1	8/04/2019	N/A	N/A	50	16	6.5 - 8.5	7.55	Not Visible	None	Each Discharge	Compliant
2	12/04/2019	59	11.7	50	NTU*	6.5 - 8.5	7.14	Not Visible	None	Each Discharge	Compliant
3	18/04/2019	59	15.8	50	NTU*	6.5 - 8.5	7.3	Not Visible	None	Each Discharge	Compliant
4	26/04/2019	N/A	N/A	50	36	6.5 - 8.5	7.88	Not Visible	None	Each Discharge	Compliant
5	4/05/2019	N/A	N/A	50	17	6.5 - 8.5	7.09	Not Visible	None	Each Discharge	Compliant
6	10/05/2019	N/A	N/A	50	16	6.5 - 8.5	8.01	Not Visible	None	Each Discharge	Compliant

*A correlation between TSS and Turbidity (NTU) has been established for the Wattle Street Ramps tunnel site.

2. Water Treatment Plant Commissioned to Process Groundwater

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003	0.3	0.0066	2.5	0.0007	0.2	0.023	N/A	Licence Limit
1	23/05/2019	48	7.5	None	0.001	<0.0001	0.013**	N/A	<0.001	<0.05	<0.001	0.064	<0.0001	<0.001	0.018	Monthly	Compliant
2	21/06/2019	<5	7.81	None	<0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.144	<0.0001	0.006	0.007	Monthly	Compliant
3	8/07/2019	21	8.08	None	0.001	<0.0001	0.01	<0.01	0.001	<0.05	<0.001	0.162	<0.0001	0.005	0.023	Monthly	Compliant
4	30/07/2019	20	7.86	None	0.001	<0.0001	<0.01	<0.01	<0.001	<0.05	<0.001	0.307	<0.0001	0.006	<0.005	Monthly	Compliant

**Total chromium reported, however still compliant with licence limits for Chromium IV and III.

Temporary Discharge / Monitoring Point: 7 – Water Treatment Plant at Hawthorne Canal

1. Water Treatment Plant Commissioned to Process Groundwater

No.	Date Sampled	TSS (mg/L)	pH	Oil & Grease	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (IV) (mg/L)	Chromium (III) (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Monitoring Frequency	Comment
		50	6.5 – 8.5	Not Visible	0.05	0.014	0.02	0.0486	0.003	0.3	0.0066	2.5	0.0007	0.2	0.023	N/A	Licence Limit
1	23/10/2019	7	8.32	None	<0.001	<0.0002	0.001	<0.001**	<0.001	<0.05	<0.001	0.100	<0.0001	<0.001	<0.005	Weekly	Compliant
2	30/10/2019	<5	7.70	None	<0.001	<0.0002	<0.005	<0.005	<0.001	<0.05	<0.001	0.150	<0.0001	<0.001	0.043	Weekly	Non-compliant result for Zinc
3	7/11/2019	<5	7.37	None	<0.001	<0.0002	0.004	<0.005	<0.001	<0.05	<0.001	0.220	<0.0001	<0.001	0.024	Weekly	Non-compliant result for Zinc
4	13/11/2019	6.2	7.44	None	<0.001	<0.0002	0.007	<0.005	<0.001	<0.05	<0.001	0.280	<0.0001	<0.001	0.041	Weekly	Non-compliant result for Zinc
5	15/11/2019	<5	8.2	None	<0.001	<0.0002	<0.004	<0.005	<0.001	<0.005	<0.001	0.230	<0.0001	<0.001	0.008	Following Non-Compliant Results	Compliant
6	19/11/2019	<5	7.9	None	<0.001	<0.0002	0.001	<0.005	<0.001	<0.05	<0.001	0.061	<0.0001	<0.001	0.009	Weekly	Compliant

** Total chromium reported, however still compliant with licence limits for Chromium IV and III.

The Project's EPL was varied on the 15 May 2020 to remove discharge point 7 following the completion of works and ceasing of discharges from this location.

2. Explanation of Exceedances

30/10/2019 – 13/11/2019: Upon review of the monitoring data for Monitoring Point 7 on 14/11/2019, a decimal point error occurred which resulted in the adoption of an incorrect limit for zinc. Upon correction, three sampling efforts were identified as in exceedance of the EPL limit for zinc. The EPA was notified (reference #EPA104876) and the exceedances will be recorded in the relevant annual return.

Once discovered, works were carried out to improve the performance of the Water Treatment Plant (WTP) on 15/11/2019 to ensure treatment to the EPL limits. Following the completion of these works, additional samples were taken, and all results were compliant with the EPL limits. The EPA was advised of the successful WTP works on 18/11/2019.

Temporary Discharge / Monitoring Point: 8 – Surface Water Run-off at Campbell Road Civil and Tunnel Site (C10)

1. Surface Water Discharge

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
1	4/11/2019	103	33.8	50	NTU*	6.5 - 8.5	8.40	Not Visible	None	Each Discharge	Compliant
2	14/11/2019	103	10.3	50	NTU*	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
3	26/11/2019	103	44.8	50	NTU*	6.5 - 8.5	8.08	Not Visible	None	Each Discharge	Compliant
4	29/11/2019	N/A	56	50	62	6.5 - 8.5	8.38	Not Visible	None	Each Discharge	Non-compliant for TSS
5	10/12/2019	103	4.5	50	NTU*	6.5 - 8.5	7.43	Not Visible	None	Each Discharge	Compliant
6	13/12/2019	103	16.1	50	NTU*	6.5 - 8.5	7.81	Not Visible	None	Each Discharge	Compliant
7	16/12/2019	103	45.6	50	NTU*	6.5 - 8.5	7.83	Not Visible	None	Each Discharge	Compliant
8	16/12/2019	103	35.7	50	NTU*	6.5 - 8.5	8.34	Not Visible	None	Each Discharge	Compliant
9	17/12/2019	103	25.2	50	NTU*	6.5 - 8.5	8.04	Not Visible	None	Each Discharge	Compliant
10	20/12/2019	103	32.2	50	NTU*	6.5 - 8.5	7.54	Not Visible	None	Each Discharge	Compliant
11	13/01/2020	N/A	43.7	50	37	6.5 - 8.5	7.20	Not Visible	None	Each Discharge	Compliant
12	16/01/2020	103	16.2	50	NTU*	6.5 - 8.5	7.34	Not Visible	None	Each Discharge	Compliant
13	18/01/2020	103	48	50	NTU*	6.5 - 8.5	7.42	Not Visible	None	Each Discharge	Compliant
14	20/01/2020	103	34.7	50	NTU*	6.5 - 8.5	7.10	Not Visible	None	Each Discharge	Compliant
15	24/01/2020	103	45	50	NTU*	6.5 - 8.5	6.89	Not Visible	None	Each Discharge	Compliant
16	30/01/2020	103	35.9	50	NTU*	6.5 - 8.5	7.99	Not Visible	None	Each Discharge	Compliant
17	3/02/2020	103	32.7	50	NTU*	6.5 - 8.5	7.59	Not Visible	None	Each Discharge	Compliant
18	6/02/2020	103	39.6	50	NTU*	6.5 - 8.5	7.79	Not Visible	None	Each Discharge	Compliant
19	7/02/2020	103	48.1	50	NTU*	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
20	10/02/2020	103	45.5	50	NTU*	6.5 - 8.5	7.94	Not Visible	None	Each Discharge	Compliant
21	2/03/2020	103	7	50	NTU*	6.5 - 8.5	8.02	Not Visible	None	Each Discharge	Compliant
22	4/03/2020	103	45.3	50	NTU*	6.5 - 8.5	8.40	Not Visible	None	Each Discharge	Compliant
23	5/03/2020	103	40.8	50	NTU*	6.5 - 8.5	8.18	Not Visible	None	Each Discharge	Compliant
24	5/03/2020	103	24.3	50	NTU*	6.5 - 8.5	7.99	Not Visible	None	Each Discharge	Compliant
25	9/03/2020	103	33.2	50	NTU*	6.5 - 8.5	7.75	Not Visible	None	Each Discharge	Compliant
26	11/03/2020	103	30	50	NTU*	6.5 - 8.5	8.02	Not Visible	None	Each Discharge	Compliant
27	16/03/2020	N/A	6.2	50	13	6.5 - 8.5	7.83	Not Visible	None	Each Discharge	Compliant
28	16/04/2020	103	2.6	50	NTU*	6.5 - 8.5	7.63	Not Visible	None	Each Discharge	Compliant
29	20/04/2020	103	5.7	50	NTU*	6.5 - 8.5	7.64	Not Visible	None	Each Discharge	Compliant
30	28/04/2020	103	2.3	50	NTU*	6.5 - 8.5	7.28	Not Visible	None	Each Discharge	Compliant
31	30/04/2020	103	27.4	50	NTU*	6.5 - 8.5	6.65	Not Visible	None	Each Discharge	Compliant
32	1/05/2020	103	5.5	50	NTU*	6.5 - 8.5	6.73	Not Visible	None	Each Discharge	Compliant
33	5/05/2020	103	2.9	50	NTU*	6.5 - 8.5	7.05	Not Visible	None	Each Discharge	Compliant
34	7/05/2020	103	3.2	50	NTU*	6.5 - 8.5	7.02	Not Visible	None	Each Discharge	Compliant
35	12/05/2020	103	4.9	50	NTU*	6.5 - 8.5	7.47	Not Visible	None	Each Discharge	Compliant
36	19/05/2020	103	15.3	50	NTU*	6.5 - 8.5	7.80	Not Visible	None	Each Discharge	Compliant

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
37	22/05/2020	103	44.2	50	NTU*	6.5 - 8.5	7.55	Not Visible	None	Each Discharge	Compliant
38	25/05/2020	103	46.7	50	NTU*	6.5 - 8.5	7.52	Not Visible	None	Each Discharge	Compliant
39	27/05/2020	103	5.1	50	NTU*	6.5 - 8.5	7.80	Not Visible	None	Each Discharge	Compliant
40	14/09/2020	N/A	28.9	50	21	6.5 - 8.5	7.88	Not Visible	None	Each Discharge	Compliant
41	15/09/2020	103	37.7	50	NTU*	6.5 - 8.5	7.94	Not Visible	None	Each Discharge	Compliant
42	21/09/2020	103	29.5	50	NTU*	6.5 - 8.5	7.30	Not Visible	None	Each Discharge	Compliant
43	22/09/2020	103	29.5	50	NTU*	6.5 - 8.5	7.47	Not Visible	None	Each Discharge	Compliant
44	25/09/2020	103	12	50	NTU*	6.5 - 8.5	7.23	Not Visible	None	Each Discharge	Compliant
45	28/09/2020	103	2	50	NTU*	6.5 - 8.5	7.36	Not Visible	None	Each Discharge	Compliant
46	27/10/2020	103	38.9	50	NTU*	6.5 - 8.5	8.29	Not Visible	None	Each Discharge	Compliant
47	2/11/2020	103	42.4	50	NTU*	6.5 - 8.5	8.16	Not Visible	None	Each Discharge	Compliant
48	6/11/2020	103	30.1	50	NTU*	6.5 - 8.5	7.90	Not Visible	None	Each Discharge	Compliant
49	18/11/2020	103	11.1	50	NTU*	6.5 - 8.5	7.78	Not Visible	None	Each Discharge	Compliant
50	27/11/2020	103	44.7	50	NTU*	6.5 - 8.5	7.88	Not Visible	None	Each Discharge	Compliant
51	9/12/2020	103	43.4	50	NTU*	6.5 - 8.5	7.99	Not Visible	None	Each Discharge	Compliant
52	17/12/2020	103	45.3	50	NTU*	6.5 - 8.5	8.35	Not Visible	None	Each Discharge	Compliant
53	21/12/2020	103	24.7	50	NTU*	6.5 - 8.5	7.91	Not Visible	None	Each Discharge	Compliant
54	6/01/2021	103	48.6	50	NTU*	6.5 - 8.5	7.77	Not Visible	None	Each Discharge	Compliant
55	13/01/2021	103	45.2	50	NTU*	6.5 - 8.5	7.97	Not Visible	None	Each Discharge	Compliant
56	28/01/2021	103	36.7	50	NTU*	6.5 - 8.5	7.85	Not Visible	None	Each Discharge	Compliant
57	1/02/2021	103	41.6	50	29	6.5 - 8.5	6.73	Not Visible	None	Each Discharge	Compliant
58	15/02/2021	103	23.9	50	NTU*	6.5 - 8.5	7.04	Not Visible	None	Each Discharge	Compliant
59	19/02/2021	103	29.4	50	NTU*	6.5 - 8.5	7.84	Not Visible	None	Each Discharge	Compliant
60	26/02/2021	103	35.6	50	NTU*	6.5 - 8.5	8.00	Not Visible	None	Each Discharge	Compliant
61	30/03/2021	103	24.1	50	NTU*	6.5 - 8.5	7.90	Not Visible	None	Each Discharge	Compliant
62	10/05/2021	103	36.4	50	NTU*	6.5 - 8.5	8.16	Not Visible	None	Each Discharge	Compliant
63	12/05/2021	103	45.6	50	NTU*	6.5 - 8.5	8.28	Not Visible	None	Each Discharge	Compliant
64	12/05/2021	103	29.3	50	NTU*	6.5 - 8.5	8.29	Not Visible	None	Each Discharge	Compliant
65	21/05/2021	103	24.5	50	NTU*	6.5 - 8.5	8.24	Not Visible	None	Each Discharge	Compliant
66	1/06/2021	103	40.9	50	NTU*	6.5 - 8.5	8.24	Not Visible	None	Each Discharge	Compliant
67	11/06/2021	103	38.3	50	NTU*	6.5 - 8.5	7.86	Not Visible	None	Each Discharge	Compliant
68	28/06/2021	103	46	50	NTU*	6.5 - 8.5	8.10	Not Visible	None	Each Discharge	Compliant
69	8/07/2021	103	43.6	50	21	6.5 - 8.5	8.47	Not Visible	None	Each Discharge	Compliant
70	2/08/2021	103	19.9	50	NTU*	6.5 - 8.5	8.41	Not Visible	None	Each Discharge	Compliant
71	25/08/2021	103	27.4	50	NTU*	6.5 - 8.5	7.12	Not Visible	None	Each Discharge	Compliant
72	25/08/2021	103	23	50	NTU*	6.5 - 8.5	7.47	Not Visible	None	Each Discharge	Compliant
73	30/08/2021	103	22.4	50	NTU*	6.5 - 8.5	8.18	Not Visible	None	Each Discharge	Compliant
74	27/09/2021	103	41.9	50	NTU*	6.5 - 8.5	7.64	Not Visible	None	Each Discharge	Compliant

No.	Date Sampled	Turbidity (NTU)		TSS (mg/L)		pH		Oil & Grease		Monitoring Frequency	Comment
		Licence Limit*	Results	Licence Limit	Results	Licence Limit	Results	Licence Limit	Results		
75	27/09/2021	103	10.6	50	NTU*	6.5 - 8.5	7.62	Not Visible	None	Each Discharge	Compliant
76	27/09/2021	103	9.3	50	NTU*	6.5 - 8.5	7.62	Not Visible	None	Each Discharge	Compliant
77	12/10/2021	103	37.9	50	NTU*	6.5 - 8.5	7.71	Not Visible	None	Each Discharge	Compliant
78	18/10/2021	103	28	50	NTU*	6.5 - 8.5	7.63	Not Visible	None	Each Discharge	Compliant
79	1/11/2021	103	42.7	50	NTU*	6.5 - 8.5	8.01	Not Visible	None	Each Discharge	Compliant
80	8/11/2021	103	49.7	50	28	6.5 - 8.5	8.05	Not Visible	None	Each Discharge	Compliant
81	11/11/2021	103	43.2	50	NTU*	6.5 - 8.5	7.97	Not Visible	None	Each Discharge	Compliant
82	12/11/2021	103	49.3	50	NTU*	6.5 - 8.5	7.82	Not Visible	None	Each Discharge	Compliant
83	17/11/2021	103	14.2	50	NTU*	6.5 - 8.5	7.94	Not Visible	None	Each Discharge	Compliant
84	25/11/2021	103	29	50	NTU*	6.5 - 8.5	8.23	Not Visible	None	Each Discharge	Compliant
85	29/11/2021	103	42.2	50	NTU*	6.5 - 8.5	7.75	Not Visible	None	Each Discharge	Compliant
86	8/12/2021	103	28	50	NTU*	6.5 - 8.5	7.65	Not Visible	None	Each Discharge	Compliant
87	10/12/2021	103	38.1	50	NTU*	6.5 - 8.5	8.16	Not Visible	None	Each Discharge	Compliant
88	13/12/2021	103	29.4	50	NTU*	6.5 - 8.5	7.75	Not Visible	None	Each Discharge	Compliant

*A correlation between TSS and Turbidity (NTU) has been established for the Campbell Road civil and tunnel site.

2. Explanation of Exceedances

29/11/2019: A statistical correlation for NTU and TSS was developed in accordance with EPL condition L2.5. Samples are taken approximately every 10th discharge to ensure the correlation remains up to date. Using this correlation, 103 NTU has been determined as equivalent to 50 mg/L TSS. A 40% safety factor is applied with a discharge limit of 62 NTU adopted on site.

Surface water with a 56 NTU was discharged from the Campbell Road site on 29/11/2019 and a sample was taken for lab analysis of TSS. Lab results were received on the 6/12/2019 with a TSS of 62 mg/L and in excess of the EPL criteria.

Following this result, the NTU discharge limit has been lowered to 50 NTU (50% safety factor). Additional sampling for TSS is planned (pending rainfall) to ensure the NTU-TSS correlation is accurate and representative of current site conditions.