

Data Summary Statistics

Site:	Castlefield Viaduct	Project No:	PC2387
Data Description:	Ballast leachate		
Land Use:	EQS	Completed By:	PP
Receptor:	Controlled waters	Checked By:	CM

Assessment Criteria Key

- a) WFD inland surface waters 2015
b) EQS Freshwater (older EQS values)
c) M-BAT Tool

Contaminant	Units	Method Detection Limit	Assess- ment Criteria (AC)	Source (see key)	Summary Statistics							Sample Identifiers and Analytical Data										
					Total Number of Samples	Results Above Detection Limit	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Number of results >AC	HP Dup Ballast	HP101 B	HP102 B	HP103 B	HP104 B	HP105 B	HP106 B	HP107 B	HP108 B	HP109 B	HP110 B
												None Supplied	0.00-0.25	0.00-0.30	0.00-0.15	0.00-0.30	0.00-0.20	0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.15	0.00-0.10
												08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	
pH	pH Units	N/A	6 to 9	a	11	11	7.2	8.1	7.6	0.26832816	0	7.5	7.3	7.7	7.4	7.4	7.2	7.6	7.8	7.8	7.8	8.1
Sulphate as SO4	mg/l	0.1	-		11	11	0.8	1.8	1.17272727	0.31013194	-	0.9	1.1	1.1	1.6	0.9	1.8	0.8	1	1.2	1.4	1.1
Ammoniacal Nitrogen as N	µg/l	15	200	a	11	11	19	50	37.0909091	9.72064345	0	26	35	33	42	29	48	19	38	50	43	45
Alkalinity as CaCO3	mg/l	3	-		11	7	3	8	5.05454545	1.96792461	-	6.5	< 3.0	6.5	< 3.0	8	7.4	3.9	6.5	< 3.0	< 3.0	4.8
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Phenol	µg/l	0.05	7.7	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	0.3	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	50	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	40	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
			-																			
Total Phenols (GC-MS)	µg/l	0.5	-		11	0	0.5	0.5	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			-																			
Arsenic (dissolved)	µg/l	1	50	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Barium (dissolved)	µg/l	0.05	-		11	11	8.8	32	17.3272727	8.21524083	-	11	16	11	32	9.8	17	8.8	17	14	32	22
Beryllium (dissolved)	µg/l	0.2	-		11	6	0.2	0.5	0.3	0.12649111	-	0.5	0.4	0.4	0.5	0.3	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	2000	a	11	0	10	10	-	-	0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Cadmium (dissolved)	µg/l	0.08	0.08	a	11	0	0.08	0.08	-	-	0	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	3.4	a	11	0	5	5	-	-	11	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	4.7	a	11	1	1	1.1	1.00909091	-	0	< 1.0	< 1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (dissolved)	µg/l	0.4	-		11	10	0.4	1.1	0.68181818	0.26006992	-	0.4	0.5	0.6	1.1	0.4	0.9	< 0.4	0.5	0.9	0.9	0.9
Copper (dissolved)	µg/l	0.7	17.1	c	11	11	1.6	7.5	4.33636364	1.85702597	0	1.6	7.2	3.7	5.9	3.2	4.2	2.6	3.2	3.9	4.7	7.5
Lead (dissolved)	µg/l	1	4.99	c	11	11	1.4	30	11.7090909	9.33589359	7	4.7	9.8	1.4	23	3.1	30	1.9	13	15	19	7.9
Mercury (dissolved)	µg/l	0.5	0.07	b	11	0	0.5	0.5	-	-	11	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	9.58	c	11	11	1.8	3.5	2.68181818	0.51926522	0	2.4	3.5	2.5	3.4	2.5	2.4	2.4	1.8	2.5	3.3	2.8
Selenium (dissolved)	µg/l	4	-		11	0	4	4	-	-	-	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	20	a	11	0	1.7	1.7	-	-	0	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7
Zinc (dissolved)	µg/l	0.4	24.66	c	11	11	4.5	14	9.84545455	3.2212928	0	5.7	13	4.5	13	7.2	7.3	12	11	14	11	9.6
			-																			
Benzene	µg/l	1	10	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	74	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	20	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	30	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	30	a	11	0	1	1	-	-	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	-		11	0	10	10	-	-	-	< 10	< 10	< 10	< 10	< 10	< 10	<				

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					Total Number of Samples	Results Above Detection Limit	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Number of results >AC	HP Dup Ballast	HP101 B	HP102 B	HP103 B	HP104 B	HP105 B	HP106 B	HP107 B	HP108 B	HP109 B	HP110 B
												None Supplied	0.00-0.25	0.00-0.30	0.00-0.15	0.00-0.30	0.00-0.20	0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.15	0.00-0.10
												08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021
2-Chloronaphthalene	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	800	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	-		11	2	0.01	0.5	0.05909091	0.14700031	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.5	0.06
Acenaphthene	µg/l	0.01	-		11	11	0.02	0.3	0.06090909	0.08104993	-	0.04	0.04	0.02	0.06	0.02	0.06	0.03	0.02	0.02	0.3	0.06
2,4-Dinitrotoluene	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	200	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	-		11	11	0.02	0.1	0.03454545	0.02252272	-	0.03	0.03	0.02	0.03	0.02	0.04	0.03	0.02	0.03	0.1	0.03
Azobenzene	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.02	0.05	a	11	0	0.02	0.02	-	-	0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenanthrene	µg/l	0.01	-		11	0	0.01	0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	0.1	a	11	0	0.01	0.01	-	-	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	-		11	0	0.05	0.05	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	0.0063	a	11	11	0.01	0.1	0.04181818	0.02713602	11	0.02	0.04	0.01	0.06	0.02	0.06	0.02	0.05	0.02	0.1	0.06
Pyrene	µg/l	0.01	-		11	11	0.02	0.1	0.04545455	0.02696799	-	0.02	0.04	0.02	0.07	0.02	0.07	0.02	0.05	0.03	0.1	0.06
Butyl benzyl phthalate	µg/l	0.05	7.5	a	11	0	0.05	0.05	-	-	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	-		11	4	0.01	0.1	0.03181818	0.03572623	-	< 0.01	< 0.01	< 0.01	0.04	< 0.01	0.04	< 0.01	< 0.01	< 0.01	0.1	0.1
Chrysene	µg/l	0.01	-		11	4	0.01	0.07	0.02090909	0.020226	-	< 0.01	< 0.01	< 0.01	0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.07	0.05
Benzo(b)fluoranthene	µg/l	0.01	-		11	2	0.01	0.1	0.02363636	0.03107176	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	0.07
Benzo(k)fluoranthene	µg/l	0.01	-		11	2	0.01	0.06	0.01727273	0.01678744	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.06	0.04
Benzo(a)pyrene	µg/l	0.01	0.00017	a	11	2	0.01	0.09	0.02272727	0.02866737	11	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.09	0.07
Indeno(1,2,3-cd)pyrene	µg/l	0.01	-		11	2	0.01	0.04	0.01545455	0.0121356	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	0.04
Dibenz(a,h)anthracene	µg/l	0.01	-		11	0	0.01	0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	-		11	2	0.01	0.08	0.02	0.0232379	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.08	0.05
			-																			
Fluoranthene (low level)	µg/l	0.002	0.0063	a	11	11	0.01	0.1	0.04181818	0.02713602	11	0.02	0.04	0.01	0.06	0.02	0.06	0.02	0.05	0.02	0.1	0.06
Benzo(b)fluoranthene (low level)	µg/l	0.002	-		11	2	0.002	0.1	0.01709091	0.03423873	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.1	0.07
Benzo(k)fluoranthene (low level)	µg/l	0.002	-		11	2	0.002	0.06	0.01072727	0.01992532	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.06	0.04
Benzo(a)pyrene (low level)	µg/l	0.002	0.00017	a	11	2	0.002	0.09	0.01618182	0.03186791	11	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.09	0.07
Indeno(1,2,3-cd)pyrene (low level)	µg/l	0.002	-		11	2	0.002	0.04	0.00890909	0.01537176	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.04	0.04
Benzo(ghi)perylene (low level)	µg/l	0.002	-		11	2	0.002	0.08	0.01345455	0.02635285	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.08	0.05
Naphthalene (low level)	µg/l	0.002	2	a	11	0	0.002	0.002	-	-	0	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Acenaphthylene (low level)	µg/l	0.002	-		11	2	0.002	0.06	0.01163636	0.02155585	-	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.05	0.06
Acenaphthene (low level)	µg/l	0.002	-		11	11	0.02	0.3	0.06090909	0.08104993	-	0.04	0.04	0.02	0.06	0.02	0.06	0.03	0.02	0.02	0.3	0.06
Fluorene (low level)	µg/l	0.002	-		11	11	0.02	0.1	0.03454545	0.02252272	-	0.03	0.03	0.02	0.03	0.02	0.04	0.03	0.02	0.03	0.1	0.03
Phenanthrene (low level)	µg/l	0.002	-		11	0	0.002	0.002	-	-	-	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Antracene (low level)	µg/l	0.002	0.1	a	11	0	0.002	0.002	-	-	0	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Pyrene (low level)	µg/l	0.002	-		11	11	0.02	0.2	0.06181818	0.05250108	-	0.02	0.04	0.02	0.07	0.2	0.07	0.02	0.05	0.03	0.1	0.06
Benzo(a)anthracene (low level)	µg/l	0.002	-		11	4	0.002	0.1	0.02672727	0.03920482	-	< 0.0020	< 0.0020	< 0.0020	0.04	< 0.0020	0.04	< 0.0020	< 0.0020	< 0.0020	0.1	0.1
Chrysene (low level)	µg/l	0.002	-		11	4	0.002	0.07	0.01581818	0.02340008	-	< 0.0020	< 0.0020	< 0.0020	0.02	< 0.0020	0.02	< 0.0020	< 0.0020	< 0.0020	0.07	0.05
Di-bezno(a,h)anthracene (low level)	µg/l	0.002	-		11	0	0.002	0.002	-	-	-	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
			-																			
Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, bezon(g,h,i)perylene and indeno(1,2,3-cd)pyrene	ug/l		-		2	2	0.2	0.28	0.24	0.05656854	-	-	-	-	-	-	-	-	-	-	0.28	0.2