



Water Crossings Decision Table

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Table 2-16 – Summary of the Hydrology and Hydraulic Assessment for the Rail Bridge Crossing

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	2 yr Flow (m3/s)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Average Stream Slope	Channel Slope at Crossing	Number of Spans	Bridge Type	Length of Spans (m)	Upstream			Downstream			
													Normal Water Velocity (2yr Flow) m/s	High Water Velocity (200 yr Flow) m/s	Fisheries Velocity (10yr 3d)	Normal Water Velocity (2yr Flow)	High Water Velocity (200 yr Flow)	Fisheries Velocity (10yr 3d)	Clearance at High Water Level (m)
BR MR 12/18	562770	7911935	0	232.2	208.04	125.63	208.04	1.60%	1.60%	6	DPG	6@30	0.98	1.32	1.01	3.18	3.82	3.29	3.46
BR-008-1	570799	7906523	Important	14.5	27.45	15.25	27.45	8.50%	8.40%	3	DPG	15-30-30-15	2.02	2.86	1.33	1.73	2.46	1.25	10.09
BR-011-1	573099	7904907	Important	42.4	60.12	34.50	60.12	3.58%	0.00%	6	DPG	6@30	0.40	0.62	0.31	4.23	4.87	3.60	14.98
BR-025-1	585397	7900034	Important	121.2	129.39	76.62	129.39	2.17%	5.05%	4	DPG	15-30-30-15	1.06	1.41	0.74	3.61	4.44	3.01	8.42
BR-035-1	594812	7896038	Important	64.9	82.07	47.70	82.07	1.50%	5.99%	2	DPG	2@30	1.57	2.05	1.13	2.39	3.32	1.79	2.77
BR-036-1	595076	7895387	Important	69.6	86.33	50.28	86.33	0.77%	1.65%	3	DPG	30-30-15	1.02	1.52	0.69	1.50	2.07	1.22	2.34
BR-037-1	595447	7894053	Important	5601.0	2124.71	1411.60	2124.71	0.08%	1.52%	7	DPG	7 @ 30	1.39	1.89	1.02	1.43	1.95	1.04	7.00
BR-046-1	596768	7886577	Important	415.4	318.10	195.47	318.10	0.70%	0.15%	4	DPG	4 @ 30	1.41	1.94	1.15	1.81	5.47	1.28	1.58
BR-059-1	598858	7872547	Marginal	16.1	29.60	16.50	29.60	7.50%	1.50%	3	TPG	3 @30	0.60	0.88	0.39	0.59	0.93	0.39	0.98
BR-091-1	605934	7843776	None	11.4	23.04	12.71	23.04	17.43%	18.96%	3	DPG	3 @30	0.80	1.02	3.21	3.41	4.24	2.54	8.01
BR-092-1	606356	7842767	None	18.0	32.11	17.95	32.11	27.56%	16.88%	1	DPG	30	3.88	4.71	2.87	3.59	4.50	2.45	2.38
BR-095-1	607951	7840793	Important	1524.6	821.80	525.08	821.80	0.32%	0.00%	7	TRUSS	3 @30 - 100- 3@ 30	1.55	3.05	0.70	1.56	3.16	0.70	8.68
BR-096-1	608545	7840211	Important	32.7	49.68	28.29	49.68	4.34%	0.00%	1	TPG	30	1.66	2.37	1.19	2.55	3.41	2.01	2.24
BR-096-2	608708	7839705	Important	31.4	48.25	27.44	48.25	7.50%	7.60%	3	DPG	15-30-15	2.58	3.84	1.77	1.96	3.74	1.50	2.39
BR-099-1	608459	7837169	None	31.4	48.26	27.44	48.26	12.90%	13.00%	1	DPG	30	4.87	6.41	4.06	2.69	4.75	2.16	2.17
BR-105-1	604165	7833828	None	23.6	39.17	22.09	39.17	17.09%	16.00%	3	DPG	3 @30	2.47	4.06	1.53	2.49	3.91	1.49	7.28
BR-124-2	598501	7819212	Important	33.3	50.40	28.71	50.40	3.00%	3.14%	2	TPG	15-30	1.84	1.62	1.52	3.23	4.57	2.24	3.49
BR-137-1	598663	7807981	Important	345.7	278.15	169.98	278.15	1.20%	2.60%	5	DPG	5 @ 30	0.70	1.07	0.45	2.46	3.67	1.37	6.65
BR-141-1	597527	7805029	Important	77.2	93.12	54.40	93.12	0.33%	0.30%	4	TPG	4 @ 30	0.60	0.95	0.39	0.61	1.01	0.38	1.53
CV-008-1	570139	7906944	Important	3.0	8.75	4.64	8.75	11.00%	11.00%	4	DPG	15-30-15	3.68	3.94	3.48	1.44	1.90	1.24	5.62
CV-051-2	596622	7879337	Marginal	6.8	15.88	8.63	15.88	0.01%	0.05%	3	TPG	15-30-30	0.39	0.67	0.23	0.44	0.68	0.31	0.95
CV-075-2	603944	7858901	None	2.4	7.38	3.89	7.38	0.00%	4.67%	1	TPG	30	0.37	0.67	0.23	0.49	0.82	0.32	1.09
CV-076-1	604251	7858661	None	12.9	25.26	13.99	25.26	1.80%	3.40%	1	TPG	30	1.21	1.78	0.96	1.76	2.50	1.56	1.31
CV-076-2	604309	7858624	None	12.9	25.26	13.99	25.26	7.00%	3.57%	1	TPG	15	5.52	2.28	1.13	2.50	3.12	1.35	0.52
CV-076-3	604396	7858569	None	12.9	25.26	13.99	25.26	3.10%	3.10%	1	TPG	30	1.33	1.77	0.88	1.91	2.45	1.23	1.22
CV-086-1	606180	7848859	None	11.2	22.76	12.55	22.76	0.00%	20.91%	1	TPG	15	3.67	5.17	2.40	2.31	2.99	1.75	0.80
CV-111-1	599060	7830203	None	42.8	60.58	34.77	60.58	5.00%	12.30%	1	TPG	30	4.20	6.36	2.78	2.16	2.97	1.63	0.97
CV-123-3	598478	7819899	Marginal	10.4	21.56	11.86	21.56	2.50%	4.01%	1	TPG	30	0.92	1.46	0.57	1.01	1.66	0.62	0.67
CV-123-4	598486	7819668	Important	0.5	2.44	1.23	2.44	1.20%	2.36%	1	TPG	30	0.37	0.60	0.29	0.42	0.71	0.31	2.09
CV-124-2	598497	7819322	Important	33.3	50.40	28.71	50.40	6.73%	2.50%	1	TPG	30	1.79	2.22	1.42	2.56	3.37	2.04	1.82

Table 2-17: Summary of the Hydrology and Hydraulic Assessment for the Rail Culvert Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel (m/s) 10yr 3day delay Flow	Velocity per Barrel (m/s) 200 yr Flow
CV-1-1	564680	7910499	None	1.1	4.21	0.43	1.0%	21.15	3000	1	1.53	2.58
CV-1-2	564718	7910483	Important	1.1	4.21	0.43	1.0%	19.77	3000	1	1.52	2.56
CV-2-1	565499	7910058	None	0.4	2.13	0.28	12.6%	22.20	1600	1	2.90	5.75
CV-2-2	565756	7909823	None	0.5	2.45	0.25	12.1%	27.23	3000	1	2.68	5.81
CV-3-1	565973	7909656	Important	1.1	4.12	0.42	15.2%	34.02	3000	1	3.74	7.03
CV-3-2	566720	7909220	None	0.2	1.20	0.16	15.3%	27.68	1600	2	1.23	4.35
CV-4-1	566993	7908977	Important	3.1	8.96	0.95	6.0%	117.14	3000	2	2.97	4.95
CV-4-2	567219	7908771	None	0.1	0.54	0.07	14.9%	19.08	1600	1	1.13	4.14
CV-4-3	567413	7908595	None	0.4	1.59	0.21	2.1%	62.85	1600	2	1.12	2.30
CV-5-1	567692	7908395	None	0.1	0.51	0.07	6.9%	21.07	1600	1	1.01	3.19
CV-5-2	568002	7908254	None	0.0	0.25	0.03	11.8%	17.43	1600	1	0.56	2.67
CV-5-3	568094	7908205	None	0.2	0.96	0.13	4.0%	130.89	1600	2	0.90	2.58
CV-6-1	568586	7907936	Important	4.0	10.65	1.14	4.7%	81.32	3000	3	2.53	4.27
CV-6-2	568727	7907859	None	0.1	0.44	0.06	1.5%	101.53	1600	1	0.72	1.76
CV-6-3	569018	7907670	Important	1.2	4.44	0.46	8.1%	110.69	3000	1	3.23	5.57
CV-7-1	569314	7907457	Important	1.4	5.02	0.52	5.8%	73.72	3000	2	2.31	4.34
CV-7-2	569502	7907332	None	0.1	0.32	0.04	9.4%	31.69	1600	1	0.69	2.88
CV-7-3	569756	7907188	None	0.4	2.10	0.27	8.4%	83.43	1600	1	2.60	4.86
CV-8-2	570909	7906445	None	0.2	0.89	0.12	3.8%	119.83	1600	1	1.35	2.97
NCV-9-1	571543	7905885	None	0.6	2.76	0.28	1.3%	15.93	1600	1	1.48	2.46
NCV-9-2	571678	7905755	None	0.3	1.53	0.20	4.0%	25.60	1600	2	1.25	2.94
CV-10-1	572340	7905365	None	1.2	4.44	0.46	10.0%	103.87	3000	1	3.44	6.04
CV-12-1	574006	7904658	None	0.3	1.32	0.17	3.9%	19.63	1600	2	1.12	2.82
CV-12-2	574247	7904525	Marginal	0.7	2.96	0.30	6.4%	82.68	3000	1	2.53	4.67
CV-13-1	574988	7904117	Marginal	0.6	2.75	0.28	11.4%	95.31	3000	1	2.82	5.79
CV-13-2	575213	7904015	None	0.5	2.50	0.25	15.2%	24.14	3000	1	2.84	6.39
CV-14-1	575527	7903863	None	0.4	1.84	0.24	12.8%	112.99	1600	1	2.66	5.60
CV-14-2	575680	7903769	None	0.1	0.48	0.06	4.6%	119.43	1600	1	0.92	2.72
CV-14-3	575878	7903651	Marginal	1.8	5.95	0.62	7.1%	158.67	3000	2	2.64	4.86
CV-15-1	576937	7903238	None	0.1	0.43	0.06	1.9%	77.89	1600	1	0.74	1.92
CV-16-1	577142	7903135	Important	1.0	3.90	0.40	1.9%	75.66	3000	1	1.90	3.13
CV-16-2	577414	7902998	None	1.0	3.90	0.40	3.4%	78.21	3000	1	2.31	3.84
CV-17-1	578068	7902643	Important	1.5	5.35	0.56	1.7%	88.63	3000	2	1.61	2.68
CV-17-2	578733	7902277	None	2.4	7.40	0.78	1.0%	22.05	3000	2	1.48	2.45
CV-18-1	578855	7902210	Important	2.4	7.40	0.78	1.0%	19.81	3000	2	1.48	2.45
CV-18-2	579060	7902107	None	0.1	0.40	0.05	0.6%	28.58	1600	1	0.36	0.59
CV-18-3	579363	7902009	None	0.2	0.87	0.11	4.1%	22.14	1600	1	1.36	3.07
CV-19-1	579856	7901943	Important	2.0	6.42	0.67	3.3%	178.02	3000	2	2.17	3.65
CV-19-2	580373	7901674	None	1.9	6.11	0.64	3.3%	108.82	3000	2	2.12	3.58
CV-20-1	581161	7901432	Marginal	0.6	2.69	0.27	8.0%	150.12	3000	1	2.56	5.00
CV-20-2	581349	7901380	None	0.3	1.31	0.17	0.0%	62.08	3000	2	0.43	0.66

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Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel (m/s) 10yr 3day delay Flow	Velocity per Barrel (m/s) 200 yr Flow
CV-21-1	581643	7901289	None	1.5	5.32	0.55	9.8%	96.00	3000	2	2.71	5.41
CV-21-2	581775	7901238	None	1.5	5.32	0.55	3.0%	122.75	3000	2	1.95	3.36
CV-21-2	582560	7901018	None	0.2	0.87	0.11	9.0%	66.04	1600	1	1.55	4.11
CV-22-1	582838	7900967	None	0.8	3.24	0.33	10.7%	56.32	3000	1	3.03	5.84
CV-22-2	583063	7900917	None	0.2	0.99	0.13	11.9%	42.74	1600	2	1.04	3.75
CV-22-3	583226	7900892	Marginal	1.0	4.03	0.41	9.4%	107.82	3000	1	3.25	5.79
CV-22-4	583364	7900861	None	0.0	0.20	0.03	4.3%	248.62	1600	1	0.44	1.88
CV-22-5	583535	7900806	None	0.2	0.82	0.11	1.7%	182.87	1600	1	1.08	2.11
CV-23-1	584029	7900632	Important	1.6	5.51	0.57	5.7%	104.49	3000	2	2.40	4.38
CV-24-1	584819	7900389	Marginal	0.2	0.65	0.08	2.5%	110.13	1600	1	1.01	2.35
CV-24-2	585256	7900159	None	0.1	0.32	0.04	4.0%	154.97	1600	1	0.65	2.26
CV-25-1	585832	7899673	None	0.6	2.69	0.27	5.2%	108.18	3000	1	2.28	4.20
CV-25-2	586177	7899452	None	1.6	5.38	0.56	4.3%	37.53	3000	2	2.19	3.89
CV-26-1	586559	7899061	None	0.1	0.88	0.12	0.5%	28.95	1600	1	0.46	0.71
CV-26-2	586949	7898914	None	0.3	1.07	0.14	4.4%	19.34	16000	2	1.62	2.63
CV-27-1	587195	7898809	None	0.3	1.28	0.17	0.5%	17.17	1600	2	0.42	0.66
CV-27-2	587469	7898626	Important	1.8	6.02	0.63	0.5%	24.82	3000	2	0.56	1.03
CV-27-3	587559	7898563	None	0.0	0.22	0.03	3.6%	23.26	1600	1	0.46	1.86
CV-27-4	587680	7898479	None	0.4	1.79	0.23	4.1%	17.88	1600	2	1.36	3.06
CV-28-1	588152	7898235	Important	4.5	11.64	1.25	0.5%	20.42	3000	3	0.60	1.08
CV-28-2	588630	7898080	None	0.4	1.38	0.18	5.4%	21.26	1600	2	1.20	3.19
CV-29-1	589601	7897715	None	0.5	2.34	0.30	4.8%	45.57	3000	1	2.34	3.96
CV-30-1	590264	7897503	None	1.2	4.42	0.46	0.5%	23.27	3000	1	0.61	1.12
CV-31-1	590888	7897257	None	0.9	3.56	0.36	0.5%	13.59	3000	1	0.58	1.06
CV-31-2	591340	7897149	None	3.4	9.56	1.02	0.0%	20.91	3000	3	0.57	1.04
CV-32-1	592483	7896786	None	0.4	2.71	0.36	0.5%	22.14	3000	1	0.58	1.00
CV-33-1	592747	7896648	None	0.4	2.88	0.38	0.5%	20.83	3000	1	0.59	1.01
CV-34-1	593775	7896374	None	1.5	5.12	0.53	0.5%	22.94	3000	2	0.55	0.99
CV-34-2	594243	7896162	None	0.3	1.28	0.17	0.5%	17.06	1600	2	0.42	0.66
CV-36-1	595133	7894817	None	0.6	2.57	0.26	0.1%	18.85	1600	1	0.54	0.99
CV-38-1	595666	7893525	None	0.2	0.76	0.10	1.6%	106.06	1600	1	1.02	2.04
CV-38-2	595794	7893229	None	0.2	0.73	0.09	0.7%	52.80	1600	1	0.44	0.68
NBR-39-1	595927	7892681	None	5.7	13.86	1.50	1.8%	83.33	3000	3	1.97	3.22
CV-39-2	595987	7892325	None	0.2	0.77	0.10	0.2%	12.97	1600	1	0.44	0.69
CV-40-1	596483	7891598	Marginal	1.0	3.87	0.40	0.3%	17.77	1600	1	0.59	1.08
CV-40-2	596887	7891236	Important	0.5	1.60	0.20	0.5%	21.65	3000	2	0.45	0.69
NCV-41-1	597238	7890436	None	0.4	2.98	0.40	0.0%	17.61	1600	1	0.59	1.02
NCV-42-1	597434	7889760	Important	5.7	13.88	1.50	0.1%	22.96	3000	4	0.58	1.06
NCV-43-1	597271	7888583	Marginal	0.7	2.95	0.30	3.1%	21.38	3000	1	2.04	3.51
NCV-44-1	597364	7888229	None	0.2	0.38	0.05	0.7%	18.39	1600	1	0.35	0.58
NBR-44-1	597480	7887336	Important	18.6	32.91	3.69	0.9%	72.77	3000	1	1.07	0.00

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Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel (m/s) 10yr 3day delay Flow	Velocity per Barrel (m/s) 200 yr Flow
NCV-45-1	597170	7886938	None	0.6	2.65	0.27	1.2%	20.21	3000	1	1.43	2.37
CV-43-1	596577	7886207	None	0.1	0.34	0.04	4.5%	16.43	1600	1	0.70	2.40
CV-44-1	596562	7885806	Important	4.4	11.58	1.24	0.2%	19.93	3000	3	0.60	1.08
CV-44-2	596550	7885502	None	0.1	0.37	0.05	1.0%	14.38	1600	1	0.61	1.46
CV-44-3	596563	7885020	Marginal	3.3	9.29	0.99	0.8%	23.22	3000	3	0.57	1.03
CV-45-1	597159	7884188	None	0.8	3.31	0.34	1.0%	30.44	3000	1	1.42	2.36
CV-46-1	597746	7883368	None	2.7	8.06	0.85	0.0%	0.00	0	2	0.60	1.09
CV-47-1	598223	7882687	None	0.1	0.69	0.09	0.1%	18.10	1600	1	0.43	0.67
CV-49-1	597961	7881470	None	0.1	0.32	0.04	1.0%	15.72	1600	1	0.54	1.40
CV-49-2	597790	7881238	None	0.8	3.37	0.34	1.3%	17.58	1600	1	1.59	2.62
CV-49-3	597451	7880777	Marginal	1.4	4.90	0.51	1.0%	18.66	1600	2	1.31	2.15
CV-50-1	597347	7880633	None	0.1	0.60	0.08	0.5%	21.64	1600	1	0.41	0.64
CV-50-2	596940	7880080	None	0.8	3.25	0.33	1.0%	15.67	1600	1	1.43	2.37
CV-51-1	596688	7879658	None	0.1	0.47	0.06	1.0%	16.73	1600	1	0.71	1.54
CV-52-1	596972	7878562	None	7.3	16.68	1.82	1.0%	15.58	1600	1	2.04	3.76
CV-52-2	597273	7878346	Important	7.3	16.68	1.82	0.0%	51.44	1500	4	0.61	1.10
CV-53-1	597683	7878062	None	0.4	1.26	0.16	0.5%	57.37	3000	2	0.42	0.65
CV-56-1	598812	7875718	None	0.9	3.56	0.36	0.6%	101.82	1600	1	0.58	1.06
CV-57-1	599439	7874627	None	0.0	0.13	0.02	1.0%	19.86	3000	1	0.27	1.04
BR-57-1	599447	7874417	Important	10.8	22.10	2.43	0.0%	20.71	1600	5	0.62	1.12
CV-60-1	598646	7871712	None	1.2	4.50	0.46	1.7%	23.34	3000	2	1.54	2.62
CV-62-1	598226	7869592	Important	11.5	23.24	2.56	0.8%	60.03	3000	3	0.71	1.14
CV-63-1	598603	7868733	None	7.7	17.37	1.89	1.1%	19.88	3000	4	1.58	2.62
CV-64-1	598993	7867843	None	5.9	14.20	1.54	1.0%	33.35	3000	!	#VALUE!	#VALUE!
CV-65-1	599126	7867542	None	0.1	2.70	0.27	1.3%	31.29	3000	1	1.49	2.47
CV-65-2	599243	7867284	None	0.6	0.46	0.06	1.0%	19.17	1600	1	0.68	1.52
CV-67-1	600269	7866042	None	2.2	6.94	0.73	0.2%	15.90	1600	2	0.58	1.06
CV-68-1	601078	7865463	None	0.4	1.38	0.18	1.0%	17.65	1600	2	0.88	1.69
CV-69-2	602125	7864370	None	1.6	5.38	0.56	0.0%	39.70	1600	2	0.55	1.00
CV-71-1	602564	7862400	None	4.4	11.50	1.23	0.2%	37.10	3000	3	0.59	1.08
CV-73-1	603092	7861082	None	4.7	11.98	1.29	0.2%	37.65	3000	3	0.60	1.09
CV-74-1	603759	7859894	None	1.0	3.81	0.39	1.0%	22.15	3000	1	1.48	2.48
CV-75-1	603763	7859336	None	0.5	1.78	0.23	1.3%	15.91	3000	2	1.05	1.93
CV-76-4	604920	7858087	None	0.2	1.02	0.13	4.0%	25.60	1600	2	0.93	2.64
CV-77-1	605007	7857943	None	0.1	0.69	0.09	6.5%	25.46	1600	1	1.25	3.43
CV-77-2	605069	7857825	None	0.1	0.83	0.11	2.8%	22.54	1600	1	1.23	2.62
CV-78-1	605518	7856472	Marginal	21.9	37.13	4.18	3.0%	69.03	3000	9	2.32	3.74
CV-78-2	605517	7856234	Marginal	0.1	0.59	0.08	6.0%	50.19	1600	1	1.09	3.18
CV-78-3	605514	7856111	None	0.2	0.88	0.11	13.1%	39.10	1600	1	1.62	4.72
CV-79-1	605510	7855880	Marginal	0.2	0.94	0.12	6.2%	49.78	1600	2	0.93	2.99
CV-79-2	605522	7855669	None	0.1	0.32	0.04	9.6%	17.76	1600	1	0.69	2.89

Table 2-17: Summary of the Hydrology and Hydraulic Assessment for the Rail Culvert Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel (m/s) 10yr 3day delay Flow	Velocity per Barrel (m/s) 200 yr Flow
CV-79-3	605533	7855487	None	0.8	3.23	0.33	4.8%	44.65	3000	1	2.42	4.23
CV-79-4	605546	7855102	None	0.3	1.14	0.15	2.3%	35.56	1600	2	0.92	2.20
CV-80-1	605532	7854923	None	1.7	5.63	0.59	3.5%	52.52	3000	2	2.10	3.62
CV-80-2	605514	7854688	None	0.0	0.17	0.02	15.0%	34.39	1600	1	0.42	2.23
CV-80-3	605509	7854492	None	2.3	7.13	0.75	13.3%	32.61	3000	2	3.41	6.48
CV-80-4	605508	7854446	None	0.0	0.28	0.04	1.0%	25.56	1600	1	0.51	1.35
CV-80-5	605503	7854219	None	0.0	0.18	0.02	1.0%	14.73	1600	1	0.36	1.18
CV-81-1	605498	7854036	None	0.2	1.57	0.21	9.3%	24.48	1600	2	1.47	4.05
CV-81-2	605496	7853945	None	0.2	0.63	0.08	1.0%	18.89	1600	1	0.83	1.64
CV-81-3	605489	7853686	None	0.3	1.43	0.19	3.1%	42.75	3000	2	1.13	2.61
CV-81-4	605548	7853327	None	2.5	7.56	0.80	4.8%	19.30	3000	2	2.59	4.36
CV-81-5	605654	7853173	Important	0.0	0.15	0.02	1.0%	26.69	1600	1	0.30	1.08
CV-82-1	605772	7853070	None	0.0	0.18	0.02	6.4%	21.96	1600	1	0.41	1.95
CV-82-2	605898	7852971	Marginal	1.0	3.77	0.39	3.0%	27.89	3000	1	2.21	3.67
CV-82-3	606036	7852865	None	0.0	0.25	0.03	4.1%	33.07	dne	1	0.53	2.04
CV-82-4	606120	7852797	None	0.1	0.78	0.10	6.5%	29.60	1600	1	1.36	3.54
CV-82-5	606154	7852769	None	0.0	0.64	0.08	8.2%	30.66	1600	1	1.23	3.63
CV-82-6	606350	7852519	None	0.1	3.24	0.42	0.0%	0.00	0	1	0.60	1.04
CV-83-1	606424	7852290	None	0.0	1.23	0.16	1.9%	51.34	1600	2	0.95	2.10
CV-83-2	606430	7852074	None	1.0	3.89	0.40	3.6%	48.05	1600	1	2.36	3.94
CV-83-3	606406	7851635	None	0.8	3.32	0.34	1.0%	31.27	3000	1	1.43	2.37
CV-84-1	606386	7851181	None	3.5	9.70	1.03	6.2%	47.41	3000	3	2.66	4.68
CV-84-2	606404	7851017	None	3.3	9.28	0.99	7.9%	33.92	3000	3	2.79	5.12
CV-84-3	606400	7850800	None	0.1	0.44	0.06	0.0%	0.00	0	1	0.37	0.60
CV-84-4	606371	7850583	None	0.1	0.31	0.04	0.0%	0.00	0	1	0.33	0.56
CV-85-1	606352	7850306	None	0.2	0.82	0.11	6.6%	34.33	1600	1	1.40	3.60
CV-85-2	606372	7850115	None	0.7	2.94	0.30	15.4%	47.73	3000	1	3.14	6.64
CV-87-1	606290	7847995	None	1.6	5.40	0.56	27.1%	74.29	3000	2	3.40	8.18
CV-88-1	606211	7847094	None	2.0	6.35	0.66	0.0%	0.00	0	2	0.57	1.04
CV-89-1	606399	7846143	None	0.5	2.43	0.24	0.0%	0.00	0	1	0.54	0.97
CV-90-1	606025	7844788	None	4.1	10.87	1.16	0.0%	0.00	0	3	0.59	1.07
CV-93-1	606496	7842468	None	0.2	1.01	0.13	1.0%	21.60	1600	2	0.73	1.56
CV-93-2	606649	7842218	None	3.1	8.94	0.95	1.0%	27.15	3000	2	1.54	2.60
CV-98-1	608906	7838344	None	1.2	4.34	0.45	1.0%	18.28	1600	4	0.97	1.81
CV-99-1	608594	7837414	None	0.4	1.85	0.24	0.5%	29.86	1600	1	0.54	0.90
CV-101-1	607062	7836041	None	1.7	5.66	0.59	1.0%	31.53	3000	2	1.38	2.27
CV-103-1	605019	7834596	None	1.2	4.45	0.46	0.0%	0.00	0	1	0.61	1.12
CV-105-1	603377	7833541	None	1.0	3.81	0.39	1.0%	21.77	3000	1	1.48	2.47
CV-107-1	601557	7833054	None	1.0	3.80	0.39	1.0%	23.43	3000	1	1.48	2.47
CV-109-1	600763	7831878	None	1.2	4.40	0.45	1.0%	20.22	3000	1	1.53	2.58
CV-109-2	600334	7831473	None	0.4	1.82	0.24	0.0%	0.00	0	1	0.53	0.89

Table 2-17: Summary of the Hydrology and Hydraulic Assessment for the Rail Culvert Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	200 Year Flow (m3/s)	Fisheries: 10yr 3day Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel (m/s) 10yr 3day delay Flow	Velocity per Barrel (m/s) 200 yr Flow
CV-110-1	599832	7830830	None	0.7	2.89	0.29	1.0%	38.54	3000	1	1.39	2.30
CV-114-1	597594	7827783	None	1.0	4.04	0.41	0.0%	0.00	0	1	0.60	1.09
CV-115-1	597129	7827400	None	0.8	3.30	0.34	0.0%	0.00	0	1	0.57	1.05
CV-117-1	597976	7825752	None	3.7	10.20	1.09	2.4%	71.65	3000	3	1.98	3.25
CV-117-2	598199	7825570	Important	1.1	4.22	0.43	7.2%	21.97	3000	1	3.05	5.26
CV-117-3	598228	7825517	None	1.1	4.22	0.43	1.0%	26.42	3000	1	1.52	2.56
CV-118-1	598366	7825258	None	0.2	1.04	0.14	1.0%	19.68	1600	2	0.76	1.59
CV-118-2	598603	7824545	Important	2.2	7.01	0.74	15.1%	29.53	3000	2	3.49	6.81
CV-119-1	598585	7824286	None	0.3	1.52	0.20	15.0%	34.80	1600	2	1.48	4.71
CV-119-2	598535	7823965	None	0.8	3.18	0.32	11.4%	22.90	3000	1	3.05	5.95
CV-119-3	598605	7823370	None	0.6	2.52	0.25	17.9%	35.67	3000	1	2.95	6.83
CV-120-1	598639	7822779	None	0.9	3.48	0.36	1.0%	23.99	3000	1	1.44	2.40
CV-121-1	598597	7822256	None	0.4	2.14	0.28	1.0%	18.07	1600	1	1.36	2.10
CV-121-2	598585	7822186	None	0.1	0.40	0.05	1.0%	18.23	1600	1	0.65	1.49
CV-121-3	598549	7821976	None	0.1	0.39	0.05	1.1%	19.51	3000	1	0.64	1.53
CV-121-4	598528	7821877	Marginal	0.5	2.49	0.25	15.4%	26.64	1500	1	2.85	6.42
CV-121-5	598367	7821401	Marginal	0.6	2.55	0.26	14.2%	117.51	3000	1	2.83	6.24
CV-123-1	598384	7820275	None	0.1	0.67	0.09	1.0%	76.44	3000	1	0.87	1.65
CV-123-2	598451	7820130	None	0.2	1.16	0.15	2.3%	91.58	1600	2	0.94	2.23
CV-123-6	598461	7819621	Important	0.5	2.44	0.25	5.6%	16.76	1600	1	2.22	4.25
CV-123-7	598457	7819558	Important	0.5	2.44	0.25	5.5%	18.55	1600	1	2.21	4.21
CV-124-1	598455	7819364	Important	33.3	50.40	7.18	5.3%	29.37	1600	1	5.36	9.04
CV-124-4	598435	7818884	Marginal	0.3	1.21	0.16	6.4%	96.07	1600	2	1.12	3.29
CV-124-5	598350	7818534	None	2.1	6.70	0.70	1.9%	66.71	3000	2	1.83	3.00
CV-125-1	598308	7818451	None	2.1	6.70	0.70	2.2%	69.93	3000	2	1.90	3.13
CV-125-2	598257	7818342	None	2.1	6.70	0.70	1.4%	109.52	1600	2	1.64	2.69
CV-125-3	598390	7817667	None	0.3	1.22	0.16	10.4%	133.93	3000	2	1.20	3.87
CV-126-1	598590	7817415	None	1.5	5.14	0.53	3.0%	50.97	3000	2	1.93	3.35
CV-127-1	598533	7816265	None	0.1	0.29	0.04	0.0%	14.98	1600	1	0.31	0.55
CV-127-3	598559	7816054	None	0.1	0.79	0.10	0.5%	16.14	1600	1	0.45	0.69
CV-127-2	598581	7815866	None	0.2	0.39	0.05	3.5%	17.70	1600	1	0.72	2.31
CV-129-1	599371	7814494	Important	3.4	9.56	1.02	0.0%	17.10	3000	3	0.57	1.04
CV-131-1	600628	7812716	None	1.6	5.59	0.58	0.0%	34.90	3000	2	0.56	1.01
CV-133-1	600977	7811320	None	0.2	1.27	0.17	1.0%	28.05	1600	2	0.84	1.64
CV-133-2	600856	7810616	None	2.5	7.69	0.81	4.4%	97.92	3000	2	2.54	4.24
CV-134-1	600609	7810415	None	2.5	7.69	0.81	1.0%	27.61	3000	2	1.49	2.48
CV-134-2	600192	7810294	None	0.1	0.48	0.06	1.0%	21.41	1600	1	0.72	1.55
CV-134-3	599738	7810200	None	0.2	0.97	0.13	1.0%	21.41	1600	2	0.72	1.56
CV-136-1	598958	7809569	None	1.4	4.99	0.52	0.7%	78.67	3000	2	0.54	0.98
CV-136-2	598550	7809065	Marginal	1.7	5.77	0.60	4.0%	94.19	3000	2	2.21	3.85
CV-138-1	598855	7806978	None	0.5	2.39	0.24	1.0%	77.00	3000	1	1.30	2.17

Table 2-18 – Summary of the Hydrology and Hydraulic Assessment for the Temporary Access Road Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	10 Year Flow (m3/s)	10yr 3day delay Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel: 10yr Flow (m/s)	Velocity per Barrel: 10yr 3day delay Flow (m/s)
AR-CV-1-2	564717.1392	7910411.164	Marginal	1.13	2.19	0.44	4.00%	73.985	3000	1	3.64	2.52
AR-CV-2-1	565483.5796	7910037.312	None	0.228	1.05	0.21	12.62%	22.199	1600	2	3.89	1.52
AR-CV-2-2	565736.5436	7909807.06	Important	0.529	1.23	0.25	12.58%	27.686	3000	1	5.09	2.70
AR-CV-3-1	565960.9998	7909635.317	None	1.07	2.11	0.42	8.26%	19.871	3000	1	4.84	3.14
AR-CV-3-2	566669.684	7909198.475	0.00	0.24	0.84	0.17	6.48%	56.943	1600	2	2.91	1.18
AR-CV-4-1	566973.7447	7908819.819	None	3.185	4.82	0.96	-0.39%	39.461	3000	3	0.86	0.57
AR-CV-4-3	567381.7837	7908579.828	None	0.37	1.53	0.31	5.03%	18.557	1600	1	3.72	2.38
AR-CV-5-1	567628.0385	7908365.543	None	0.112	#DIV/0!	#DIV/0!	8.30%	29.15	1600	#DIV/0!	#DIV/0!	#DIV/0!
AR-CV-5-3	567979.5176	7908172.89	None	0.251	0.85	0.17	15.05%	35.547	1600	2	3.74	1.32
AR-CV-6-1	568533.9277	7907878.167	Important	4.07	5.81	1.16	1.03%	26.178	3000	3	2.07	1.49
AR-CV-6-2	568586.6982	7907826.207	None	0.145	0.56	0.11	0.00%	20.674	1600	1	0.64	0.46
AR-CV-7-1	569280.2705	7907447.562	Important	1.485	2.70	0.54	5.67%	38.704	0	2	3.81	2.33
AR-CV-7-2	569515.2265	7907292.984	0.00	0.068	0.33	0.07	5.67%	38.704	3000	1	2.53	0.97
AR-CV-8-1	570097.9894	7906923.124	Important	2.78	4.35	0.87	8.81%	56.107	0	2	4.99	3.24
AR-BR-8-1	570767.7296	7906503.821	Important	14.56	15.31	3.06	-7.73%	32.806	3000	!	#VALUE!	#VALUE!
AR-CV-8-2	570836.8854	7906408.732	None	0.1895	0.74	0.15	4.80%	31.968	1600	2	2.53	1.04
AR-NCV-9-1	571508.9941	7905827.39	0.00	0.655	1.45	0.29	5.14%	48.945	0	1	3.72	2.34
AR-NCV-9-2	571632.178	7905692.32	0.00	0.271	1.15	0.23	23.35%	24.052	0	2	4.84	1.76
AR-CV-10-1	572316.288	7905319.263	Important	1.25	2.37	0.47	0.00%	0	0	2	0.78	0.53
AR-CV-11-1	572502.9861	7905066.456	None	0.32	1.90	0.38	0.00%	0	0	1	0.90	0.59
AR-BR-11-1	572893.6726	7904816.563	Important	44.21	35.61	8.90	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-12-1	573686.9765	7904615.124	None	0.4211	1.15	0.23	5.34%	46.093	1600	2	3.03	1.44
AR-CV-12-2	574211.1743	7904458.027	Marginal	0.719	1.56	0.31	4.35%	32.001	3000	1	3.52	2.30
AR-CV-13-1	574964.9122	7904072.204	Marginal	0.649	1.44	0.29	0.00%	0	0	1	0.83	0.55
AR-CV-13-2	575209.5874	7903977.135	None	0.5766	1.32	0.26	16.60%	31.623	1600	1	5.74	2.97
AR-CV-14-1	575469.5352	7903802.146	None	0.404	1.59	0.32	0.00%	0	0	1	0.85	0.57
AR-CV-14-2	575574.5771	7903723.824	None	0.093	0.32	0.06	9.76%	22.442	1600	1	2.91	1.00
AR-CV-14-3	575848.0717	7903596.031	Marginal	1.871	3.22	0.64	0.00%	0	0	2	0.86	0.57
AR-CV-15-1	576885.8858	7903200.441	None	0.101	0.41	0.08	0.29%	21.504	1600	1	0.59	0.42
AR-CV-16-1	577085.3089	7903092.996	Important	1.057	2.09	0.42	2.78%	27.513	3000	1	3.11	2.19
AR-CV-16-2	577422.0124	7902922.468	None	1.051	2.08	0.42	4.14%	32.12	3000	1	3.65	2.51
AR-CV-16-3	577741.1436	7902614.672	Important	1.694	2.99	0.60	0.00%	23.98	0	2	0.84	0.56
AR-CV-17-2	578712.8556	7902259.109	None	2.52	4.04	0.81	1.01%	26.84	3000	2	2.08	1.49
AR-CV-18-1	578827.2184	7902195.976	Important	2.52	4.04	0.81	1.02%	33.837	3000	2	2.09	1.50
AR-CV-18-2	579050.7691	7902075.404	None	0.1001	0.38	0.08	0.00%	28.556	1600	1	0.59	0.41
AR-CV-18-3	579373.1911	7901953.605	None	0.192	0.89	0.18	9.61%	31.066	1600	2	3.36	1.30
AR-CV-19-1	579730.4076	7901850.927	Important	2.079	3.49	0.70	-6.85%	23.98	3000	2	0.88	0.58
AR-CV-19-2	580299.0203	7901473.865	None	1.942	3.31	0.66	3.50%	20.85	3000	2	3.26	2.20

Table 2-18 – Summary of the Hydrology and Hydraulic Assessment for the Temporary Access Road Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	10 Year Flow (m3/s)	10yr 3day delay Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel: 10yr Flow (m/s)	Velocity per Barrel: 10yr 3day delay Flow (m/s)
AR-CV-19-3	580411.1897	7901427.272	None	0.115	0.33	0.07	6.65%	19.521	1600	1	2.67	1.00
AR-CV-20-1	581078.3942	7901334.124	Marginal	0.895	1.84	0.37	4.33%	22.975	3000	1	3.63	2.44
AR-CV-20-2	581239	7901314	None	0.628	1.40	0.28	3.03%	29.107	1600	1	2.98	1.97
AR-CV-21-1	581651.6862	7901234.267	None	1.435	2.63	0.53	3.36%	47.771	3000	2	3.07	1.99
AR-CV-21-2	582527.4808	7900958.761	None	0.192	0.63	0.13	2.09%	26.931	1600	2	1.82	0.82
AR-CV-22-1	582802.7904	7900942.069	None	0.853	1.77	0.35	3.82%	43.228	3000	1	3.42	2.31
AR-CV-22-2	583047.1612	7900882.707	None	0.205	0.80	0.16	6.87%	21.129	1600	2	2.91	1.15
AR-CV-22-3	583188.2066	7900836.513	Marginal	1.152	2.23	0.45	0.00%	0	0	1	0.95	0.60
AR-CV-22-4	583290.7037	7900774.17	0.00	0.054	0.21	0.04	0.00%	0	0	1	0.52	0.33
AR-CV-22-5	583376.9648	7900724.914	Marginal	0.255	0.78	0.16	2.47%	23.879	1600	2	2.06	0.97
AR-CV-23-1	584028.7037	7900539.17	Marginal	1.766	3.08	0.62	2.20%	22.767	3000	2	2.67	1.84
AR-CV-23-2	584260.3003	7900406.02	None	0.366	1.09	0.22	5.58%	23.658	1600	2	3.03	1.39
AR-CV-24-1	584807.6683	7900334.931	Marginal	0.25	1.05	0.21	5.11%	8.455	1600	2	2.91	1.34
AR-CV-24-2	584981.3003	7900140.02	None	0.1383	0.42	0.08	11.05%	44.308	1600	1	3.40	1.25
AR-NCV-24-3	585215.3003	7900027.02	Marginal	0.083	0.23	0.05	3.90%	30.273	1600	1	1.96	0.71
AR-BR-25-1	585338.9929	7899942.152	Important	121.5	76.79	19.20	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-25-1	585790.3003	7899603.02	None	0.601	1.36	0.27	-5.71%	20.21	3000	1	0.81	0.55
AR-NCV-25-2	586118.6151	7899454.122	None	1.217	2.32	0.46	-1.50%	50.966	3000	2	0.77	0.53
AR-NCV-26-1a	586722.457	7898966.407	None	0.159	0.63	0.13	-8.48%	22.376	1600	2	0.56	0.39
AR-NCV-26-1b	586776.9807	7898954.946	None	0.159	0.71	0.14	-8.27%	18.608	1600	2	0.58	0.40
AR-NCV-26-2	586901.6151	7898904.122	None	0.361	1.47	0.29	0.19%	18.652	1600	1	0.83	0.56
AR-NCV-27-1	587159.7021	7898765.268	0.00	0.741	1.59	0.32	8.68%	19.82	1600	1	4.67	2.82
AR-NCV-27-2	587446.1405	7898613.505	Important	1.913	3.27	0.65	3.94%	30.688	3000	2	3.42	2.27
AR-NCV-27-3	587557.6236	7898528.875	None	0.049	0.15	0.03	-0.41%	24.477	1600	1	0.49	0.28
AR-NCV-27-4	587650.4866	7898459.499	Important	0.461	1.54	0.31	4.06%	17.883	1600	1	3.42	2.24
AR-NCV-28-1	588135.8416	7898201.793	Important	3.776	5.49	1.10	4.09%	23.181	3000	3	3.54	2.39
AR-NCV-28-2	588599.7537	7898066.678	0.00	1.331	2.49	0.50	-5.35%	21.264	1600	2	0.79	0.54
AR-NCV-30-1	590316.424	7897531.344	0.00	1.155	2.23	0.45	-8.20%	22.855	1600	1	0.95	0.60
AR-NCV-31-2	591342.0828	7897169.385	None	3.586	5.28	1.06	-7.00%	20.082	1600	3	0.88	0.58
AR-NBR-32-1	591562.1244	7896703.541	Important	1.3702	2.54	0.51	-1.84%	19.577	1600	2	0.79	0.54
AR-NBR-32-2	591558.8767	7896478.113	Important	4.571	6.35	1.27	-5.82%	33.171	3000	3	0.93	0.60
AR-NCV-34-1	592348.2963	7895647.637	None	0.3901	1.33	0.27	-0.88%	17.333	1600	1	0.80	0.55
AR-NCV-1040-1	594533.5791	7895012.955	0.00	0		#VALUE!	0.00%	0	0	#VALUE!	#VALUE!	#VALUE!
AR-NCV-1040-2	594794.0803	7894792.617	0.00	0		#VALUE!	0.00%	0	0	#VALUE!	#VALUE!	#VALUE!
AR-NCV-36-1	595182.703	7894222.642	None	0.677	1.49	0.30	-3.51%	22.219	1600	1	0.83	0.56
AR-NBR-37-1	595296.6713	7893989.309	None	5882.551	1465.21	439.56	1.87%	31.58	3000	!	#VALUE!	#VALUE!
AR-NCV-38-1	595592.6687	7893473.622	None	0.362	1.25	0.25	-0.23%	16.969	1600	1	0.79	0.54
AR-NCV-38-2	595694.8138	7893114.087	0.00	0		#VALUE!	1.31%	19.539	1600	#VALUE!	#VALUE!	#VALUE!

Table 2-18 – Summary of the Hydrology and Hydraulic Assessment for the Temporary Access Road Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	10 Year Flow (m3/s)	10yr 3day delay Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel: 10yr Flow (m/s)	Velocity per Barrel: 10yr 3day delay Flow (m/s)
AR-NBR-39-1	595856.81	7892708.769	Marginal	6.18	7.98	1.60	-2.11%	32.624	3000	!	#VALUE!	#VALUE!
AR-NCV-39-2	596134.6623	7892242.537	0.00	0		#VALUE!	-0.17%	18.254	1600	#VALUE!	#VALUE!	#VALUE!
AR-NCV-40-1	596489.8745	7891649.821	Marginal	0.437	1.47	0.29	0.28%	17.769	1600	1	0.83	0.56
AR-NCV-41-2	597206.0156	7890347.152	None	0.395	0.87	0.17	0.00%	20.629	1500	2	0.60	0.43
AR-NCV-43-1	597302.8134	7888576.989	Marginal	0.662	1.46	0.29	4.87%	19.87	1600	1	3.64	2.31
AR-NCV-44-1	597401.8346	7888237.488	None	0.153	0.43	0.09	2.34%	17.255	1600	1	2.08	1.03
AR-NCV-44-2	597587.0068	7887650.608	0.00	0		#VALUE!	1.14%	23.165	1600	#VALUE!	#VALUE!	#VALUE!
AR-CV-44-3	597643.857	7887566.431	0.00	0		#VALUE!	0.00%	19.417	0	#VALUE!	#VALUE!	#VALUE!
AR-NBR-44-1	597663.2766	7887366.27	Important	16.739	17.02	3.40	0.52%	22.073	1600	!	#VALUE!	#VALUE!
AR-NCV-44-2	597115.5422	7886752.685	None	0.561	1.29	0.26	0.00%	0	0	1	0.80	0.54
AR-NBR-45-1	596733.8134	7886494.76	Important	415.591	195.53	58.66	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-43-2	596595.5042	7886206.647	None	0.066	0.27	0.05	4.72%	19.497	1600	1	2.21	0.81
AR-CV-44-1	596586.4087	7885816.015	Important	4.654	6.44	1.29	2.68%	31.623	3000	3	3.08	2.18
AR-CV-44-2	596577.7214	7885506.847	None	0.066	0.25	0.05	1.01%	20.995	1600	1	1.32	0.63
AR-CV-44-3	596544.4485	7884971.101	Marginal	3.408	5.08	1.02	0.00%	19.27	3000	3	0.87	0.57
AR-BR-46-1	0	0	0.00	0		#VALUE!	0.00%	0	0	#VALUE!	#VALUE!	#VALUE!
AR-CV-49-1	597994.0511	7881454.799	None	0.088	0.26	0.05	1.01%	19.189	1600	1	1.33	0.63
AR-CV-49-2	597814.6496	7881214.344	None	0.858	1.78	0.36	0.01%	17.929	1600	1	0.88	0.58
AR-CV-49-3	597490.4142	7880781.03	Marginal	1.436	2.63	0.53	0.00%	0	0	2	0.80	0.55
AR-CV-50-1	597381.4373	7880641.912	None	0.092	0.29	0.06	0.11%	26.109	1600	1	0.56	0.38
AR-CV-50-2	596976.084	7880037.164	Marginal	0.858	1.78	0.36	0.26%	18.354	1600	1	0.88	0.58
AR-CV-51-2	596636.5983	7879336.022	Marginal	7.647	9.39	1.88	0.00%	20.99	3000	!	#VALUE!	#VALUE!
AR-CV-52-1	596944.0359	7878542.166	None	7.31	9.07	1.81	0.08%	18.52	0	!	#VALUE!	#VALUE!
AR-CV-53-1	597714.9401	7878093.713	None	7.31	9.07	1.81	0.80%	18.528	1600	!	#VALUE!	#VALUE!
AR-CV-56-1	598911.4399	7875754.479	Marginal	0.735	1.58	0.32	-0.09%	22.797	3000	1	0.85	0.56
AR-BR-57-1	599485.4568	7874415.568	Important	10.77	12.18	2.44	-1.78%	20.89	3000	!	#VALUE!	#VALUE!
AR-BR-59-1	598828.7901	7872581.715	Marginal	17.029	17.25	3.45	0.82%	20.98	3000	!	#VALUE!	#VALUE!
AR-CV-60-1	598610.7033	7871722.071	None	0.995	1.99	0.40	-1.71%	28.844	3000	1	0.92	0.59
AR-CV-62-1	598194.3025	7869523.711	Important	12.072	13.28	2.66	0.75%	28.546	0	!	#VALUE!	#VALUE!
AR-CV-63-1	598568.6958	7868712.089	None	8.128	9.83	1.97	0.09%	22.79	3000	!	#VALUE!	#VALUE!
AR-CV-64-1	598941.5639	7867855.82	None	5.374	7.18	1.44	0.00%	28.199	3000	3	0.97	0.61
AR-CV-65-1	599068.5639	7867584.82	None	0		#VALUE!	0.91%	28.958	1600	#VALUE!	#VALUE!	#VALUE!
AR-CV-65-2	599193.2271	7867287.544	None	0.634	1.41	0.28	0.55%	18.969	1600	1	0.82	0.55
AR-CV-67-1	600276.8665	7866054.925	None	1.818	3.15	0.63	0.24%	19.375	0	2	0.85	0.56
AR-CV-69-1	602214.1012	7864421.333	None	0		#VALUE!	0.00%	0	0	#VALUE!	#VALUE!	#VALUE!
AR-CV-69-2	602202.5162	7864343.626	None	1.214	2.32	0.46	0.00%	24.605	0	1	0.96	0.61
AR-CV-71-1	602599.5245	7862479.985	None	4.62	6.40	1.28	0.19%	45.633	0	3	0.94	0.60
AR-CV-73-1	603120.4283	7861102.867	None	4.885	6.68	1.34	0.44%	24.208	3000	3	0.95	0.60

Table 2-18 – Summary of the Hydrology and Hydraulic Assessment for the Temporary Access Road Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	10 Year Flow (m3/s)	10yr 3day delay Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel: 10yr Flow (m/s)	Velocity per Barrel: 10yr 3day delay Flow (m/s)
AR-CV-74-1	603832.9399	7859861.879	None	1.015	2.02	0.40	0.14%	25.562	3000	1	0.92	0.59
AR-CV-75-1	603817.3209	7859344.21	None	0.477	1.40	0.28	1.15%	21.122	0	1	2.02	1.43
AR-CV-75-2	603991.4061	7858910.408	None	2.515	4.03	0.81	5.04%	26.246	0	2	3.93	2.65
AR-CV-76-1	604270.616	7858720.337	None	12.92	13.98	2.80	5.60%	26.721	0	!	#VALUE!	#VALUE!
AR-CV-76-2	604334.6027	7858684.702	None	12.92	13.98	2.80	7.59%	28.59	0	!	#VALUE!	#VALUE!
AR-CV-76-3	604411.8549	7858642.304	None	12.92	13.98	2.80	5.58%	26.086	0	!	#VALUE!	#VALUE!
AR-CV-76-4	604976.837	7858113.912	None	0.271	0.82	0.16	9.86%	19.602	0	2	3.27	1.22
AR-CV-77-1	605120.9676	7857926.346	None	0.152	#DIV/0!	#DIV/0!	-5.67%	26.388	1600	#DIV/0!	#DIV/0!	#DIV/0!
AR-CV-77-2	605175.9301	7857859.813	None	0.225	0.65	0.13	-3.24%	18.388	1600	2	0.57	0.39
AR-CV-78-1	605610.7632	7856400.846	Marginal	23.021	21.69	4.34	0.13%	31.256	3000	!	#VALUE!	#VALUE!
AR-CV-78-2	605569.7202	7856198.494	Marginal	0.145	0.43	0.09	5.50%	19.155	1600	1	2.79	1.19
AR-CV-78-3	605556.3574	7856097.796	None	0.229	0.65	0.13	7.65%	19.632	1600	2	2.75	0.99
AR-CV-79-1	605584.0376	7855843.902	Marginal	0.209	0.73	0.15	6.54%	19.784	1600	2	2.77	1.07
AR-CV-79-2	605616.9674	7855640.596	None	0.07	0.23	0.05	7.59%	19.965	1600	1	2.32	0.75
AR-CV-79-3	605648.0894	7855405.429	None	0.778	1.65	0.33	6.23%	24.134	3000	1	4.12	2.62
AR-CV-79-4	605635.5799	7855071.72	None	0.272	#DIV/0!	#DIV/0!	-7.91%	20.597	1600	#DIV/0!	#DIV/0!	#DIV/0!
AR-CV-80-1	605577.3561	7854889.413	None	1.735	3.04	0.61	7.09%	24.364	3000	2	4.27	2.62
AR-CV-80-2	605521.7872	7854684.474	None	0.019	0.14	0.03	0.00%	0	0	1	0.48	0.27
AR-CV-80-3	605510.2167	7854493.083	None	2.397	3.89	0.78	0.00%	0	0	2	0.91	0.59
AR-CV-80-4	605508.4053	7854443.769	None	0.043	0.22	0.04	0.00%	0	0	1	0.53	0.34
AR-CV-80-5	605562	7854128	None	0.03	0.15	0.03	13.75%	27.519	1600	1	1.96	0.52
AR-CV-81-2	605561.2678	7854046.689	None	0.235	0.78	0.16	-15.00%	22.947	1600	2	0.59	0.41
AR-CV-81-3	605532.7809	7853917.39	None	0.166	0.57	0.11	15.11%	22.893	1600	1	4.25	1.66
AR-CV-81-4	605531.279	7853657.048	None	0.307	1.09	0.22	-3.56%	23.444	1600	2	0.63	0.45
AR-CV-81-5	605698.1162	7853367.03	Important	2.632	4.17	0.83	-1.28%	28.675	3000	2	0.93	0.60
AR-CV-81-6	605780.4428	7853268.677	None	0.051	0.18	0.04	-4.65%	28.086	1600	1	0.51	0.31
AR-CV-81-7	605807.7901	7853237.367	None	0.0668	0.26	0.05	7.12%	19.448	1600	1	2.42	0.82
AR-CV-82-1	605891.3714	7853141.195	None	0.0653	0.25	0.05	-0.14%	20.046	1600	1	0.54	0.36
AR-CV-82-2	606009.6649	7853028.683	Marginal	0.9952	1.99	0.40	-3.21%	26.76	3000	1	0.92	0.59
AR-CV-82-4	606204.2968	7852863.926	None	0.041	0.11	0.02	2.39%	24.721	1600	1	1.18	0.36
AR-CV-83-1a	606476.9735	7852300.989	None	0.042	0.16	0.03	12.23%	27.646	1600	1	2.05	0.56
AR-CV-83-2	606479.973	7852237.318	None	0		#VALUE!	12.23%	27.646	0	#VALUE!	#VALUE!	#VALUE!
AR-CV-83-3	606483.3631	7852063.434	None	1.0239	2.04	0.41	4.08%	34.749	3000	1	3.61	2.48
AR-CV-83-4	606448.8222	7851618.468	None	0.817	1.72	0.34	-4.98%	30.012	3000	1	0.87	0.57
AR-CV-84-1	606403.2552	7851181.103	None	3.4856	5.17	1.03	0.00%	0	0	3	0.88	0.57
AR-CV-84-2	606433	7850951	None	3.441	5.12	1.02	7.92%	26.165	3000	3	4.56	2.84
AR-CV-85-1	606392.2758	7850284.214	0.00	0.882	1.82	0.36	6.46%	23.091	1600	1	4.26	2.75
AR-CV-85-2	606429.4981	7850047.795	None	0.6884	1.51	0.30	9.34%	36.006	3000	1	4.75	2.80

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AR-BR-86-1	606176	7848863	None	11.2526	12.59	2.52	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-87-1	606345.3217	7847972.421	0.00	1.3537	2.52	0.50	0.00%	0	0	2	0.79	0.54
AR-CV-90-1	605522.6222	7845266.379	0.00	0.8515	1.77	0.35	0.00%	0	0	1	0.88	0.58
AR-BR-91-1	604967.7086	7843678.01	None	10.844	12.24	2.45	10.56%	26.379	3000	!	#VALUE!	#VALUE!
AR-BR-92-1	605445.8453	7842550.045	None	17.546	17.64	3.53	5.32%	35.573	3000	!	#VALUE!	#VALUE!
AR-CV-2000-1	607794	7841219	0.00	0.12	0.45	0.09	5.67%	21.277	0	1	2.87	1.23
AR-BR-2000-1	607637	7841130	0.00	1524.90	525.16	157.55	0.00%	0	0	!	#VALUE!	#VALUE!
AR-BR-2000-2	608054	7841049	Marginal	1.11	2.16	0.43	3.46%	46.444	0	1	3.42	2.39
AR-BR-2002-1	609163	7840471	Important	29.42	26.13	5.23	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-2001-3	608999	7840471	None	3.23	4.87	0.97	6.30%	25.547	3000	3	4.12	2.61
AR-CV-2001-2	608908	7840443	0.00	0.09	0.33	0.07	5.67%	21.277	1600	1	2.54	0.97
AR-CV-2001-1	608667	7840359	0.00	0.06	0.24	0.05	567.00%	21.277	1600	1	4.08	0.88
AR-CV-2005-1	611603	7838995	None	0.76	1.62	0.32	0.47%	30.002	0	1	0.86	0.57
AR-CV-2006-1	611546	7838224	0.00	0.32	1.01	0.20	3.56%	22.713	0	2	2.53	1.23
AR-BR-2006-1	611906	7837819	None	25.04	23.12	4.62	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-2009-1	610517	7835764	0.00	0.76	1.63	0.33	13.31%	40.868	0	1	5.55	3.18
AR-BR-2009-1	610337	7835244	None	17.07	17.28	3.46	1.00%	36.031	3000	!	#VALUE!	#VALUE!
AR-BR-2010-1	610245	7834994	0.00	17.08	17.28	3.46	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-2012-1	609215	7833244	0.00	0.19	0.64	0.13	6.09%	22.624	1600	2	2.57	0.96
AR-CV-2012-2	609035	7833064	None	1.72	3.02	0.60	4.24%	25.942	3000	2	3.46	2.25
AR-CV-2013-1	608325	7832158	0.00	0.26	0.71	0.14	0.11%	25.273	1600	2	0.58	0.40
AR-CV-2016-1	607138	7831202	None	3.20	4.84	0.97	6.70%	50.335	3000	3	4.22	2.64
AR-CV-2016-2	607094	7831164	None	0.34	0.84	0.17	5.23%	45.84	0	2	2.71	1.15
AR-CV-2016-3	606899	7831110	None	0.23	0.57	0.11	16.13%	30.526	0	1	4.34	1.68
AR-CV-2016-4	606511	7831049	0.00	0.22	0.66	0.13	8.89%	36.167	0	2	2.89	1.02
AR-CV-2017-1	606257	7830508	None	0.87	1.80	0.36	6.50%	36.479	0	1	4.26	2.75
AR-CV-2020-1	603849	7830463	0.00	0.26	0.86	0.17	0.00%	0	0	2	0.60	0.43
AR-CV-2022-1	602411	7830436	None	0.26	0.68	0.14	0.95%	35.692	0	2	1.40	0.74
AR-CV-2018-1	605988	7830024	None	6.42	8.22	1.64	3.04%	26.542	3000	2	3.75	2.68
AR-CV-2018-2	605759	7829959	0.00	0.07	0.27	0.05	9.45%	37.82	1600	1	2.67	0.88
AR-CV-2023-1	601567	7829618	0.00	1.92	3.29	0.66	11.69%	49.367	0	2	5.29	3.09
AR-CV-2023-2	601585	7829579	None	0.10	0.37	0.07	15.58%	58.59	0	1	3.53	1.18
AR-BR-2023-1	601698	7829250	None	32.98	28.50	7.13	11.69%	49.367	0	!	#VALUE!	#VALUE!
AR-CV-2024-1	601844	7828918	0.00	0.23	0.87	0.17	7.16%	29.28	0	2	3.04	1.23
AR-CV-2026-1	600506	7827212	None	0.06	0.20	0.04	1.95%	38.533	1500	1	1.50	0.58
AR-CV-2027-1	600253	7826609	None	0.09	0.17	0.03	-1.06%	23.154	1500	1	0.50	0.30
AR-CV-2027-2	600099	7826122	0.00	0.13	0.36	0.07	1.67%	31.494	1600	1	1.76	0.87

Table 2-18 – Summary of the Hydrology and Hydraulic Assessment for the Temporary Access Road Crossings

Canarail Structure	Easting (UTM17W)	Northing (UTM17W)	Fish Habitat Rating	Drainage Area (km2)	10 Year Flow (m3/s)	10yr 3day delay Flow (m3/s)	Culvert Slope	Culvert Length (m)	Culvert Size (mm)	Number of Barrels	Velocity per Barrel: 10yr Flow (m/s)	Velocity per Barrel: 10yr 3day delay Flow (m/s)
AR-CV-2028-1	599942	7825573	0.00	0.13	0.46	0.09	0.04%	24.738	1600	1	0.61	0.43
AR-CV-2029-1	599711	7824778	0.00	0.76	1.62	0.32	3.05%	28.962	3000	1	3.07	2.09
AR-CV-2029-2	599733	7824408	None	0.37	1.01	0.20	-7.57%	35.419	1600	2	0.62	0.44
AR-CV-2032-1	599392	7821917	0.00	0.06	0.20	0.04	4.96%	30.185	0	1	1.93	0.63
AR-CV-2032-2	599209	7821703	None	0.12	0.44	0.09	1.80%	30.474	0	1	1.90	0.99
AR-CV-2034-1	598785	7820364	None	0.28	1.26	0.25	4.67%	74.297	0	1	3.48	2.15
AR-BR-2035-1	598440	7819956	Marginal	10.22	11.70	2.34	5.46%	42.459	0	!	#VALUE!	#VALUE!
AR-CV-2035-2	598231	7819656	0.00	0.04	0.16	0.03	3.82%	24.465	0	1	1.61	0.51
AR-CV-2035-3	598131	7819501	0.00	0.06	0.16	0.03	10.71%	31.793	0	1	2.01	0.56
AR-CV-2036-1	598007	7819145	0.00	0.09	0.31	0.06	10.71%	31.793	0	1	2.92	0.98
AR-BR-2036-1	598080	7818668	Important	34.74	29.65	7.41	0.00%	0	0	!	#VALUE!	#VALUE!
AR-CV-2036-2	598215	7818291	None	1.97	3.34	0.67	0.00%	0	0	2	0.87	0.57
AR-CV-2037-1	598375	7817647	0.00	2.13	3.55	0.71	2.76%	60.477	0	2	3.00	2.08
AR-CV-2037-2	598378	7817646	0.00	0.25	0.82	0.16	0.00%	0	0	2	0.59	0.42
AR-CV-2037-3	598414	7817555	0.00	0.13	0.45	0.09	0.00%	0	0	1	0.61	0.43
AR-CV-2038-2	598120	7817125	Marginal	1.81	3.14	0.63	1.31%	52.155	0	2	2.18	1.54
AR-CV-2040-1	598494	7815052		0.41	1.06	0.21	0.03%	27.847	0	2	0.63	0.45
AR-CV-2041-1	598614	7814769	Important	1.31	2.46	0.49	0.28%	27.803	0	2	0.79	0.54
AR-CV-2044-1	600698	7812757	Marginal	1.66	2.95	0.59	0.00%	25.938	0	2	0.83	0.56
AR-CV-2044-2	600343	7812185	None	0.38	1.03	0.21	0.00%	22.724	0	2	0.62	0.45
AR-CV-2049-1	598460	7809104	Marginal	1.70	2.99	0.60	11.87%	19.249	0	2	5.21	2.96
AR-BR-3001-1	598709	7808055	Important	338.04	167.13	50.14	2.50%	16.736	0	!	#VALUE!	#VALUE!
AR-CV-3002-1	598795	7806915	None	0.54	1.26	0.25	6.11%	17.047	0	1	3.87	2.30
AR-CV-3004-1	598053	7805671	None	0.35	#NUM!	#NUM!	2.48%	14.093	0	#NUM!	#NUM!	#NUM!
AR-BR-3004-1	0	0	Important	75.98	53.75	13.44	0.00%	20.089	0	!	#VALUE!	#VALUE!
AR-CV-3006-1	597226	7804405	None	5.54	7.35	1.47	0.00%	20.089	0	!	#VALUE!	#VALUE!
AR-CV-3006-2	596939	7803842	Important	5.73	7.53	1.51	0.00%	20.089	0	!	#VALUE!	#VALUE!