

Technical Appendix 9.6 - Surface Water Database & Discharge Calculations



Sample Details			LIMITS re EIA (Ref. NRA) Indicative Limits Re.: Bathing, Drinking Surface Water reg.s.	SW1	SW1	SW2	SW3	SW3-B	SW3-C	SW4	SW5	
Sample ID				3006-028 (COC1)		3006-28 (COC4)	3006-28 (COC4)				3006-028-(COC5)	
Project COC Reference				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Type		Medium		09/05/2019	25-07-19	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	25/07/2019	25-07-19
Date Sampled		dd/mm/yyyy	IH 04505 82563	IH 04505 82563	IH 04014 81478	IH 01814 82729	IH 01843 82727	IH 01833 82744	IH 05273 83092	IH 04425 83099		
Grid Reference for Sampling Location		Irish Grid TM65	Field Data Discharge Data									
Surface Water Feature		Type	Stream	Stream	Stream	Stream	Stream	Stream	Stream	Stream	Stream	
Description of sample location		Type	Bridge, 2 no. concrete culvert ID c. 0.86m	Bridge, 2 no. concrete culvert ID c. 0.86m	Stream - lake discharge point	Stream - c. 10m after streams SW3-B and SW3-B join				Stream - lake discharge point	Bridge, 1 no. concrete culvert ID c. 0.86m	
Width of Water Body		m			2	0.4	0.4	0.4	0.4	0.3		
Radius (r)		m	0.43	0.43							0.43	
Depth (d)		m	0.2	0.3	0.2	0.2	0.15	0.1	0.2	0.2	0.05	
Radius - Depth (r-d)		m	0.23	0.13							0.38	
AB		m	0.36	0.41							0.20	
θ		Deg	115.33	144.81							55.81	
Area ABC		m ²	0.0418	0.0266							0.0382	
Area DBC		m ²	0.0836	0.0533							0.0765	
Area CDEB		m ²	0.1860	0.2335							0.0900	
Area DEB (A)		m ²	0.1024	0.1802							0.0135	
Number of Culverts		No.	2	2							1	
Friction Loss Correction		%	0.85	0.85							0.85	
Section Area (A)		m ²	0.2049	0.3605							0.0135	
Flow Velocity (V) - Approximate		m/sec	0.5	0.5							0.5	
Discharge Rate (Q)		m ³ /sec	0.1024	0.1802							0.0068	
Discharge Rate (Q)		l/sec	102.4	180.2							6.8	
Discharge Rate (Q)		l/sec	87.1	153.2	20	6	4	2	4	4	5.8	
Field Data Quality Data												
Clarity			Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	
Colour			Slightly Yellow / Green	Light Brown	Slightly Yellow / Green	Slightly Brownish Yellow	Slightly Brownish Yellow	Slightly Brownish Yellow	Light Brown	Light Brown	Light Brown	
Odour			None	None	None	None	None	None	None	None	None	
pH		pH Units	>6 & <9	9.1	6.52	7.15	7.84	7.31	8.8	8.45	8.45	
Conductivity		mS/cm	2.5	0.061	0.06	0.063	0.059	0.053	0.067	0.06	0.06	
Temperature		deg. C	21.5	9.7	14.6	14.9	14.2	14.4	18.8	17.3	17.3	
Dissolved Oxygen		%	96.8	93.5	100.7				96.6	89.2	89.2	
Dissolved Oxygen		mg/l	50% Samples >9	10.95	9.42	10.2			9.01	8.56	8.56	
Laboratory data												
Conductivity @ 20 deg.C		mS/cm	2.5	0.0474	0.0484	0.0506			0.0409			
pH		pH Units	>6 & <9	6.33	6.92	7.16			7.21			
Carbon, Organic (diss.filt)		mg/l	4.64	8.17	8.57				6.25			
Ammoniacal Nitrogen as N (low level)		mg/l	0.02	0.0443	0.0293	0.0365			0.0168			
BOD, unfiltered		mg/l	3	<1	<1	<1			2.05			
Nitrate as NO3		mg/l	<0.3	<0.3	<0.3	<0.3			<0.3			
Nitrite as NO2		mg/l	0.05	<0.05	<0.05	<0.05			<0.05			
Nitrogen, Kjeldahl		mg/l	<1	<1	<1	<1			<1			
Nitrogen, Total		mg/l	<1	<1	<1	<1			<1			
Phosphate (Ortho as P)		mg/l	<0.02	<0.02	<0.02	<0.02			<0.02			
Suspended solids, Total		mg/l	25	<2	<2	<2			<2			
Total Oxidised Nitrogen as N		mg/l	<0.1	<0.1	<0.1	<0.1			<0.1			
Turbidity		ntu	1	1.29	2.08	1.11			1.11			
Copper (diss.filt)		µg/l	5	<0.3	<0.3	<0.3			<0.3			
Phosphorus (diss.filt)		µg/l	<10	<10	<10	<10			<10			
Zinc (diss.filt)		µg/l	1.74	1.65	4.53	2.41			2.41			
Copper (tot.unfilt)		µg/l	2000	<1	<1	<1			<1			
Hardness, Total as CaCO3 unfiltered		mg/l	7.69	10.6	9.76	9.2			9.2			
Phosphorus (tot.unfilt)		µg/l	<20	<20	<20	<20			<20			
Zinc (tot.unfilt)		µg/l	30	5.68	<5	<5			6.82			
TPH / Oil & Greases		mg/l	No Impact on Fish	<1	<1	<1			<1			

Note/s:
The below diagram presents symbols assigned to values re culvert discharge calculations.

