Appendix 7.1

OPW

HYDRO-DATA

GENERAL STATION DETAILS			
Station Name: Clonbulloge	Station No: 14004	Watercourse: Figile	NGR: N 609 235
Catchment Area (km^2): 268	Catchment: Barrow	Gauge Type: AR	Datum: Poolbeg

SUMMARY HYDROMETRIC STATISTICS
Annual Average Rainfall (mm)[1]: 850
Est'd Annual Losses (mm)[1]: 456
Mean Annual Flow (m^3/s): 8.815 (Data derived for the period 1972 to 2001)

STATION HISTORY
Period of Continuous Hardcopy Records: 1958 to 2005
Period of Digitised Record: 1972 to 2002

Note 1 : Data extracted from the Environmental Protection Agency publication 'Hydrological Data', July 1997

DURATION PERCENTILES

Flows equalled or exceeded for the given percentage of time (m^3/s)
(Data derived for the period 1972 to 2001)

1%	5%	10%	50%	80%	90%	95%	99%
23.0	15.8	13.0	6.73	5.22	4.85	4.71	4.60

Levels equalled or exceeded for the given percentage of time (mAOD Poolbeg)
(Data derived for the period 1972 to 2002)

1%	5%	10%	50%	80%	90%	95%	99%
67.72	67.35	67.18	66.81	66.67	66.62	66.59	66.55

COMMENTS / NOTES
Poor Low Flows

OFFICE OF PUBLIC WORKS
HYDROMETRIC SECTION
22-Mar-17

STATION NAME **CLONBULLOGUE BRIDGE**
STATION No. **14004**
RIVER **FIGILE**
CATCHMENT **BARROW**

Annual Maximum Series of Recorded Water Levels and Estimated Flows

HYDROMETRIC YEAR	WATER LEVEL (mAOD - Poolbeg)	S.G. READING (m)	ESTIMATED FLOWS (m3/s)	DATE	QUALITY CODE
1957	67.90	1.34	21.05	20/08/1958	6
1958	67.77	1.21	18.33	27/12/1958	6
1959	68.41	1.85	32.96	15/09/1960	6
1960	68.27	1.71	29.51	09/10/1960	6
1961	67.77	1.21	18.33	26/09/1962	6
1962	67.74	1.18	17.72	08/12/1962	6
1963	67.57	1.01	14.40	21/11/1963	6
1964	68.19	1.63	27.59	13/12/1964	6
1965	**68.62**	**2.06**	38.40	**19/11/1965**	56
1966	67.96	1.40	22.35	28/02/1967	6
1967	67.84	1.28	19.78	19/08/1968	6
1968	68.53	1.97	36.03	26/12/1968	56
1969	67.93	1.37	21.70	25/04/1970	6
1970	67.69	1.13	16.72	04/11/1970	6
1971	68.05	1.49	24.36	05/07/1972	6
1972	67.67	1.11	16.23	13/11/1972	6
1973	68.12	1.56	23.68	08/09/1974	6
1974	68.21	1.65	25.73	28/09/1974	6
1975	68.32	1.76	28.30	03/10/1975	6
1976	67.81	1.25	17.11	22/02/1977	6
1977	67.80	1.24	16.92	31/10/1977	6
1978	68.17	1.61	27.12	28/12/1978	56
1979	68.06	1.50	24.47	19/03/1980	6
1980	68.11	1.55	25.73	23/10/1980	56
1981	67.92	1.41	22.57	15/12/1981	6
1982	68.01	1.50	24.58	01/02/1983	6
1983	68.01	1.50	24.58	10/12/1983	6
1984	67.88	1.37	21.59	15/12/1984	6
1985	67.72	1.21	18.33	26/08/1986	6
1986	67.75	1.24	18.94	19/01/1987	6
1987	67.96	1.45	23.46	22/10/1987	6
1988	67.54	1.03	14.78	23/09/1989	6
1989	68.31	1.80	31.71	08/02/1990	56
1990	67.53	1.02	14.59	13/04/1991	6
1991	67.62	1.11	16.23	13/09/1992	6
1992	68.16	1.65	27.95	13/06/1993	56
1993	67.85	1.34	21.05	09/12/1993	6
1994	68.24	1.73	29.87	29/01/1995	56
1995	67.53	1.02	14.59	13/03/1996	6
1996	67.46	0.95	13.20	01/09/1997	6
1997	67.58	1.07	15.55	09/01/1998	6
1998	67.57	1.06	15.35	06/01/1999	6
1999	67.51	1.00	14.22	13/01/2000	6
2000	67.97	1.46	23.68	08/11/2000	6
2001	67.81	1.30	20.20	26/02/2002	6
2002	67.47	0.96	13.48	15/11/2002	6
2003	67.46	0.95	13.29	16/01/2004	6
2004	67.64	1.13	16.72	08/01/2005	6
2005	67.59	1.08	15.70	04/11/2005	6
2006	67.64	1.13	16.72	07/08/2007	6
2007	68.19	1.68	28.78	18/08/2008	56
2008	67.55	1.04	14.97	04/09/2009	6
2009	67.77	1.26	19.36	21/11/2009	6
2010	67.64	1.13	16.72	07/02/2011	6
2011	67.78	1.27	19.57	09/06/2012	6
2012	67.63	1.12	16.52	28/01/2013	6
2013	67.91	1.40	22.26	01/01/2014	6
2014	67.83	1.32	20.60	16/11/2014	6
2015	67.95	1.44	23.32	01/01/2016	6

Limit of reliable rating is 34 m3/s - Flow values above this have been extrapolated and should be treated with caution

Hydrometric years run from the 1st October to 30th September, e.g., hydrometric year 1980 begins on 1st October 1980.

Current Staff Gauge Zero = 66.51 mAOD (Poolbeg)
The Commissioners of Public Works will not be responsible for any loss or damage howsoever arising from the use or interpretation of these data.

DATA QUALITY CODES

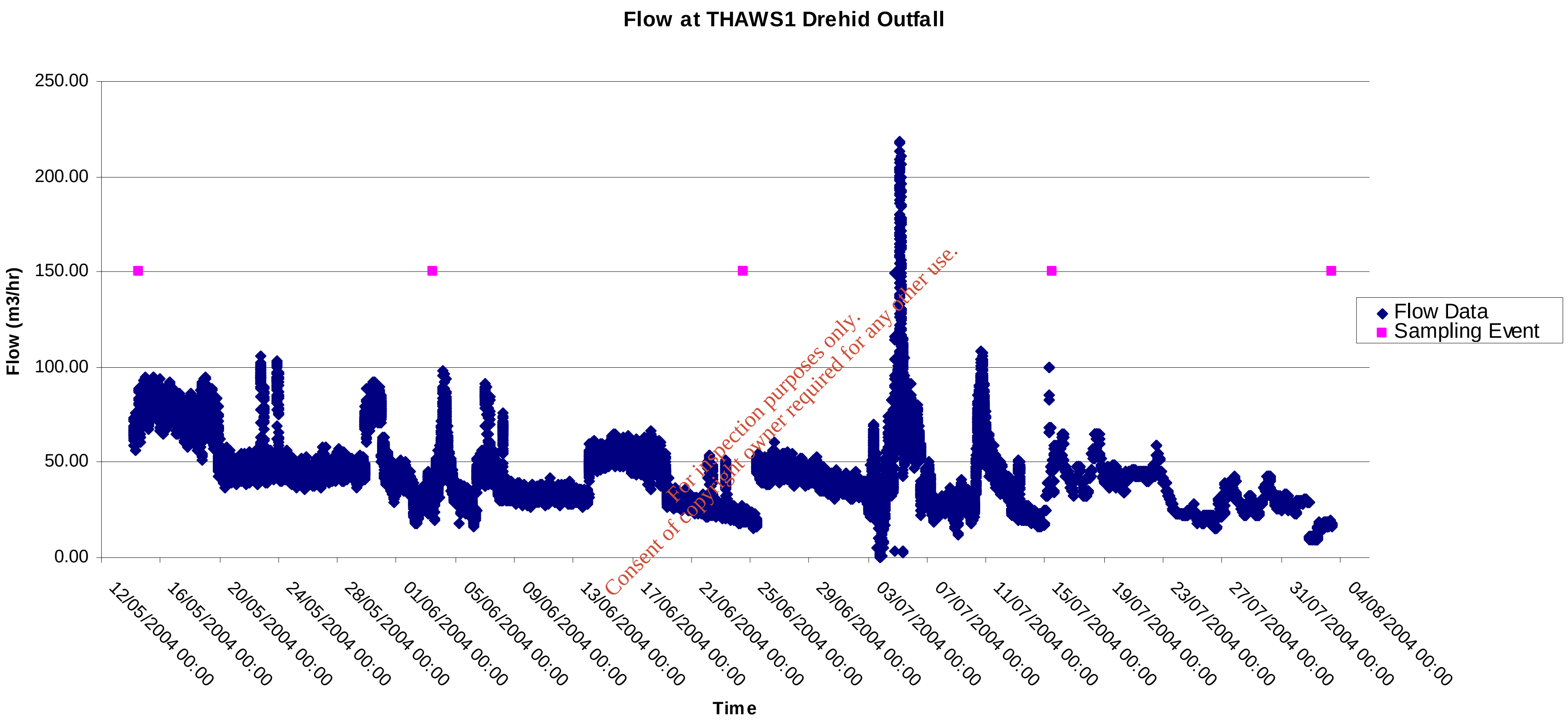
Introduction to Quality Codes

Quality codes provide an *indicative* measure of the reliability and confidence placed on each item of data, and can appear numerically or as a symbol, depending on the format of the data. It should be noted that the majority of the codes are allocated following certain criteria but are *subjective*, and are not associated with any given confidence limits in terms of percentage, absolute value or standard error. The codes should therefore be used only as an indication of the reliability of the data, and must not be used in any way as justification to waive or forgo any independent verification process appropriate to the proposed use of the data.

Table of Quality Codes

Code	Symbol	Description
WATER LEVEL DATA		
1	*	Unchecked digitised water level data – Data is provisional only and must be used with caution
31	31	Inspected water level data – Data may contain some error, but has been approved for general use
32	C	As per Code 31, but where the digitised water level data has been corrected
41	B	Poor measured water level data
42	42	As per Code 41, but where the digitised water level data has been corrected.
99	*	Superseded quality code, see code 254. ~~Unchecked imported water level data – Data is provisional only and must be used with caution~~
145	<	Data is below prescribed data range and must only be used with caution
146	>	Data is above prescribed data range and must only be used with caution
150	I	Partial statistic – Data has been derived from records that are incomplete and do not necessarily represent the true value
101	!	Unreliable water level data – Data is suspected of being erroneous or is artificially affected (e.g., during drainage works) and must only be used with caution
>150	Various	Data is not available as it is missing, erroneous or of unacceptable quality
254	*	Unchecked imported water level data – Data is provisional only and must be used with caution

ESTIMATED FLOW DATA		
31	31	Flow data estimated using a rating curve that it is considered to be of **good** quality and inspected water level data – Data may contain some error, but is considered to be of acceptable quality for general use
32	C	As per Code 31, but using water level data of Code 32
36	F	Flow data estimated using a rating curve that it is considered to be of **fair** quality and inspected or corrected water level data – Data may contain a fair degree of error and should therefore be treated with some caution
46	B	Flow data estimated using a rating curve that it is considered to be of **poor** quality and inspected or corrected water level data – Data may contain a significant degree of error and should therefore be used for indicative purposes only
56	X	Flow data estimated using an extrapolated rating curve (see Section 3.2) and inspected or corrected water level data – Reliability of data is unknown and it should therefore be treated with caution
96	P	Flow data estimated using a provisional rating curve – data may be subject to revision following retrospective assessment of rating curves with the most recently taken flow measurements.
99	*	Superseded quality code, see code 254. ~~Flow data that has been estimated using unchecked water level data – Data is provisional only and must be used with caution.~~
101	!	Flow data that has been estimated using unreliable water level data – Data is suspected of being erroneous and must only be used with caution
145	<	Data is below prescribed data range and must only be used with caution
146	>	Data is above prescribed data range and must only be used with caution
150	I	Partial statistic – Data has been derived from records that are incomplete and do not necessarily represent the true value
>150	Various	Data is not available as it is missing, erroneous or of unacceptable quality
254	*	Flow data that has been estimated using unchecked water level data – Data is provisional only and must be used with caution


Flow at THAWS1 Drehid Outfall
Flow (m3/hr)
250.00
200.00
150.00
100.00
50.00
0.00
12/05/2004 00:00
16/05/2004 00:00
20/05/2004 00:00
24/05/2004 00:00
28/05/2004 00:00
01/06/2004 00:00
05/06/2004 00:00
09/06/2004 00:00
13/06/2004 00:00
17/06/2004 00:00
21/06/2004 00:00
25/06/2004 00:00
29/06/2004 00:00
03/07/2004 00:00
07/07/2004 00:00
11/07/2004 00:00
15/07/2004 00:00
19/07/2004 00:00
23/07/2004 00:00
27/07/2004 00:00
31/07/2004 00:00
04/08/2004 00:00
Time
Flow Data
Sampling Event

Appendix 7.2

Environmental Protection Agency

EPA RIVER QUALITY SURVEYS: BIOLOGICAL

Biotic indices ("Q Values") reflect average water quality at any location as follows:

Q Value*	WFD Status	Pollution Status	Condition **
Q5, Q4-5	High	Unpolluted	Satisfactory
Q4	Good	Unpolluted	Satisfactory
Q3-4	Moderate	Slightly polluted	Unsatisfactory
Q3, Q2-3	Poor	Moderately polluted	Unsatisfactory
Q2, Q1-2,	Bad	Seriously polluted	Unsatisfactory

* These Values are based primarily on the relative proportions of pollution sensitive to tolerant macroinvertebrates (the young stages of insects primarily but also snails, worms, shrimps etc.) resident at a river site. The intermediate values (Q1-2, 2-3, 3-4 etc.) denote transitional conditions. The scheme mainly reflects the effects of organic pollution (i.e. de-oxygenation and eutrophication) but where a toxic effect is apparent or suspected the suffix '0' is added to the biotic index (e.g. Q1/0, 2/0 or 3/0). An asterisk after the Q value (e.g. Q3*) indicates something worthy of special attention, typically heavy siltation of the substratum.

** "Condition" refers to the likelihood of interference with beneficial or potential beneficial uses.

Also presented is a description of the exact location surveyed with relevant OS Grid Reference, WFD river water body code and relevant Local Authority.

BARROW 14B01

Date Surveyed (last survey year only): 04/06/15, 15/06/15, 16/06/15

Biological Quality Rating (Q Values)

Station Code	1971	1973	1974	1975	1976	1978	1979	1980	1982	1986	1989	1991	1994	1997	2000	2003	2005	2006	2007	2008	2009	2011	2014
RS14B010050								5	5	5	5		5	4-5	4-5	4-5		4			4	4-5	
RS14B010100								3-4	4-5	4	3		3-4	4	4	3-4		3			4-5	4-5	
RS14B010200	4		4					4	4	4	3-4		3-4	4	4	3-4		4			4	4	
RS14B010300			3-4					5		4	4		4	3-4	4	4		4			3-4	4	
RS14B010400	5		3-4		3-4	4		5		4	4												
RS14B010500	3-4		3-4		3	3-4		4		4	4		3-4	3-4	3-4	3-4		3-4			3-4	3-4	3-4
RS14B010550											3-4												
RS14B010600	4		3-4		4	3-4		4		4	4		4	4	3-4	3-4		3-4				4	
RS14B010700	4		4			4		4	4	4-5	4-5		4	4	4	4		3-4			3-4	4	
RS14B010760															4								
RS14B010780																					3	4	
RS14B010800	4					2-3		3-4		4	4		4										
RS14B010850														3-4									
RS14B010900	4		4-5		2-3	3-4		4	4	4	4		4	3-4	3-4	3-4		3-4			3-4	3-4	
RS14B011000	4-5		4-5		4-5			4		4-5	4		4	3-4	3-4	4		3-4			4	4	
RS14B011200	4-5		4-5					5		4	3		3										

Station Code	2015
RS14B010050	4-5
RS14B010100	4-5
RS14B010200	4
RS14B010300	4
RS14B010400	
RS14B010500	
RS14B010550	
RS14B010600	
RS14B010700	4
RS14B010760	
RS14B010780	4
RS14B010800	
RS14B010850	
RS14B010900	3-4
RS14B011000	4
RS14B011200	

Station Code	1971	1973	1974	1975	1976	1978	1979	1980	1982	1986	1989	1991	1994	1997	2000	2003	2005	2006	2007	2008	2009	2011	2014
RS14B011300								4		4-5	3-4		4		3-4	3-4		3			4	4	
RS14B011400	5		5					4		4	4		4	4	4	4		4				4	
RS14B011500								4	4	4	4		4	3-4	3-4	4		3-4			3-4	3-4	4
RS14B011590														3-4	3-4	3-4							
RS14B011600	1-2		3		1-2	1-2		3	3-4	4	3-4		3-4										
RS14B011800	1		1-2		1-2	1-2		4	4	4	4		3-4										
RS14B011900	1		2		2-3	2		4	4	4	4		4	3-4	4	4		4				4	3-4
RS14B012000	1-2		2			2		3	3-4	3-4	3		4	3-4	4	4							
RS14B012100						2-3																	
RS14B012150									3-4	4	4		4										
RS14B012200			2-3			3									3	4		3-4			3-4	3-4	3-4
RS14B012400	2		2		2	2			2	1													
RS14B012450									3	3-4	4		3	3	3	3							
RS14B012455																		4			3-4	3-4	3-4
RS14B012500	2	3			2			3	3	3-4	3-4												
RS14B012600	3		3		3-4	2		3-4	3	3	3-4		3-4	3	3	3-4		4			3-4	3-4	3-4
RS14B012680														3-4	3-4	4		4			4	3-4	3-4
RS14B012700	4			4	4	4		3	3-4	3-4	3		3										
RS14B012750														4	4	4							
RS14B012800				4			3-4	3	3-4	3-4	3		3										
RS14B012900	4			4			3-4	3	2-3	2-3	2-3		3	3-4	3-4	4		4			4	4	4

Station Code	2015
RS14B011300	4
RS14B011400	
RS14B011500	
RS14B011590	
RS14B011600	
RS14B011800	
RS14B011900	
RS14B012000	
RS14B012100	
RS14B012150	
RS14B012200	
RS14B012400	
RS14B012450	
RS14B012455	
RS14B012500	
RS14B012600	
RS14B012680	
RS14B012700	
RS14B012750	
RS14B012800	
RS14B012900	

Station Code	1971	1973	1974	1975	1976	1978	1979	1980	1982	1986	1989	1991	1994	1997	2000	2003	2005	2006	2007	2008	2009	2011	2014
RS14B012910	4			4			3-4			3-4	3-4		4	4	3-4	3-4		4					
RS14B013000								4	4	3-4	3-4		3-4	3-4	4	3-4		4				3-4	
RS14B013100	4-5			4			4	4	4	4	3		3-4			3-4		3-4			3-4	3-4	3-4
RS14B013300	4-5			4-5			3-4	4	4-5	4	4		4			3-4		4			4	3-4	3-4
RS14B013400				5			4	5	4	4	4		3-4	4	4								
RS14B013500	4			3-4			4	4	4	4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	4	4	4	4	4
RS14B013600	4						4		4	4													

Most Recent Assessment:

In 2015 nine stations in the upper reaches of the Barrow were sampled and no change in situation was noted since the last monitoring period. Of these the two uppermost stations were found to be highly satisfactory (0050, 0100) while six were considered to be satisfactory. One station (0900) was in unsatisfactory condition. The upper reaches of the Barrow remain a contrast to the lower reaches, sampled in 2014, which revealed many stations in unsatisfactory condition. Of the eleven lower reach stations surveyed in 2014, eight were considered to be in an unsatisfactory ecological condition. A welcome improvement was noted at Bert Bridge (1500) downstream of the Tully river confluence while good ecological conditions continue at Royal Oak Bridge (2900) and at Graiguenamanagh (3500). An unwelcome decline in ecological conditions was noted at Tankardstown Bridge (1900).

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14B010050	Tinnahinch Br	IE_SE_14B010060	235153	210492	Laois County Council
RS14B010100	Ford S of Rearyvalley	IE_SE_14B010200	236054	212995	Laois County Council
RS14B010200	Ballyclare Br	IE_SE_14B010200	238564	214734	Laois County Council
RS14B010300	Twomile Br	IE_SE_14B010300	242252	211816	Laois County Council

Station Code	2015
RS14B012910	
RS14B013000	
RS14B013100	
RS14B013300	
RS14B013400	
RS14B013500	
RS14B013600	

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14B010400	BARROW - Bay Br	IE_SE_14B010500	245460	209208	Laois County Council
RS14B010500	Barranagh's Br	IE_SE_14B010500	246360	209285	Laois County Council
RS14B010550	Br SE of Hammerlane	IE_SE_14B010550	247832	209871	Offaly County Council
RS14B010600	BARROW - Portnahinch Br (S of Garryhinch Hse)	IE_SE_14B010700	249060	210043	Offaly County Council
RS14B010700	Kilnahown Br	IE_SE_14B010700	251350	210705	Offaly County Council
RS14B010760	BARROW - Portarlington- Upper Br	IE_SE_14B010780	254006	212637	Laois County Council
RS14B010780	Portarlington: Spa Br	IE_SE_14B010780	254273	212857	Laois County Council
RS14B010800	BARROW - 1km d/s Portarlington	IE_SE_14B010900	254999	212492	Laois County Council
RS14B010850	BARROW - D/s Portarlington STW (RHS)	IE_SE_14B010900	256304	212279	Laois County Council
RS14B010900	Ford S of Trascan	IE_SE_14B010900	258218	212313	Offaly County Council
RS14B011000	Pass Br	IE_SE_14B011000	262248	210995	Kildare County Council
RS14B011200	BARROW - 1km d/s Monasterevan Br	IE_SE_14B011300	262181	209321	Kildare County Council
RS14B011300	Ford E of Fisherstown House	IE_SE_14B011300	263325	205729	Laois County Council
RS14B011400	Dunrally Bridge	IE_SE_14B011500	263647	201795	Laois County Council
RS14B011500	Bert Br	IE_SE_14B011500	265938	196906	Kildare County Council
RS14B011590	0.4 km u/s Athy Br LHS	IE_SE_14B011600	268115	194389	Kildare County Council
RS14B011600	Athy Br	IE_SE_14B011600	268215	193920	Kildare County Council
RS14B011800	BARROW - Ardreigh Lock	IE_SE_14B011900	268999	191824	Laois County Council
RS14B011900	Tankardstown Br	IE_SE_14B011900	270367	188219	Kildare County Council
RS14B012000	Maganey Br	IE_SE_14B012000	271706	184720	Kildare County Council
RS14B012100	BARROW - 500 m d/s Lerr R confl	IE_SE_14B012460	271507	180944	Laois County Council

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14B012150	BARROW - Weir near Knockbeg College	IE_SE_14B012460	271809	179831	Laois County Council
RS14B012200	New Br 1km u/s Carlow Br	IE_SE_14B012460	272007	177778	Laois County Council
RS14B012400	BARROW - 1.5km d/s Graigue Br	IE_SE_14B012460	271401	175269	Laois County Council
RS14B012450	BARROW - Footbridge Dolmen Hotel	IE_SE_14B012460	270653	174173	Carlow County Council
RS14B012455	Footbridge, Dolmen Hotel	IE_SE_14B012460	270653	174173	Carlow County Council
RS14B012500	BARROW - d/s Clogrennan Lock	IE_SE_14B012600	269912	173731	Laois County Council
RS14B012600	Milford Br	IE_SE_14B012600	269975	170430	Carlow County Council
RS14B012680	Cardinal Moran Br	IE_SE_14B012700	269489	166360	Carlow County Council
RS14B012700	Leighlinbridge	IE_SE_14B012700	269066	165462	Carlow County Council
RS14B012750	BARROW - At Island nr Killinane Ho	IE_SE_14B012820	269587	163731	Carlow County Council
RS14B012800	BARROW - u/s Bagenalstown	IE_SE_14B012820	270398	162975	Carlow County Council
RS14B012900	Royal Oak Br (LHS)	IE_SE_14B012920	268957	161462	Carlow County Council
RS14B012910	BARROW - Royal Oak Br (RHS)	IE_SE_14B012920	268957	161462	Carlow County Council
RS14B013000	BARROW - Fenniscourt Lock	IE_SE_14B013100	269754	159344	Carlow County Council
RS14B013100	Goresbridge	IE_SE_14B013100	268445	153702	Carlow County Council
RS14B013300	Ballyteigelea Br	IE_SE_14B013300	270971	150431	Kilkenny County Council
RS14B013400	BARROW - Clashganny Lock	IE_SE_14B013514	273455	145884	Carlow County Council
RS14B013500	Graiguenamanagh Br	IE_SE_14B013514	270998	143598	Kilkenny County Council
RS14B013600	St Mullins	IE_SE_14B013600	272852	137781	Carlow County Council

FIGILE

14F01

Date Surveyed (last survey year only): 03/09/15, 07/09/15, 09/09/15

Biological Quality Rating (Q Values)

Station Code	1975	1976	1979	1986	1989	1990	1993	1994	1997	2000	2003	2006	2009	2011	2015
RS14F010010					2-3		3								
RS14F010050					2	1-2	2	1	1/0	1-2	2	2-3	2-3	3	3
RS14F010100				3-4	3-4		3-4		2	3	3	3-4	3-4	3-4	3-4
RS14F010200				3-4	3		3-4		3	3-4	3-4	3-4	3-4	3-4	3-4
RS14F010300	3-4	4	4	4	4				3-4	4-5	4	4		4	4
RS14F010400				4	4		4		3-4	3-4	3-4	3-4	3-4	4	
RS14F010500		4	5	4	4		4		3-4	4	4	3-4	3-4	4	4
RS14F010600			5	4	4		4					3-4			

Most Recent Assessment:

Unsatisfactory ecological conditions persisted in the upper reaches (0050, 0100, 0200) of the Figile River in September 2015. Clonbulloge Br. (0300) and Andra Br. (0500) remained in satisfactory condition. It was not possible to do an assessment at Derrygarran Br. (0400) due to recent dredging.

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14F010010	FIGILE - Br SW of Killeaskin	IE_SE_14F010061	273531	230804	Kildare County Council
RS14F010050	Br S of Ticknevin Br	IE_SE_14F010061	269666	230148	Kildare County Council

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14F010100	Cushaling Br	IE_SE_14F010100	265074	225847	Kildare County Council
RS14F010200	Kilcumber Br	IE_SE_14F010200	261067	226806	Offaly County Council
RS14F010300	FIGILE - Br in Clonbulloge	IE_SE_14F010300	260978	223490	Offaly County Council
RS14F010400	Derrygarran Br	IE_SE_14F010400	261939	220881	Offaly County Council
RS14F010500	Ardra Br	IE_SE_14F010500	259543	217837	Offaly County Council
RS14F010600	FIGILE - 1 km u/s Barrow R confl	IE_SE_14F010600	262413	212102	Laois County Council

SLATE

14S01

Date Surveyed (last survey year only): 02/09/15, 03/09/15, 09/09/15

Biological Quality Rating (Q Values)

Station Code	1976	1978	1980	1985	1989	1993	1997	2000	2003	2006	2009	2011	2015
RS14S010020					2-3	2-3	3	2-3	2	3	3	3	2-3*
RS14S010050					3	3	3	3	2-3	3	3	3	3
RS14S010100	4	5	4-5	3-4	3	3	3	3	3	3		3-4	3-4
RS14S010150							3-4	3-4	3-4	3-4		3-4	3-4
RS14S010200	3-4	4	4	3-4	4	3-4							
RS14S010210	1	3	4	4	3	3	3-4	3-4	3-4	3	3	3-4	3-4
RS14S010300	3-4	4-5	4	3-4	4	4		4	4	3-4	3-4*	4	4

Most Recent Assessment:

Five of the six stations surveyed on the Slate River were in unsatisfactory ecological condition in 2015. Poor ecological conditions persisted downstream of Prosperous (0020) and Allenwood (0050). Excessive siltation was noted at 0020 and low dissolved oxygen was recorded at both 0020 and 0050. Good ecological condition was evident in the lower reaches at River Br. (0300).

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14S010020	Quigley's Br	IE_SE_14S010020	278857	226765	Kildare County Council
RS14S010050	Ford Br	IE_SE_14S010050	276234	225490	Kildare County Council
RS14S010100	Agar Bridge	IE_SE_14S010100	270342	221685	Kildare County Council

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS14S010150	E Br Rathangan (Opp Church)	IE_SE_14S010210	267541	219531	Kildare County Council
RS14S010200	SLATE - 100 m u/s Br nr Spencer Br	IE_SE_14S010210	266816	219184	Kildare County Council
RS14S010210	100 m d/s Br nr Spencer Br	IE_SE_14S010210	266493	219082	Kildare County Council
RS14S010300	River Br	IE_SE_14S010300	261459	216704	Offaly County Council

Appendix 7.3

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	SW6	Quarter 1																													
2	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
3	pH	pH Units		7.7	7.8	7.7	7.8	7.9		7.6	7.8	7.7	7.9	7.8	7.8	7.7	7.7	7.7	7.6	7.5	7.6	7.6	7.7	7.6	7.7	7.4	7.4	7.20			
4	Conductivity	µS/cm		512	526	543	508	490		508	515	538	522	505	525	502	547.5	532	522	502	497	478	508	476	489	413	413	438.00			
5	BOD	mg/l					<2									<2					<2										
6	Chloride	mg/l		18	19	17	18	16		17	16	16	16	16	15	15	15	15	15	15	14	13	14	13	14	15	15	17.00			
7	COD	mg/l					16									24					12										
8	Suspended Solids	mg/l		11	23	11	20	27		13	13	6	<5	6	<5	<5	19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
9	Ammonia (as NH3)	mg/l		1.6	0.93	0.71	0.85	1.1		0.62	0.84	0.44	0.41	0.02	0.21	0.38	0.2	0.14	0.16	0.05	0.16	0.2	0.25	0.32	0.32	0.05	0.05	0.04			
10	Ammonia (as NH4)	mg/l	0.00	2.06	1.20	0.91	1.09	1.41		0.80	1.08	0.57	0.53	0.03	0.27	0.49	0.26	0.18	0.21	0.06	0.21	0.26	0.32	0.41	0.41	0.06	0.06	0.05	0.00	0.00	0.00
11																															
12																															
13	SW5	Quarter 1																													
14	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
15	pH	pH Units		7.2	7.2	7.3	7.2	7.4	7.3	7.3	7.4	7.4	7.4	7.7	7.5	7.4	7.5	7.6	7.7	7.6	7.6	7.4	7.6	7.3	7.6	7.5	7.5	7.5	7.7	8	7.4
16	Conductivity	µS/cm		332	317	341	281.9	264.1	264.65	307	300	337	339	349.5	355.5	533	351	357	391	412	416	292.2	353	237.9	325	395	395	441	426	438	486
17	BOD	mg/l					<2									<2					<2									6	
18	Chloride	mg/l		15	15	14	15	14	15	14	14	15	15	15	14	20	14	14	15	14	14	13	13	10	12	13	13	14	14	14	14
19	COD	mg/l					106									79					62									35	
20	Suspended Solids	mg/l		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	5	10	<5	5	5	<5	<5	6	<5
21	Ammonia (as NH3)	mg/l		0.21	0.14	0.18	0.11	0.11	0.1	0.12	0.13	0.17	0.2	0.11	0.14	0.06	0.1	0.1	0.1	0.09	0.06	0.12	0.12	0.07	0.11	0.05	0.05	<0.02	<0.02	<0.02	0.02
22	Ammonia (as NH4)	mg/l	0.00	0.27	0.18	0.23	0.14	0.14	0.13	0.15	0.17	0.22	0.26	0.14	0.18	0.08	0.13	0.13	0.13	0.12	0.08	0.15	0.15	0.09	0.14	0.06	0.06	<0.03	<0.03	<0.03	0.03
23																															
24																															
25	SW4	Quarter 1																													
26	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
27	pH	pH Units		7.4	7.5	7.5	7.4	7.5	7.4	7.4	7.5	7.6	7.6	7.7	7.6	7.1	7.7	7.5	7.8	7.7	7.4	7.5	7.8	7.3	7.7	7.5	7.5	7.5	7.6	7.6	7.2
28	Conductivity	µS/cm		509	490	485	449	470	411	483	463	487	487	506	485	330	505	499	513	524	521	445	489	422	450	527	527	564	554	552	564
29	BOD	mg/l					<2									<2					<2									<2	
30	Chloride	mg/l		20	17	16	19	19	16	19	18	16	16	18	15	13	15	15	15	14	13	13	13	17	13	13	13	15	13	13	13
31	COD	mg/l					71									98					49									40	
32	Suspended Solids	mg/l		<5	<5	8	<5	<5	<5	6	6	5	8	13	5	<5	<5	<5	5	6	5	5	5	18	5	<5	<5	<5	<5	<5	<5
33	Ammonia (as NH3)	mg/l		0.07	0.06	0.06	0.05	0.06	0.05	0.06	0.05	0.09	0.1	0.13	0.09	0.1	0.06	0.08	0.07	0.17	0.06	0.09	0.08	0.06	0.02	0.05	0.05	0.06	0.05	0.07	0.06
34	Ammonia (as NH4)	mg/l	0.00	0.09	0.08	0.08	0.06	0.08	0.06	0.08	0.06	0.12	0.13	0.17	0.12	0.13	0.08	0.10	0.09	0.22	0.08	0.12	0.10	0.08	0.03	0.06	0.06	0.08	0.06	0.09	0.08

	A	B	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB
1	***SW6***	***Quarter 1***																							
2	***Parameter***	***Units***	***wk30***	***wk31***	***wk32***	***wk33***	***wk34***	***wk35***	***wk36***	***wk37***	***wk38***	***wk39***	***wk40***	***wk41***	***wk42***	***wk43***	***wk44***	***wk45***	***wk46***	***wk47***	***wk48***	***wk49***	***wk50***	***wk51***	***wk52***
3	***pH***	***pH Units***			7.60	7.40	7.40	7.50	7.40	7.50	7.50		7.5	7.4	7.6	7.7	7.7	8.1	7.6	7.5			7.5		
4	***Conductivity***	***µS/cm***			487.00	517.00	532.00	534.00	529.00	523.00	530.00		528	514	529	528	526	761	515	530			561		
5	***BOD***	***mg/l***					<2				<2	<2													
6	***Chloride***	***mg/l***			16.00	16.00	15.00	15.00	14.00	15.00	15.00	14.00	15	15	14	14	15	16	15	15			20		
7	***COD***	***mg/l***					17.00				18.00	11.00													
8	**Suspended Solids**	**mg/l**			<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	15	<5	10	<5			<5		
9	**Ammonia (as NH3)**	**mg/l**			0.42	0.22	0.09	0.41	0.24	0.02	0.23	0.19	0.09	0.21	0.12	0.04	0.02	0.11	0.51	0.41			0.03		
10	**Ammonia (as NH4)**	**mg/l**	0.00	0.00	0.54	0.28	0.12	0.53	0.31	0.03	0.30	0.24	0.12	0.27	0.15	0.05	0.03	0.14	0.66	0.53			0.04		0.00
11																									
12																									
13	***SW5***	***Quarter 1***																							
14	***Parameter***	***Units***	***wk30***	***wk31***	***wk32***	***wk33***	***wk34***	***wk35***	***wk36***	***wk37***	***wk38***	***wk39***	***wk40***	***wk41***	***wk42***	***wk43***	***wk44***	***wk45***	***wk46***	***wk47***	***wk48***	***wk49***	***wk50***	***wk51***	***wk52***
15	***pH***	***pH Units***	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.5	7.6		7.5	7.3	7.6	7.5	7.4	7.4	7.2	7.2	7.5	7.6	7.7	7.3	
16	***Conductivity***	***µS/cm***	461	467	335	352	369	420	434	427	397		422	386	422	394	394	400	290.3	324	498	537	563	309	
17	***BOD***	***mg/l***		4			<2				<2	<2												<2	
18	***Chloride***	***mg/l***	12	14	11	12	12	13	12	13	13	13	16	14	13	13	14	14	13	13	15	14	15	13	
19	***COD***	***mg/l***		34			61				59	58												94	
20	*Suspended Solids*	*mg/l*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	15	20	37	6	<5	21	<5	<5	7	33	
21	**Ammonia (as NH3)**	**mg/l**	0.06	0.07	0.1	0.12	0.1	0.04	0.07	0.06	0.04	0.06	0.05	0.06	0.1	0.17	0.63	0.93	0.31	0.21	0.07	0.11	0.21	0.34	
22	**Ammonia (as NH4)**	**mg/l**	0.08	0.09	0.13	0.15	0.13	0.05	0.09	0.08	0.05	0.08	0.06	0.08	0.13	0.22	0.81	1.20	0.40	0.27	0.09	0.14	0.27	0.44	0.00
23																									
24																									
25	***SW4***	***Quarter 1***																							
26	***Parameter***	***Units***	***wk30***	***wk31***	***wk32***	***wk33***	***wk34***	***wk35***	***wk36***	***wk37***	***wk38***	***wk39***	***wk40***	***wk41***	***wk42***	***wk43***	***wk44***	***wk45***	***wk46***	***wk47***	***wk48***	***wk49***	***wk50***	***wk51***	***wk52***
27	***pH***	***pH Units***	7.3	7.7	7.6	7.4	7.5	7.50	7.5	7.6	7.7		7.70	7.40	7.5	7.5	7.6	7.5	7.4	7.5	7.4	7.6	7.6	7.4	
28	***Conductivity***	***µS/cm***	546	565	398	462	504	517.00	532	552	540		539.00	492.00	519	502	525	496	442	510	498	536	565	458	
29	**BOD**	**mg/l**		3			<2				<2	<2												<2	
30	***Chloride***	***mg/l***	12	13	12	12	12	15.00	12	13	13	13	15	15	13	13	14	14	14	15	15	14	15	14	
31	***COD***	***mg/l***		39			53				42	57												72	
32	**Suspended Solids**	**mg/l**	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	21	
33	***Ammonia (as NH3)***	***mg/l***	0.07	0.05	0.03	<0.02	<0.02	<0.02	<0.02	0.04	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.03	0.12	0.08	0.05	0.06	0.11	0.21	0.09	
34	**Ammonia (as NH4)**	**mg/l**	0.09	0.06	0.04	<0.03	<0.03	<0.03	<0.03	0.05	0.03	<0.03	0.03	<0.03	0.03	<0.03	0.04	0.15	0.10	0.06	0.08	0.14	0.27	0.12	0.00

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	SW6	Quarter 1													Quarter 2				No discharge			No discharge	No discharge	No discharge				Quarter 3	No discharge	No discharge
2	Parameter	Units	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
3	pH	pH Units	7.6	7.8	7.6	7.5	7.3	7.5	7.5	7.6	8	7.5	7.8	7.4	7.6	7.6	7.4	7.3		7.6	7.5				7.7	7.4	8	7.6		
4	Conductivity	µS/cm	559	566	609	600	653	647	643	656	656	649	646	651	609	625	638	329		572	597				576	391	342	393		
5	BOD	mg/l						<2							2													5		
6	Chloride	mg/l	22	21	27	31	33	34	36	38	41	15	40	42	40	39	39	15		33	31				34	12	13	13		
7	COD	mg/l						<10							10													89		
8	Suspended Solids	mg/l	10	10	6	7	<5	<5	6	8	11	<5	<5	<5	10	<5	<5	29		10	6				7	<5	<5	<5		
9	Ammonia (as NH3)	mg/l	0.34	0.48	0.16	0.03	0.12	0.06	0.02	0.05	0.99	0.02	0.02	0.03	0.14	0.04	<0.02	0.05		0.33	<0.02				0.03	<0.02	0.06	0.08		
10	Ammonia (as NH4)	mg/l	0.44	0.62	0.21	0.04	0.15	0.08	0.03	0.06	1.27	0.03	0.03	0.04	0.18	0.05	<0.03	0.06	0.00	0.42	<0.03	0.00	0.00	0.00	0.04	<0.03	0.08	0.10	0.00	0.00
11																														
12																														
13	SW5	Quarter 1													Quarter 2													Quarter 3		
14	Parameter	Units	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
15	pH		7.4	7.6	7.6	7.5	7.4	7.6	7.5	7.5	7.4	7.6	7.8	7.7	7.5	7.6	7.5	7.6	7.7	7.2	7.4	7.7	7.8	7.7	7.8	7.6	8.1	7.7	7.7	7.7
16	Conductivity	µS/cm	357	367	427	384	433	456	410	372	406	436	477	503	384	450	389	480	412	327	350	478	506	451	452	541	488	539	463	446
17	BOD	mg/l						<2							<2													5		
18	Chloride	mg/l	13	14	13	14	14	14	15	14	16	41	14	14	15	15	15	14	14	14	15	13	13	13	12	19	22	19	16	14
19	COD	mg/l						48							66													69		
20	Suspended Solids	mg/l	20	15	15	12	5	6	26	22	17	17	9	14	15	15	<5	6	6	<5	8	14	6	6	<5	<5	20	12	<5	5
21	Ammonia (as NH3)	mg/l	0.59	0.56	1.1	0.74	1.2	1.3	0.78	0.69	0.98	0.02	1.3	1.8	0.94	0.7	0.14	0.55	0.36	0.2	0.48	0.78	0.37	0.2	0.07	0.08	<0.02	<0.02	<0.02	<0.02
22	Ammonia (as NH4)	mg/l	0.76	0.72	1.41	0.95	1.54	1.67	1.00	0.89	1.26	0.03	1.67	2.31	1.21	0.90	0.18	0.71	0.46	0.26	0.62	1.00	0.48	0.26	0.09	0.10	<0.03	<0.03	<0.03	<0.03
23																														
24																														
25	SW4	Quarter 1													Quarter 2													Quarter 3		
26	Parameter	Units	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28	wk29
27	pH	pH Units	7.4	7.8	7.7	7.5	7.5	7.9	7.7	7.6	7.5	7.6	8	7.8	7.6	7.8	7.7	7.6	7.8	7.4	7.5	7.8	7.8	7.6	7.8	7.6	7.8	7.6	7.8	7.8
28	Conductivity	µS/cm	511	492	530	535	527	546	520	517	499	532	547	543	476	563	555	580.5	502	461	470	550	576	614.5	636	648.5	588.5	630	538	509
29	BOD	mg/l						<2							<2													3		
30	Chloride	mg/l	20	15	14	16	14	14	16	20	17	16	14	15	16	15	15	15	14	16	17	14	14	13	12	12	13	13	14	13
31	COD	mg/l				60		36							50													30		
32	Suspended Solids	mg/l	9	15	14	9	13	15	19	13	11	27	17	22	18	12	6	5	5	5	7	20	5	<5	<5	<5	<5	<5	<5	<5
33	Ammonia (as NH3)	mg/l	0.21	0.22	0.45	0.28	0.47	0.55	0.29	0.26	0.48	0.43	0.55	0.73	0.38	0.21	0.06	0.07	0.06	0.12	0.25	0.27	0.05	0.06	0.05	0.03	0.06	0.02	0.05	<0.02
34	Ammonia (as NH4)	mg/l	0.27	0.28	0.58	0.36	0.60	0.71	0.37	0.33	0.62	0.55	0.71	0.94	0.49	0.27	0.08	0.09	0.08	0.15	0.32	0.35	0.06	0.08	0.06	0.04	0.08	0.03	0.06	<0.03

	A	B	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1	SW6	Quarter 1					No discharge																		
2	Parameter	Units	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52
3	pH	pH Units	7.60	7.7	7.8	7.50		7.4	7.6	7.6	7.6	7.5	7.8	7.4	7.6	7.6	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.70	7.50
4	Conductivity	µS/cm	545	563	545	540		543	634	588	579	539	557	524	577	534	457	476	384	483	548	609	526	432	467.00
5	BOD	mg/l			3						<2			<2											
6	Chloride	mg/l	31	27	24	24		23	22	22	21	19	19	19	20	19	18	18	13	16	20	20	19	15	30
7	COD	mg/l			13						14.00			75											
8	Suspended Solids	mg/l	5		<5	<5		5	<5	13	6	8	<5	<5	<5	<5	<5	<5	9	<5	<5	<5	20	23	21
9	Ammonia (as NH3)	mg/l	0.03	0.05	0.08	0.04		0.07	0.27	0.12	0.20	0.08	0.06	<0.02	0.15	0.06	0.09	0.15	0.13	0.03	0.22	0.06	0.11	0.09	0.10
10	Ammonia (as NH4)	mg/l	0.04	0.06	0.10	0.05	0.00	0.09	0.35	0.15	0.26	0.10	0.08	<0.03	0.19	0.08	0.12	0.19	0.17	0.04	0.28	0.08	0.14	0.12	0.13
11																									
12																									
13	SW5	Quarter 1																							
14	Parameter	Units	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52
15	pH		7.6	7.7	7.6	7.5	7.4	7.6	7.4	7.6	7.4	7.6	7.9	7.3	7.4	7.7	7.6	7.5	7.4	7.3	7.4	7.4	7.4	7.4	7.4
16	Conductivity	µS/cm	457	504	494	510	494	423	382	369	387	412	447	449	454	411	382	326	267	324	391	364	331	261	292
17	BOD	mg/l			<2						2			<2											
18	Chloride	mg/l	13	12	10	9.1	9	16	12	12	12	11	11	11	11	12	11	12	11	13	14	14	13	12	17
19	COD	mg/l			62						60			63											
20	Suspended Solids	mg/l	<5		<5	<5	<5	<5	<5	<5	<5	11	<5	6	14	8	<5	<5	9	11	11	5	<5	8	8
21	Ammonia (as NH3)	mg/l	0.04	<0.02	0.04	0.04	<0.02	0.03	<0.02	<0.02	0.03	0.03	<0.02	0.03	<0.02	<0.02	0.03	0.05	0.1	0.36	0.84	0.52	0.44	0.34	0.42
22	Ammonia (as NH4)	mg/l	0.05	<0.03	0.05	0.05	<0.03	0.04	<0.03	<0.03	0.04	0.04	<0.03	0.04	<0.03	<0.03	0.04	0.06	0.13	0.46	1.08	0.67	0.57	0.44	0.54
23																									
24																									
25	SW4	Quarter 1																							
26	Parameter	Units	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52
27	pH	pH Units	7.6	7.8	7.7	7.8	7.7	7.7	7.8	8	7.9	8	8.1	7.6	7.7	7.7	7.6	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.5
28	Conductivity	µS/cm	541	589	574.5	587	564	496	601	565	581	573	608	600	608.5	566	531	526	464	411	485	443.5	427	393	423
29	BOD	mg/l			<2						<2			<2											
30	Chloride	mg/l	13	19	12	12	12	11	12	12	12	11	12	12	12	14	13	12	12	14	14	14	17	21	20
31	COD	mg/l			32						27			24											
32	Suspended Solids	mg/l	<5		<5	16	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	6
33	Ammonia (as NH3)	mg/l	0.06	0.05	0.06	0.04	0.07	0.02	0.03	0.03	0.06	0.04	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.02	0.15	0.19	0.14	0.1	0.13	0.12
34	Ammonia (as NH4)	mg/l	0.08	0.06	0.08	0.05	0.09	0.03	0.04	0.04	0.08	0.05	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	0.03	0.19	0.24	0.18	0.13	0.17	0.15

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	SW6	Quarter 1			No Discharge											Quarter 2					No Discharge	No Discharge	No Discharge	No Discharge	No Discharge	No Discharge			Quarter 3	
2	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28
3	pH	pH Units	7.4	7.7		7.6	7.8	7.8	7.6	7.9	7.5	7.7	7.9	7.7	7.5	7.5	7.8	7.8	7.5	7.6							7.7	7	7.5	7.6
4	Conductivity	µS/cm	415	517		471	483	561	566	440	519	405	480	534	659	556	603	608	624	354							559	647	646	625
5	BOD	mg/l					<2											2									3			
6	Chloride	mg/l	13	16		19	18	20	20	18	16	15	21	22	21	19	20	21	21	12							19	16	17	27
7	COD	mg/l					14											17									19			
8	Suspended Solids	mg/l	26	14		10	11	<5	<5	9	6	<5	7	8	<5	11	<5	<5	<5	<5							12	<5	<5	<5
9	Ammonia (as NH3)	mg/l	0.14	0.31		<0.02	0.05	0.25	0.24	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	0.04	0.08	0.06	<0.02	0.09							0.13	<0.03	0.18	0.14
10	Ammonia (as NH4)	mg/l	0.18	0.40		<0.03	0.06	0.32	0.31	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	0.05	0.10	0.08	<0.03	0.12							0.17	<0.04	0.23	0.18
11																														
12																														
13	SW5	Quarter 1														Quarter 2													Quarter 3	
14	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28
15	pH		7.2	7.4	7.4	7.5	7.6	7.5	7.1	7.6	7.3	7.5	7.6	7.5	7.4	7.4	7.4	7.3	7.5	7.8	7.7	7.8	7.7	7.6	7.6	7.8	7.4	7.4	7.6	7.6
16	Conductivity	µS/cm	250	286.2	366	341	272	379	351	256	356	256	315	374	469	338	289	309	413	481	549	510	522	523	618	558	273	373	427	439
17	BOD	mg/l					2											2									3			
18	Chloride	mg/l	11	11	12	12	11	12	13	12	12	11	12	12	12	12	11	12	12	12	13	13	13	13	12	13	9.2	10	11	11
19	COD	mg/l					92											103									94			
20	Suspended Solids	mg/l	<5	<5	<5	8	11	<5	<5	<5	<5	<5	5	7	<5	<5	<5	5	<5	<5	15	7	6	16	<5	26	9	13	15	<5
21	Ammonia (as NH3)	mg/l	0.24	0.27	0.67	0.21	0.38	0.63	0.4	0.28	0.52	0.32	0.56	0.29	0.27	0.2	0.1	0.22	0.17	0.17	0.14	0.25	0.04	0.11	<0.02	<0.02	<0.03	0.14	<0.02	<0.02
22	Ammonia (as NH4)	mg/l	0.31	0.35	0.86	0.27	0.49	0.81	0.51	0.36	0.67	0.41	0.72	0.37	0.35	0.26	0.13	0.28	0.22	0.22	0.18	0.32	0.05	0.14	<0.03	<0.03	<0.04	0.18	<0.03	<0.03
23																														
24																														
25	SW4	Quarter 1														Quarter 2													Quarter 3	
26	Parameter	Units	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20	Wk21	Wk22	Wk23	Wk24	Wk25	Wk26	wk27	wk28
27	pH	pH Units	7.2	7.8	7.6	7.6	7.7	7.6	7.3	7.8	7.6	7.6	7.8	7.7	7.7	7.7	7.6	7.5	7.8	7.9	7.7	7.7	7.8	7.8	7.5	7.7	7.4	7.6	7.6	7.6
28	Conductivity	µS/cm	384	552.5	526.5	452	407	474	446	339	422	368	419	514	608.5	513	455	478	590	626	619	604	609	597	541	606	366	541	586	749
29	BOD	mg/l					<2											3									3			
30	Chloride	mg/l	18	41	17	14	16	14	14	13	13	11	13	13	13	13	12	13	12	12	12	12	13	12	13	13	9.2	11	11	11
31	COD	mg/l					68											69									83			
32	Suspended Solids	mg/l	11	5	7	<5	9	5	5	7	7	7	7	7	8	8	10	8	7	<5	5	<5	5	18	6	<5	14	6	<5	27
33	Ammonia (as NH3)	mg/l	0.11	0.1	0.24	0.02	0.1	0.21	0.29	0.11	0.26	0.09	0.23	0.12	0.1	0.09	0.09	0.16	0.05	0.15	0.03	0.16	0.1	0.06	<0.02	0.02	<0.03	0.1	0.02	<0.02
34	Ammonia (as NH4)	mg/l	0.14	0.13	0.31	0.03	0.13	0.27	0.37	0.14	0.33	0.12	0.30	0.15	0.13	0.12	0.12	0.21	0.06	0.19	0.04	0.21	0.13	0.08	<0.03	0.03	<0.04	0.13	0.03	<0.03

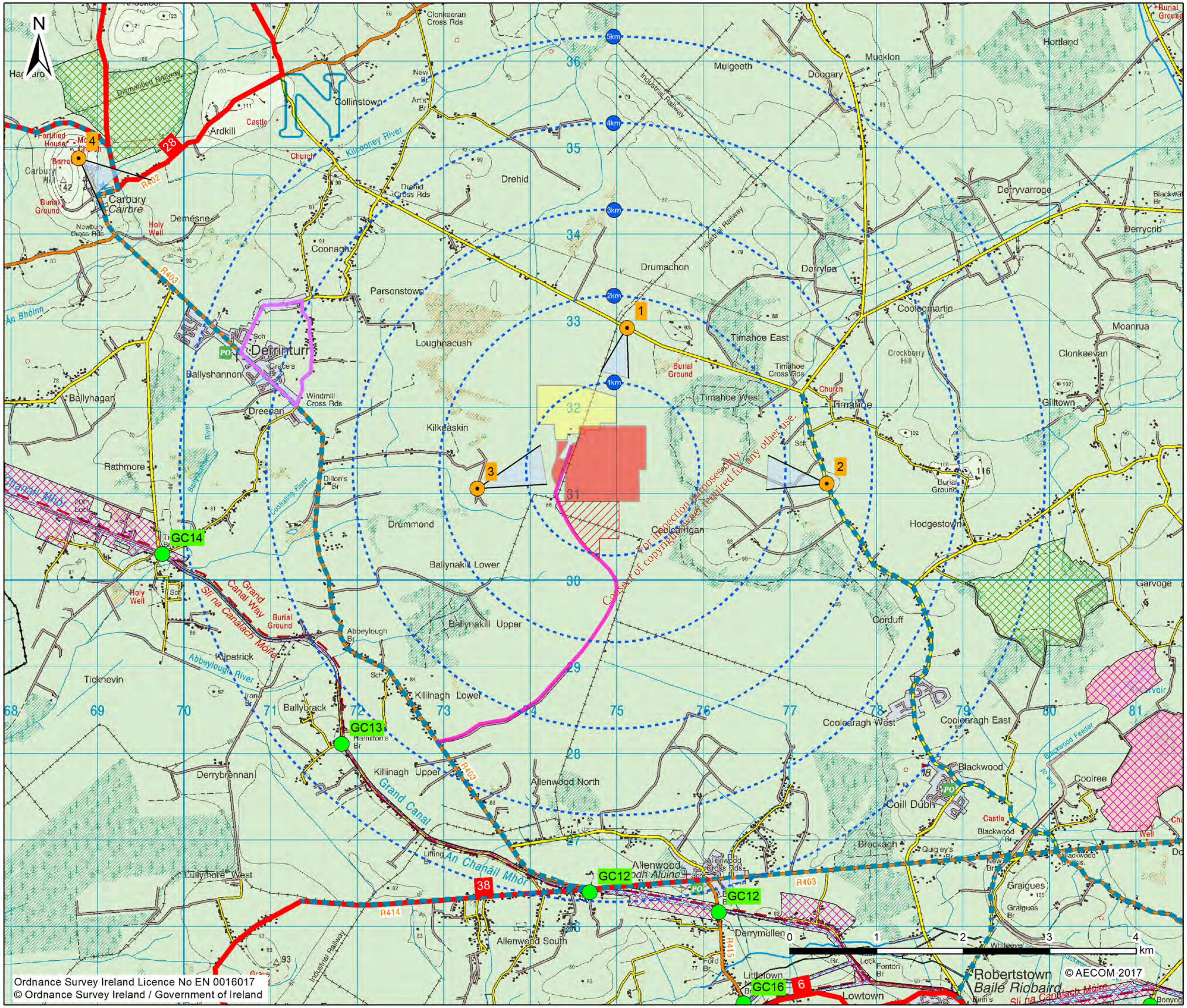
	A	B	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC
1	SW6	Quarter 1													Quarter 4	No Discharge		No Discharge	No Discharge								
2	Parameter	Units	wk29	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52	wk53
3	pH	pH Units	7.7	7.6	7.6	7.5	7.5	7.8	7.5	7.6	7.6	7.7	7.5	7.6	7.6		7.5			7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.7
4	Conductivity	µS/cm	590	594	544	548	536	561	545	530	596	573	593	560	653		688			517	584	658	677.5	690	569	662	738
5	BOD	mg/l				4									2					<2							
6	Chloride	mg/l	22	20	19	16	13	43	16	15	15	20	20	17	18		15			23	23	22	23	24	21	22	24
7	COD	mg/l				24									70					39							
8	Suspended Solids	mg/l	5	<5	<5	<5	<5	<5	8	27	5	9	5	10	<5		<5			<5	<5	5	<5	<5	<5	<5	<5
9	Ammonia (as NH3)	mg/l	0.03	0.07	0.07	0.02	0.04	0.07	0.03	0.03	<0.02	<0.02	<0.02	<0.02	0.04		0.04			0.1	0.13	0.12	<0.02	<0.02	0.03	0.13	0.22
10	Ammonia (as NH4)	mg/l	0.04	0.09	0.09	0.03	0.05	0.09	0.04	0.04	<0.03	<0.03	<0.03	<0.03	0.05		0.05			0.13	0.17	0.15	<0.03	<0.03	0.04	0.17	0.28
11																											
12																											
13	SW5	Quarter 1																									
14	Parameter	Units	wk29	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52	wk53
15	pH		7.7	7.6	7.6	7.6	7.5	7.6	7.6	7.9	7.6	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.6	7.5	7.4	7.3	7.4	7.5	7.4	7.2	7.3
16	Conductivity	µS/cm	488	516	505	524	595	543	477	532	453	376	381	386	481	523	304	367	768	442	356	368	415	470	356	350	417
17	BOD	mg/l				4									6					5							
18	Chloride	mg/l	14	15	16	13	13	16	13	14	12	12	11	11	12	12	8.9	10	10	11	11	12	21	11	11	11	13
19	COD	mg/l				30									66					82							
20	Suspended Solids	mg/l	<5	<5	<5	<5	7	<5	9	<5	<5	7	5	7	<5	7	<5	14	<5	5	6	<5	8	<5	5	6	<5
21	Ammonia (as NH3)	mg/l	0.06	<0.02	<0.02	0.04	0.09	0.06	0.12	0.03	0.02	0.03	0.08	0.04	0.12	0.07	0.06	0.08	0.18	0.16	0.1	0.14	0.2	0.25	0.17	0.13	0.11
22	Ammonia (as NH4)	mg/l	0.08	<0.03	<0.03	0.05	0.12	0.08	0.15	0.04	0.03	0.04	0.10	0.05	0.15	0.09	0.08	0.10	0.23	0.21	0.13	0.18	0.26	0.32	0.22	0.17	0.14
23																											
24																											
25	SW4	Quarter 1																									
26	Parameter	Units	wk29	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52	wk53
27	pH	pH Units	7.8	7.7	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.7	8.0	7.7	7.7	7.7	7.8	7.6	7.6	7.6	7.7
28	Conductivity	µS/cm	609	640	595	618	658	590	622	579	603	557	670	588	623	625	564	640	468	608	595	589	606	642	719	715	596
29	BOD	mg/l				4									2					2							
30	Chloride	mg/l	13	12	13	12	5.5	15	14	13	12	12	12	11	11	12	9.7	11	12	11	14	12	21	12	11	12	12
31	COD	mg/l				30									92					52							
32	Suspended Solids	mg/l	16	<5	<5	<5	19	<5	<5	<5	<5	<5	5	<5	<5	6	<5	6	<5	<5	<5	<5	5	<5	5	<5	<5
33	Ammonia (as NH3)	mg/l	0.08	<0.02	<0.02	0.13	0.09	0.11	0.04	0.06	0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.03	0.01	0.02	0.05	<0.02	0.1	0.04	0.04	0.07	0.09	0.04
34	Ammonia (as NH4)	mg/l	0.10	<0.03	<0.03	0.17	0.12	0.14	0.05	0.08	0.03	<0.03	<0.03	<0.03	0.03	<0.03	0.04	0.01	0.03	0.06	0.03	0.13	0.05	0.05	0.09	0.12	0.05

Appendix 8.1

PROPOSED DEVELOPMENT AT DREHID WASTE MANAGEMENT FACILITY

APPENDIX 8.1
PHOTOMONTAGES

DECEMBER 2017



Legend

- Photomontage Locations
- Distance from Site Centre
- Existing Waste Management Facility
- Proposed Landfill Development
- Consented MBT Facility
- Existing Access Road
- North Kildare Tourist Route
- Scenic Viewpoints
- Derrinturn Slí na Sláinte
- Scenic Route
  (Kildare Co. Development Plan 2017-2023)

National Parks and Wildlife Service (NPWS)

- proposed Natural Heritage Area (pNHA)
- Natural Heritage Area (NHA)
- Special Area of Conservation (SAC)

Client
BORD NA MÓNA
Naturally Driven

Project
Proposed Development at
Drehid Waste Management Facility

Drawing Title
Landscape Designations
and Photomontage Locations

Drawing Number	Rev
Figure 8.1	

Consultant
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TOBIN
Consulting Engineers

Drawing Status:
Planning

Drawn	Checked	Project Director	Date
C. O'Sullivan	J. Schulze	E. Frampton	17.02.2017
Scale @ A3		AECOM Project Number	
As indicated		60501437	

Existing View

Photomontage: View of the proposed development including full height of landfill mounds prior to establishment of vegetation cover

Proposed Development at Drehid Waste Management Facility

Viewpoint 1: Page 1 of 2
View south, southwest from the L5025 in the townland of Drumachon

OSI reference: E275121 N232919
Eye level: 94.7m AoD
Direction of view: 198°
Distance to landfill: 1.15 km to nearest part of landfill mound (non-hazarous)

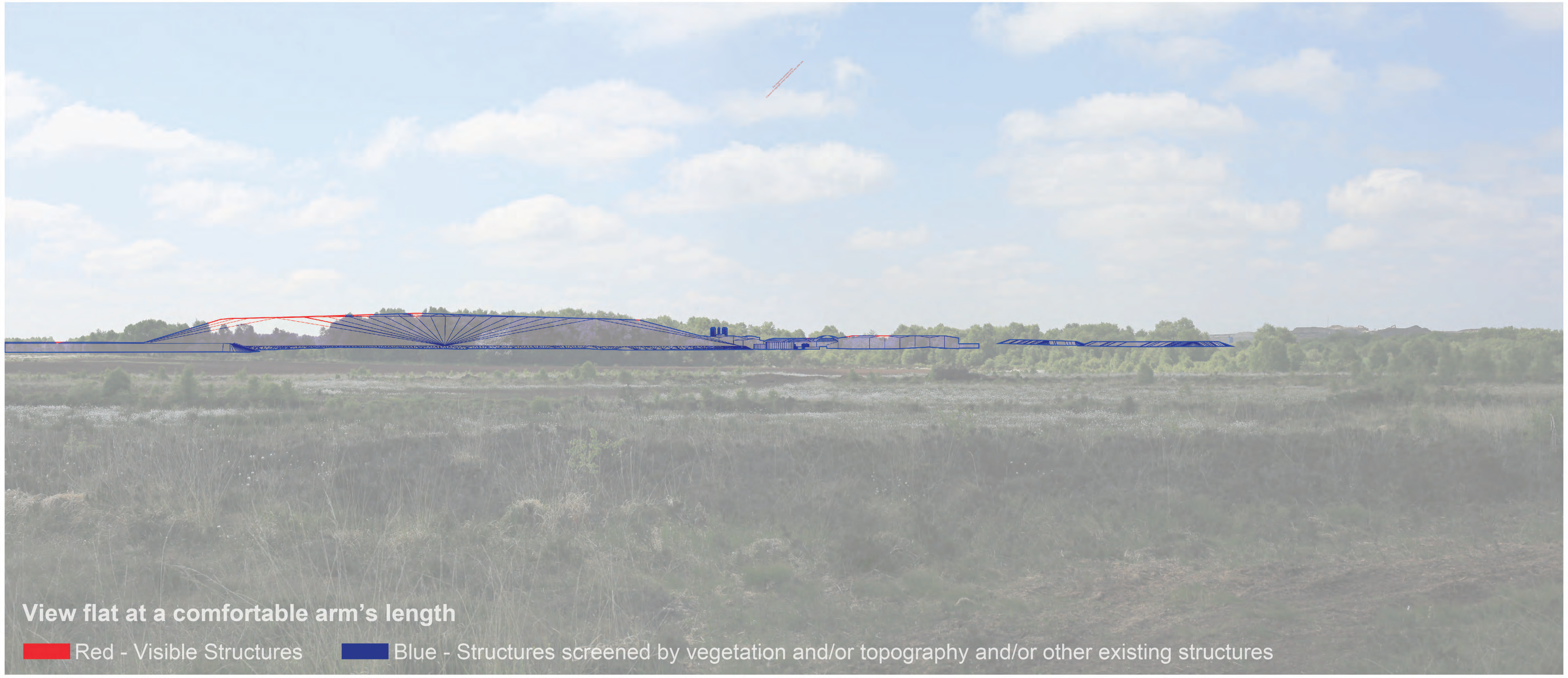
Horizontal field of view: 57° (cylindrical projection)
Principal distance: 559 mm
Paper size: 841 x 594 mm (A1)
Correct printed image size: 556mm x 240mm

Camera height: 1.6m above ground level
Date and time: 01/06/2016 11:28
Camera type: Canon EOS 5D Mark III
Lens type: Canon (fixed 50mm EF 1:1.4)

BORD NA MÓNA
Naturally Driven

AECOM

Photomontage: View of the proposed development including full height of landfill mounds at cessation of works following establishment of vegetation cover



Wireline drawing indicating visible and non-visible proposed structures from this viewpoint

Proposed Development at Drehid Waste Management Facility

Viewpoint 1: Page 2 of 2 View south, southwest from the L5025 in the townland of Drumachon

OSI reference:	E275121 N232919	**Horizontal field of view:**	57° (cylindrical projection)	**Camera height:**	1.6m above ground level
Eye level:	94.7m AoD	**Principal distance:**	559 mm	**Date and time:**	01/06/2016 11:28
Direction of view:	198°	**Paper size:**	841 x 594 mm (A1)	**Camera type:**	Canon EOS 5D Mark III
Distance to landfill:	1.15 km to nearest part of landfill mound (non-hazarous)	**Correct printed image size:**	556mm x 240mm	**Lens type:**	Canon (fixed 50mm EF 1:1.4)

BORD NA MÓNA Naturally Driven

AECOM

Existing View

Wireline drawing indicating visible and non-visible permitted and proposed structures from this viewpoint

Proposed Development at Drehid Waste Management Facility

Viewpoint 2 View west, southwest from the L5025 in the vicinity of the townland of Timahoe

OSI reference:	E277427 N231118	**Paper size:**	594 x 841 mm (A1)
Eye level:	91.7m AoD	**Correct printed image size:**	525mm x 350mm
Direction of view:	260°	**Camera height:**	1.6 m above ground level
Horizontal field of view:	39.6° (cylindrical projection)	**Date and time:**	01/06/2016 12:45
Distance to landfill:	2.21 km to nearest part of landfill mound (non-hazardous)	**Camera type:**	Canon EOS 5D Mark III
Principal Distance:	760 mm	**Lens type:**	Canon (fixed 50mm EF 1:1.4)

Naturally Driven

Existing View

Photomontage: View of the proposed development including full height of landfill mounds prior to establishment of vegetation cover

Proposed Development at Drehid Waste Management Facility

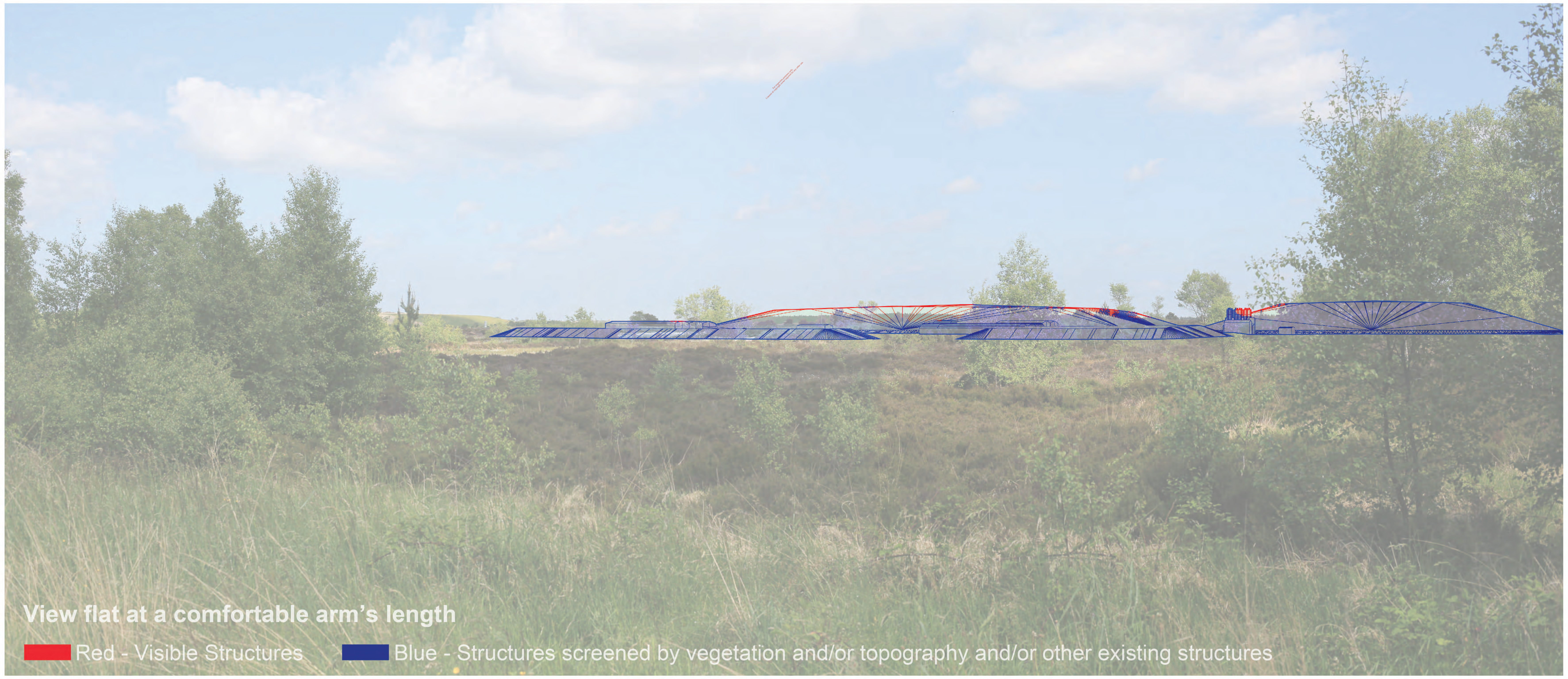
Viewpoint 3: Page 1 of 2 View east, southeast from an access lane leading into the bog from the R403 just south of Derrinturn

OSI reference:	E273389 N231061	**Horizontal field of view:**	59° (cylindrical projection)	**Camera height:**	1.6m above ground level
Eye level:	89.7m AoD	**Principal distance:**	541 mm	**Date and time:**	01/06/2016 15:10
Direction of view:	67°	**Paper size:**	841 x 594 mm (A1)	**Camera type:**	Canon EOS 5D Mark III
Distance to landfill:	1.29 km to nearest part of landfill mound (hazardous)	**Correct printed image size:**	557mm x 240mm	**Lens type:**	Canon (fixed 50mm EF 1:1.4)

BORD NA MÓNA Naturally Driven

AECOM

Photomontage: View of the proposed development including full height of landfill mounds at cessation of works following establishment of vegetation cover



Wireline drawing indicating visible and non-visible proposed structures from this viewpoint

Proposed Development at Drehid Waste Management Facility

Viewpoint 3: Page 2 of 2 View east, southeast from an access lane leading into the bog from the R403 just south of Derrinturn

OSI reference: E273389 N231061
Eye level: 89.7m AoD
Direction of view: 67°
Distance to landfill: 1.29 km to nearest part of landfill mound (hazardous)

Horizontal field of view: 59° (cylindrical projection)
Principal distance: 541 mm
Paper size: 841 x 594 mm (A1)
Correct printed image size: 557mm x 240mm

Camera height: 1.6m above ground level
Date and time: 01/06/2016 15:10
Camera type: Canon EOS 5D Mark III
Lens type: Canon (fixed 50mm EF 1:1.4)

BORD NA MÓNA Naturally Driven

AECOM

Existing View

Photomontage: View of the proposed development including full height of landfill mounds prior to establishment of vegetation cover

Proposed Development at Drehid Waste Management Facility

Viewpoint 4: Page 1 of 2 View southeast from Carbury Hill

OSI reference:	E268784 N234881
Eye level:	120m AoD
Direction of view:	133°
Horizontal field of view:	39.6° (cylindrical projection)
Distance to landfill:	6.73 km to nearest part of landfill mound (non-hazardous)
Principal Distance:	760 mm
Paper size:	594 x 841 mm (A1)
Correct printed image size:	525mm x 350mm
Camera height:	1.6 m above ground level
Date and time:	01/06/2016 16:06
Camera type:	Canon EOS 5D Mark III
Lens type:	Canon (fixed 50mm EF 1:1.4)

BORD NA MÓNA
Naturally Driven

AECOM

Photomontage: View of the proposed development including full height of landfill mounds at cessation of works following establishment of vegetation cover

Wireline drawing indicating visible and non-visible permitted and proposed structures from this viewpoint

Proposed Development at Drehid Waste Management Facility

Viewpoint 4: Page 2 of 2 View southeast from Carbury Hill

OSI reference:	E268784 N234881	**Paper size:**	594 x 841 mm (A1)
Eye level:	120m AoD	**Correct printed image size:**	525mm x 350mm
Direction of view:	133°	**Camera height:**	1.6 m above ground level
Horizontal field of view:	39.6° (cylindrical projection)	**Date and time:**	01/06/2016 16:06
Distance to landfill:	6.73 km to nearest part of landfill mound (non-hazardous)	**Camera type:**	Canon EOS 5D Mark III
Principal Distance:	760 mm	**Lens type:**	Canon (fixed 50mm EF 1:1.4)