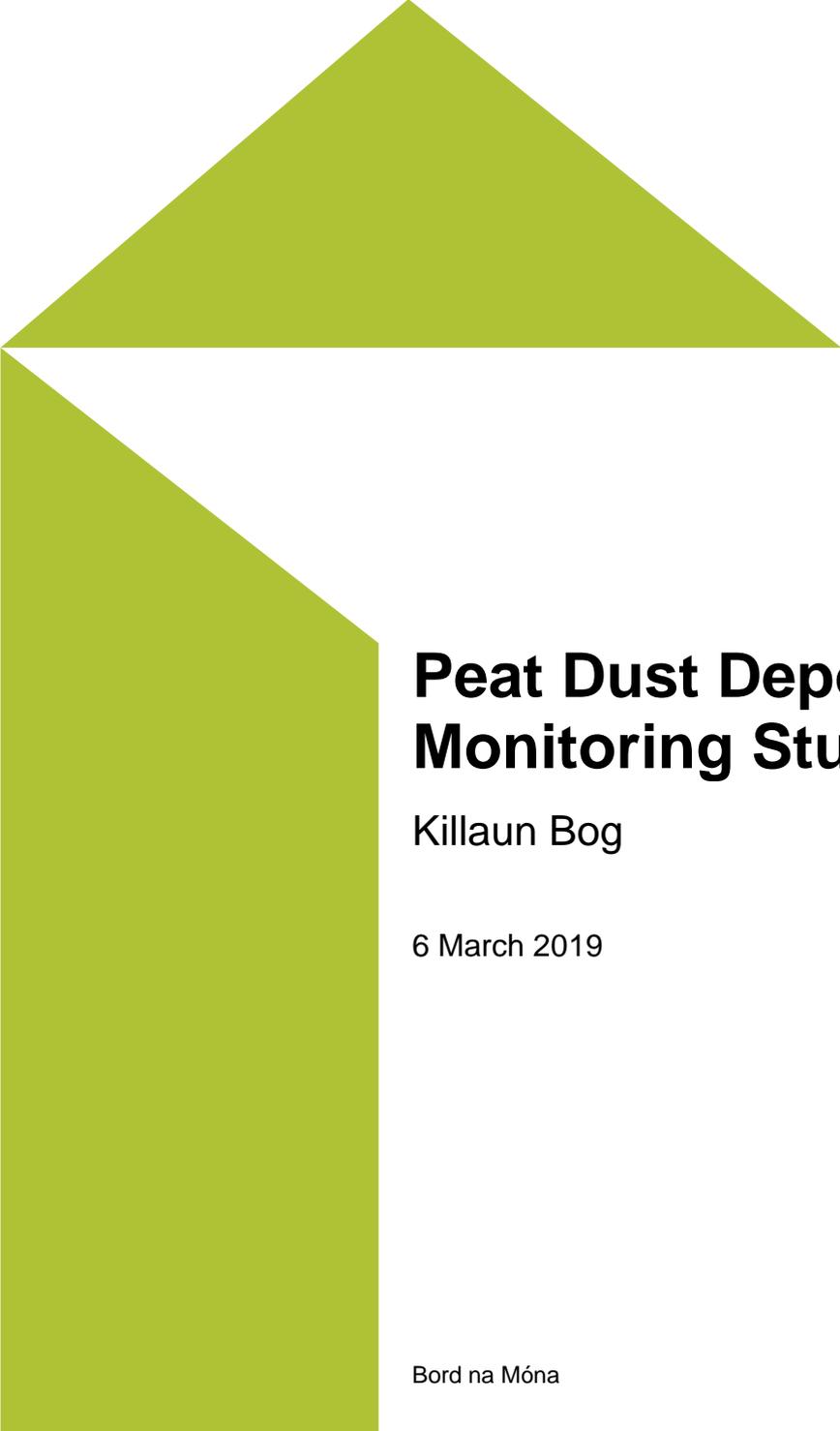


Appendix 1. Dust Deposition Monitoring Study

A large, abstract graphic composed of two overlapping green shapes. The top shape is a triangle pointing downwards, and the bottom shape is a trapezoid pointing upwards, together forming a larger, irregular shape on the left side of the page.

Peat Dust Deposition Monitoring Study

Killaun Bog

6 March 2019

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Peat Dust Deposition Monitoring Study

Killaun Bog

6 March 2019

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1 Introduction

Mott MacDonald were commissioned by Bord na Móna to undertake a study on dust deposition impacts from its activities at the Killaun bog, Co. Offaly. The aim of this study is to provide an evidence base to determine the Zone of Influence (ZoI) for peat dust deposition on ecological receptors as part of the IPC licence review process.

The dust deposition study ran from June to December 2018. Dust deposition monitoring was undertaken throughout the period and divided into six sampling periods:

- Period 1 - 18/06/2018 to 16/07/2018
- Period 2 - 16/07/2018 to 15/08/2018
- Period 3 - 15/08/2018 to 14/09/2018
- Period 4 - 14/09/2018 to 15/10/2018
- Period 5 - 15/10/2018 to 14/11/2018
- Period 6 - 14/11/2018 to 14/12/2018

This report presents the results of dust deposition monitoring for the study, and provides context for the observations in each period, including weather (wind speed and direction, rainfall) and bog activities (peat production and sales).

1.1 Daily dust deposition rate

Dust deposition is expressed in terms of mass per unit area per unit time, e.g. $\text{mg}/\text{m}^2/\text{day}$.

There are no Irish or European statutory standards that define the point when deposited dust causes annoyance or disamenity. However, EPA guidance suggest, a soiling of $10\text{mg}/\text{m}^2/\text{hour}$ is generally considered to pose a soiling nuisance (German Government TA Luft guidance 2002). This equates to $240\text{mg}/\text{m}^2/\text{day}$ of Total Depositional Dust.

The EPA recommend a maximum level of $350\text{mg}/\text{m}^2/\text{day}$ of dust deposition when measured according to TA Luft standard, which includes both soluble and insoluble matter (i.e. EPA compliance monitoring is based on the TA Luft Method).

The standard method of measurement of dust deposition is outlined in VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). This standard applies to total dust deposition i.e. all particle sizes, including soluble, insoluble and respirable dusts.

2 Observations and monitoring results

2.1 Wind speed and direction

Wind speed and direction at the Gurteen Met Éireann weather station were obtained and are reported below as wind roses. Figure 1 shows wind observations in each monitoring period of the study, which can be compared with the average of the previous nine years (2009-2017) in Figure 2.

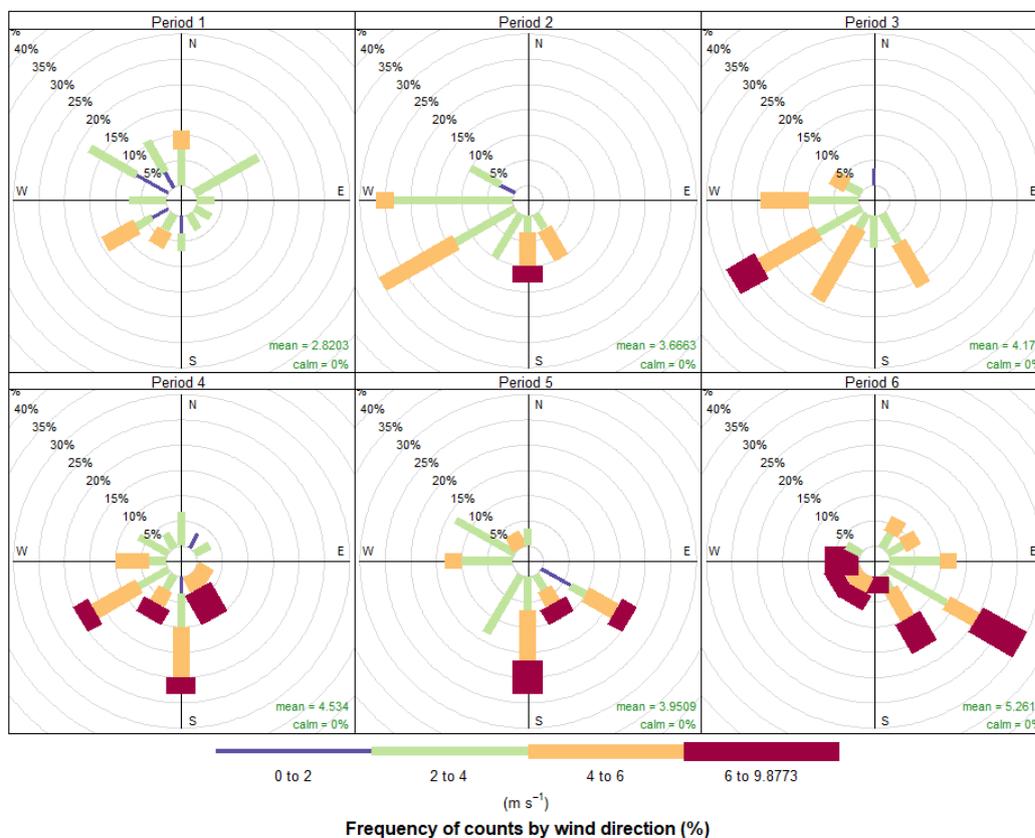
Period 1 did not display a prevalent wind direction. Periods 2 to 4 had a prevalence of south-westerly winds, which switched to south-easterlies in Periods 5 and 6.

Average wind speed was lowest in Period 1 (2.8m/s) with an increasing trend to the highest speed in Period 6 (5.3m/s), consistently with the 9-year average wind speed (lowest in June, increasing to a maximum in February).

Average wind speed and direction in each monitoring period in 2018 were broadly similar to the 9-year average for the same period (lower than the 9-year average in Periods 1, 2 and 5 and higher than the 9-year average in Periods 3, 4 and 6).

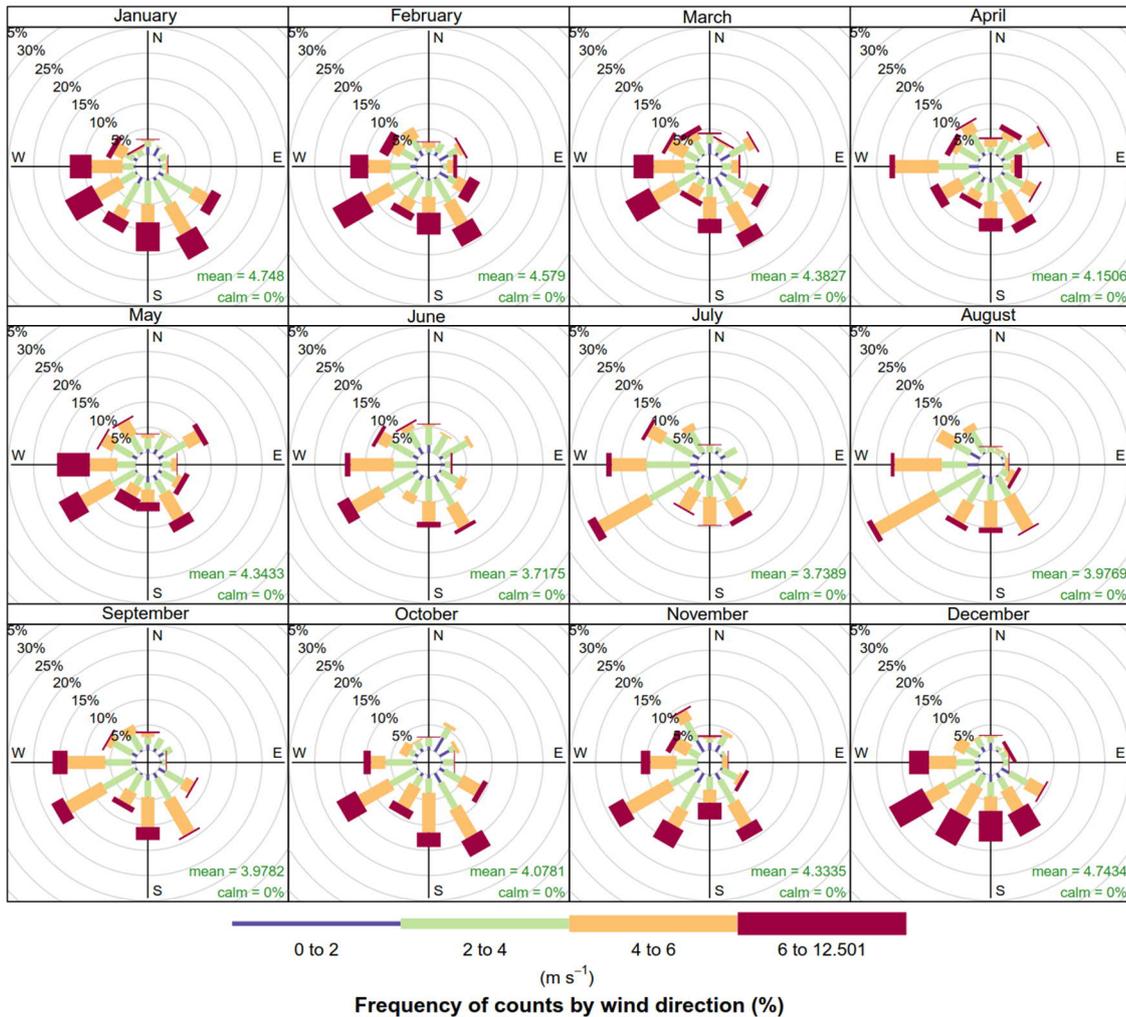
Higher wind speeds are generally associated with higher risk of dust emissions.

Figure 1: Wind speed and direction at Gurteen weather station during monitoring study



Source: Met Éireann

Figure 2: Nine-year average (2009-2017) wind speed and direction at Gurteen weather station



Source: Met Éireann

2.2 Rainfall

Rainfall measurements were taken at the Killaun bog and compared with measurements taken at the nearest Met Éireann weather station at Gurteen in the same periods in the previous nine years (2009 to 2017).

Rainfall levels were comparable at Killaun and Gurteen. Rainfall amounts in Periods 3 to 6 at both Killaun and Gurteen were comparable to the 9-year average at Gurteen, while Periods 1 and 2 were much drier than the climate average.

The driest period measured at Killaun was Period 1 with 15.5mm, and the wettest was Period 6 with 108.0mm.

Dry weather is generally associated with higher risk of dust emissions, as peat production activities are increased in frequency and duration, and deposited dust can be resuspended by vehicles and other activities.

Table 1: Rainfall by monitoring period

Period	Killaun 2018		Gurteen 2018		Gurteen 2009-2017
	Amount (mm)	% of 9-Year Average	Amount (mm)	% of 9-Year Average	9-Year Average (mm)
Period 1 - 18/06/2018 to 16/07/2018	15.5	23%	5.5	8%	67.8
Period 2 - 16/07/2018 to 15/08/2018	28.5	39%	42.2	58%	72.9
Period 3 - 15/08/2018 to 14/09/2018	60.0	76%	67.6	86%	79.0
Period 4 - 14/09/2018 to 15/10/2018	67.0	105%	70.6	111%	63.7
Period 5 - 15/10/2018 to 14/11/2018	62.0	56%	68.4	61%	111.3
Period 6 - 14/11/2018 to 14/12/2018	108.0	110%	89.2	91%	98.3

Source: Bord na Móna, Met Éireann

Figure 3: Rainfall by monitoring period



Source: Bord na Móna, Met Éireann

2.3 Peat production

The amount of peat harvested (production) can be used as a measure of activity on the Killaun bog. Before the peat is harvested, other activities are undertaken such as milling, harrowing, and ridging, which all have a dust emission potential. Each production cycle takes approximately three days from milling to harvesting. When harvesting is taking place in one area of the bog, milling, harrowing or ridging take place in other areas.

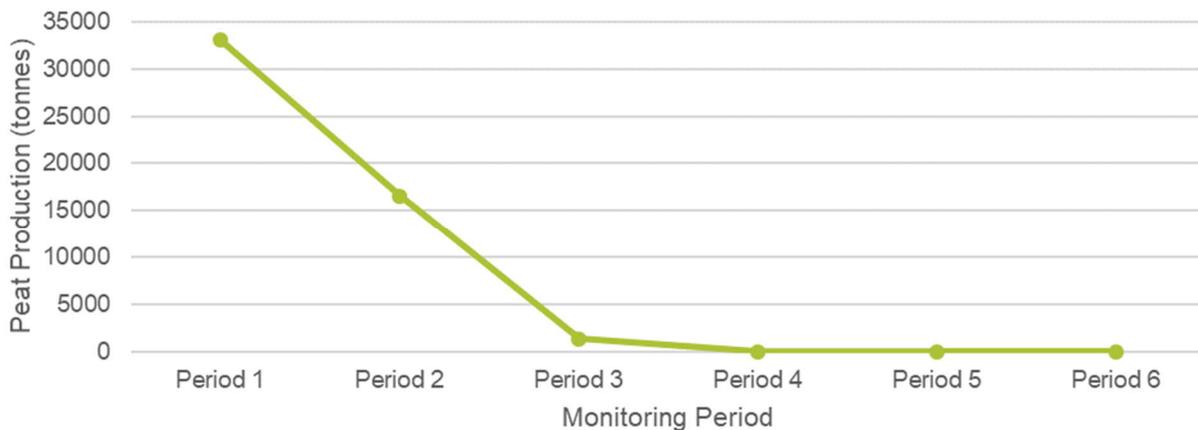
Harvesting on site was carried on nearly every day in Period 1, decreasing to 12 days in Period 2 and only one day in Period 3, as shown in the following table and chart.

Table 2: Peat Production at Killaun Bog

Monitoring Period	Peat harvesting (tonnage)	Harvesting days
Period 1	32071.0	24
Period 2	17554.4	12
Period 3	1388.3	1
Period 4	0.0	0
Period 5	0.0	0
Period 6	0.0	0

Source: Bord na Móna

Figure 4: Peat production by monitoring period



Source: Bord na Móna

The amount of peat harvested was highest in Period 1 and lowest in Period 3. It is understood harvesting finished on 16/08/2018 and no harvesting was carried on in Periods 4 to 6.

During production periods, all production fields generally had some activity each day such as milling, harrowing, ridging or harvesting. In any given monitoring period, no area of the production field was identified which could have a higher likelihood of dust emissions because of concentrated activity.

2.4 Other activities at Killaun bog

After the end of the harvesting period, peat stockpiles were covered between 17th August and 17th September. Five piles were left uncovered, ready to be loaded for removal and sale, and were potential sources of dust emissions in Periods 4 to 6. The name of the stockpiles left uncovered has been inferred by peat sale information provided by Bord na Móna, and the stockpiles are marked in the map in Appendix A.

Harvested peat is removed from the stockpiles using a rail line crossing the middle of the bog. The rail line is located approximately 250m away from the closest monitoring location (D1), and unlikely to directly affect dust deposition results. Using the rail line, peat is transferred to a loading station where it is loaded on lorries that transport it out of the production bog. The loading station is located approximately 400m away from the closest monitoring location (D2).

There is another commercial peat bog adjacent to the eastern boundary of the Bord na Móna Killaun bog, approximately 350m away from the closest monitoring location (D9). It is noted that this bog was also undertaking production during the summer, and may have had the potential for dust emissions.

2.5 Monitoring locations

The Bord na Móna survey at Killaun bog comprises of dust deposition sampling carried on by Odour Monitoring Ireland. The survey used Bergerhoff gauges at sixteen locations, chosen along four transects around the bog and at one regional background location, on Bord na Móna land, approximately 2.8km away from the closest active bog (Boora). Details about the locations are available in the table below and in the maps in appendix. Photos of the monitoring locations are also included in appendix.

Table 3: Monitoring locations

Monitoring location	Monitoring group	ITM X Coordinate	ITM Y Coordinate	Distance from production field (m)	Direction of production field (deg)	Cardinal Direction of production field
D1	North-North-East Transect	609760	707291	0	-154	SW
D2		609786	707352	18	-154	SW
D3		609807	707422	68	-154	SW
D4		609797	707538	111	-154	SW
D5		609812	707637	177	-135	SW
D6		609865	707874	400	-116	SW
D7	East-North-East Transect	610090	706904	0	-154	SW
D8		610123	706951	18	-154	SW
D9		610163	707037	92	-154	SW
D10	South-East Transect	610407	705326	0	151	NW
D11		610543	705260	88	151	NW
D12		610736	705189	292	157	NW
D13	South-West Transect	608850	705600	0	26	NE
D14		608763	705552	50	26	NE
D15		608674	705507	150	26	NE
D16	Regional Background	618464	717148	2800	-90	W

Source: Mott MacDonald

2.6 Dust deposition results

Dust deposition monitoring results are reported in the table and graphs below.

Table 4: Periods 1-6 Monitoring Results

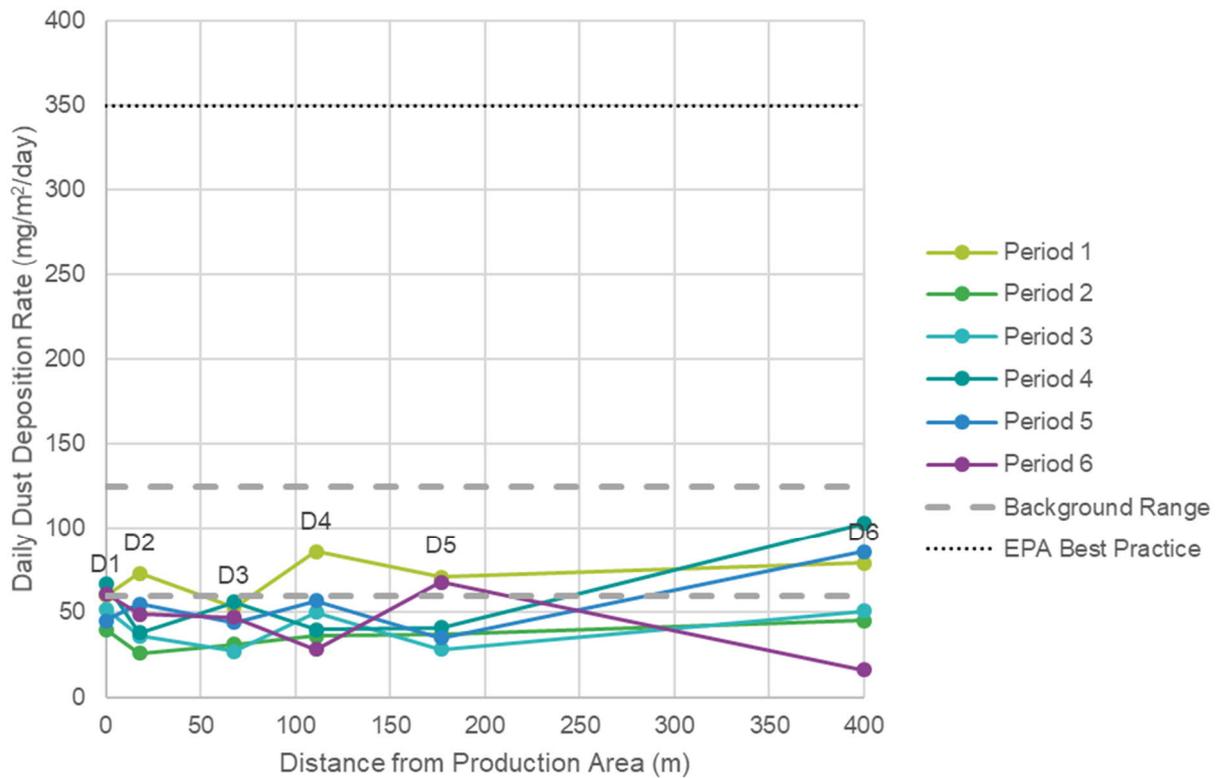
Monitoring location	Monitoring group	Daily Dust Deposition Rate (mg/m ² /day)					
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
D1	North-North-East Transect	60	40	52	67	45	61
D2		73	26	36	38	55	49
D3		53	31	27	56	44	47
D4		86	36	50	40	57	28
D5		71	37	28	41	35	68
D6		79	45	51	103	86	16

Monitoring location	Monitoring group	Daily Dust Deposition Rate (mg/m ² /day)					
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
D7	East-North-East Transect	114	38	35	41	61	62
D8		150	80	58	49	43	42
D9		87	46	48	31	37	51
D10	South-East Transect	172	48	54	63	1136	59
D11		51	38	44	30	39	20
D12		59	32	38	27	69	36
D13	South-West Transect	1301	38	31	30	280	41
D14		1289	58	32	71	186	58
D15		103	34	140	69	77	67
D16	Regional Background	60	125	87	104	77	66

Source: Mott MacDonald, Odour Monitoring Ireland

Dust deposition rates at site D16, away from Bord na Móna peat extraction activities, ranged from 60 to 125mg/m²/day. This range can be considered a representative of "regional background" due to weather, natural sources and other human activities.

Figure 5: Monitoring Results for Periods 1-6 (North-North-East Transect)



Source: Mott MacDonald, Odour Monitoring Ireland

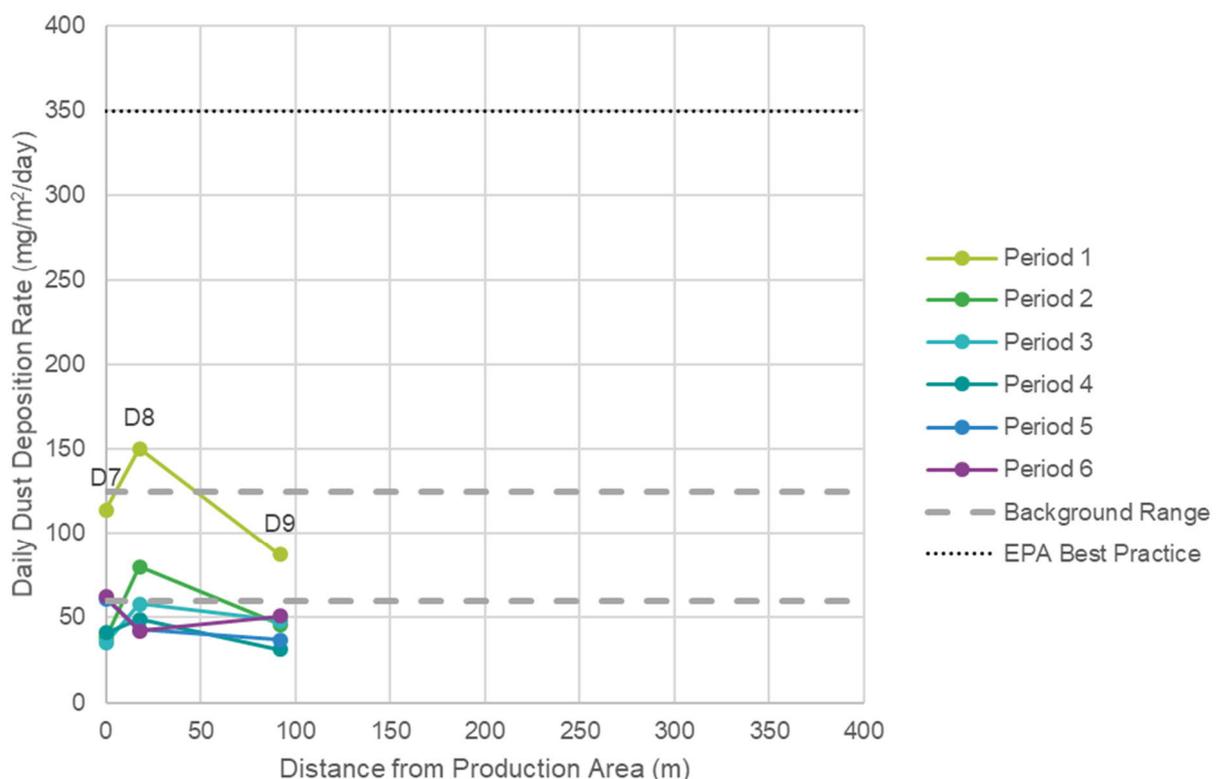
Daily dust deposition rates measured along the North-North-East Transect ranged from 16 to 103mg/m²/day. These monitored values are in the same range or lower than the monitored dust deposition at the background site. Dust deposition on this transect was also well below the EPA

Best Practice value of 350 mg/m²/day at all sampled locations and for all periods. Dust deposition in Period 1 was higher than in other periods, at the five monitoring locations closest to the production zone (up to 180m away).

At location D6, 400m from the production zone, the highest values were observed in Periods 4 and 5. The highest dust depositions observed at D6 were 103 and 86 mg/m²/day respectively, still well below the EPA Best Practice value. Location D6 is also close (less than 50m) to a public road.

No other significant variation with distance was observed across locations.

Figure 6: Monitoring Results for Periods 1-6 (East-North-East Transect)



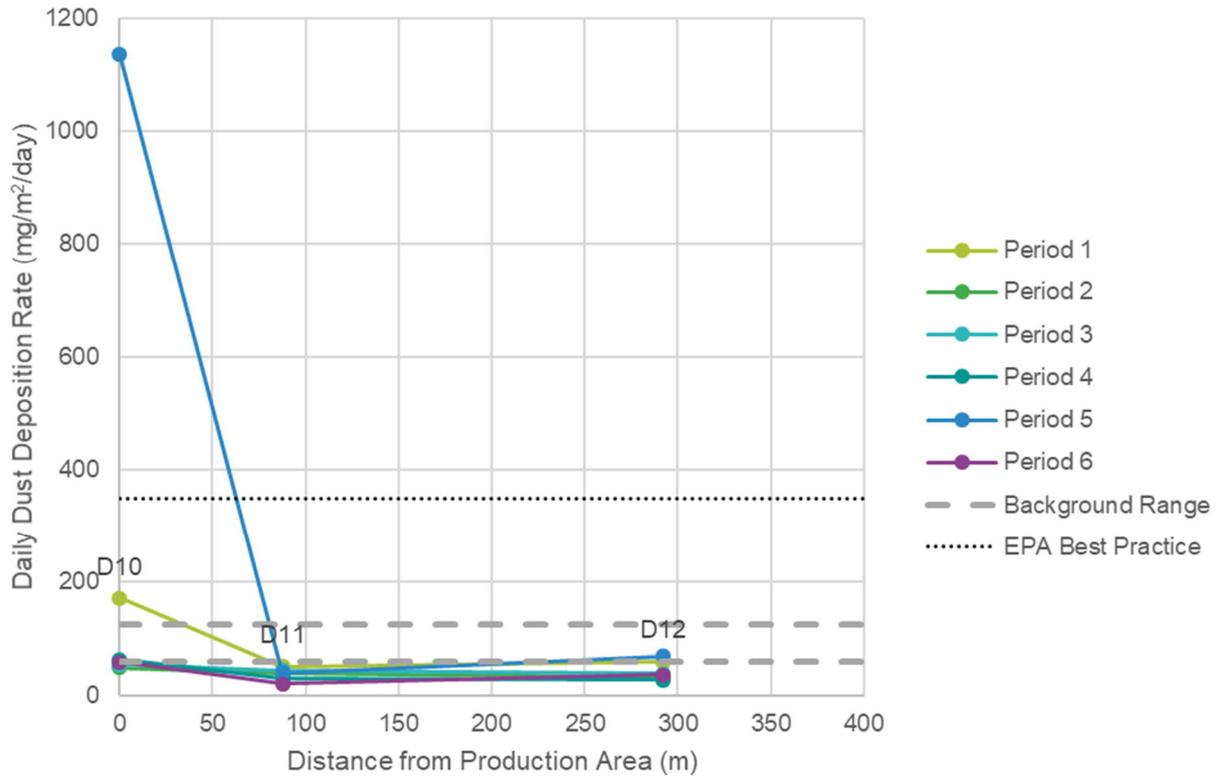
Source: Mott MacDonald, Odour Monitoring Ireland

Daily dust deposition rates measured along the East-North-East Transect ranged from 31 to 150mg/m²/day. The highest dust deposition, which was above the background range, was observed at D8 (18m from the production zone) during Period 1, while all other results were within the background range or lower. Dust deposition on this transect was also well below the EPA Best Practice value of 350 mg/m²/day at all sampled locations and periods.

Dust deposition was highest in Period 1, then decreasing in Period 2 and consistently low in Periods 3 to 6 at all locations.

A decrease in deposition rates with distance from the production zone was observed in all periods except Period 6 between locations D8 (18m) and D9 (92m), with rates at D9 within the background range in all periods.

Figure 7: Monitoring Results for Periods 1-6 (South-East Transect)



Source: Mott MacDonald, Odour Monitoring Ireland

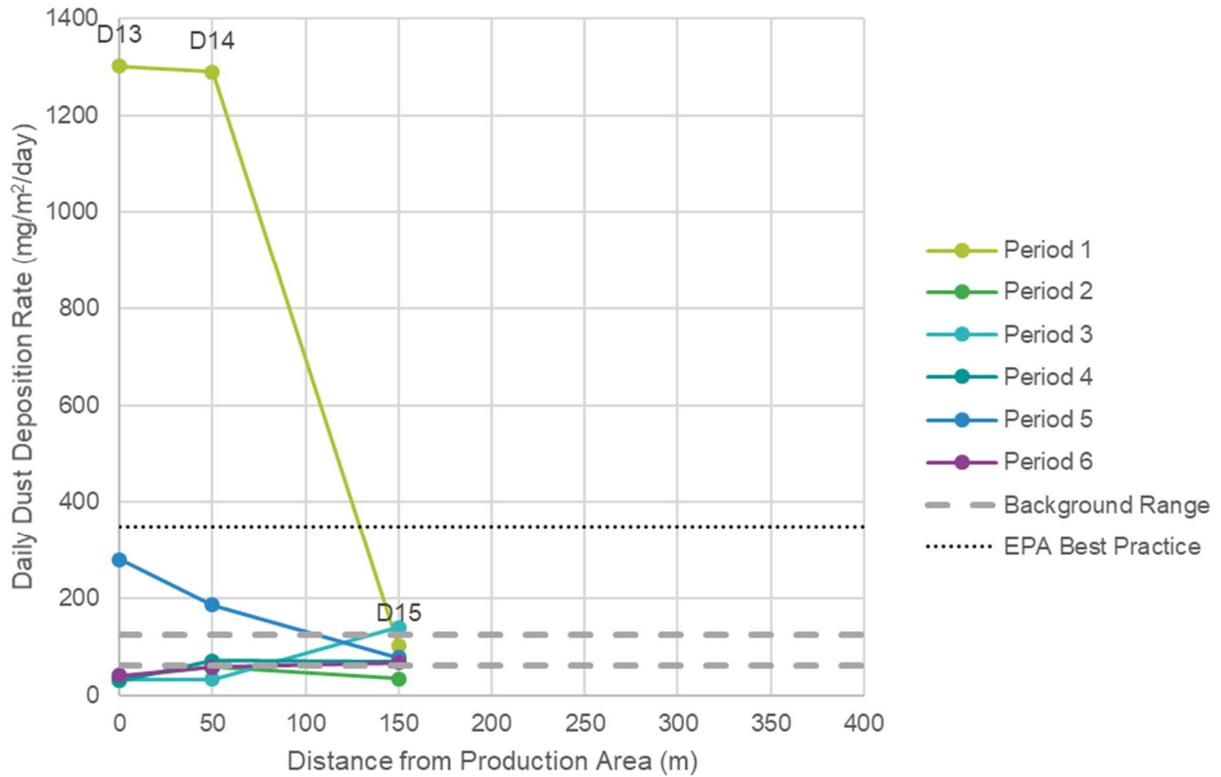
Daily dust deposition rates measured along the South-East Transect ranged from 20 to 1136mg/m²/day, with the highest result above both the background range and the EPA Best Practice value of 350 mg/m²/day, observed at D10 at edge of the production zone during Period 5.

An elevated value of 172 mg/m²/day was also observed at D10 during Period 1, above the background range but below the EPA Best Practice value.

All other dust deposition rates observed on this transect in all periods were within or below the background range.

A decrease in dust deposition with distance was observed between locations D10 and D11, which are located at the edge and at 88m from the production zone, in all periods.

Figure 8: Monitoring Results for Periods 1-6 (South-West Transect)



Source: Mott MacDonald, Odour Monitoring Ireland

Daily dust deposition rates measured along the South-West Transect ranged from 30 to 1301mg/m²/day, with the highest results, well above both the background range and the EPA Best Practice value of 350 mg/m²/day. The highest deposition rates were at locations D13 and D14 up to 133m from the production zone during Period 1. Elevated values (above the background range) were also observed at the same locations in Period 5.

All other dust deposition rates observed on this transect in all periods were within or just above the background range, and well below the EPA Best Practice value.

3 Conclusions

The activities undertaken at the Killaun bog are considered likely to affect dust deposition rates within 150m of the production field. Beyond 150m contributions to dust deposition are low, in the range of the regional background and below the EPA Best Practice Level.

The monitoring results collected show isolated cases of high dust deposition rates which are monitored very close to the production fields. In these cases dust deposition rates decreased to background levels between 90m and 150m away from the production fields.

Some high dust deposition rates were monitored at the same locations outside of the harvesting period and indicate that high deposition events can occur without active production.

The summer of 2018 was much drier than the average of the previous nine years and peat production was carried out at higher rates and for longer periods compared to typical summers. The conclusions presented have therefore been based on data collected with higher than normal production and worst-case meteorological conditions for dust emissions and provide a robust evidence base for conclusions.

The above conclusions are based on the following key points:

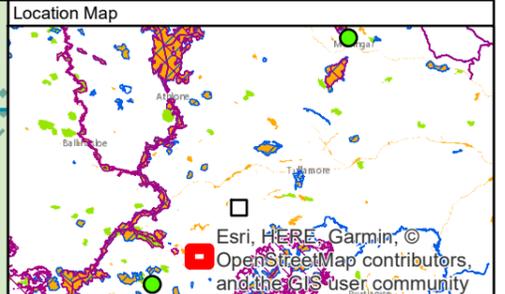
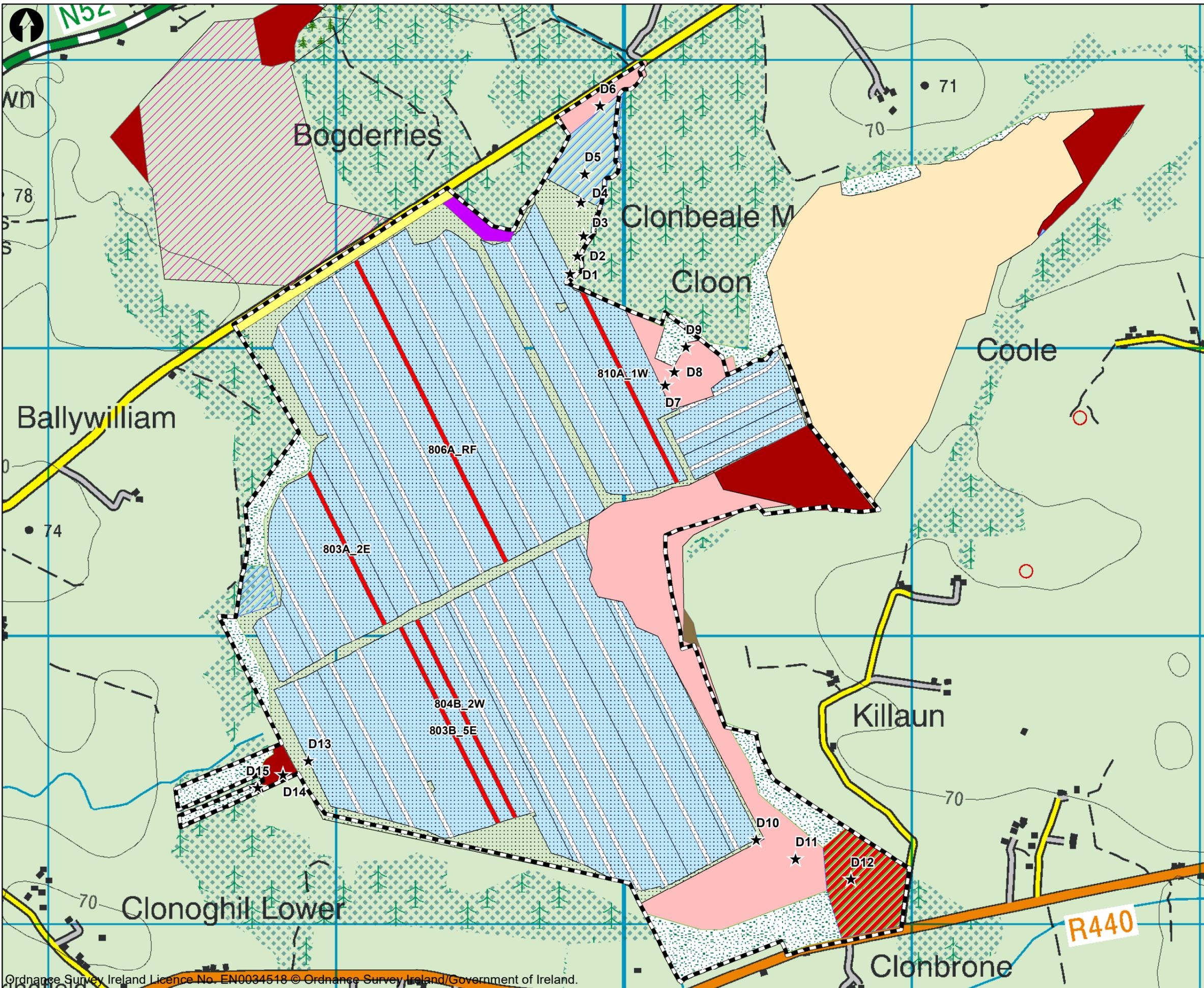
- Out of 90 samples collected at Killaun bog, only eight (9% of the samples) had dust deposition rates above the regional background range, and only three (3% of the samples) exceeded the EPA Best Practice Level.
- At the majority of monitoring locations (12 out of 15) dust deposition rates were below the EPA Best Practice value in all periods, and often in the same range or below the regional background monitoring site.
- Isolated periods of high dust deposition rates (above the EPA Best Practice value of 350 mg/m²/day) were monitored at three locations (D10, D13 and D14). These were directly adjacent to peat production zones, or on exposed peat less than 100m from the production zone. Elevated dust deposition rates (above regional background levels and below EPA Best Practice value) were also monitored at the same locations in different periods. These events were observed in Period 1 (during active production) and Period 5 (outside the active production season).
- The highest rates of dust deposition were observed in Period 1 in all transects, compared to dust deposition rates in Periods 2 to 6. This is likely to be due to larger dust emissions in Period 1, associated with larger quantities of peat harvested and production being carried out for more days within the period. Drier weather in Period 1 compared to other periods is also likely to have increased the dust deposition rate.
- Generally, the highest dust deposition rates were monitored at locations close to the production area. Dust deposition rates decreased to levels comparable to the regional background range at distances from the production zone between 90m and 150m.
- In the NNE transect in Period 1 there was no discernible difference associated with distance from the production zone and dust deposition. It is likely that in Period 1, with drier weather and high rates of production occurring also at other nearby bogs the overall rates of deposition in the area were higher. Dust deposition rates observed on this transect in Period 1 were still within the regional background range and well below the EPA Best Practice value of 350 mg/m²/day.
- Based on the data collected to date, high dust deposition events have been observed at the edge or in close proximity to the production zone, in periods with lower wind speeds, as dust

is not dispersed away from the bog and deposits at the closest monitoring sites. In addition, wind direction does not appear to have a major impact on the location of high dust deposition events, which appear to be influenced only by distance to the production area.

Appendices

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A. Map of Killaun bog



Key to Symbols

Met Éireann Station	Conifer Plantation
Dust Monitoring Location	Cutaway
Bord na Móna Land Ownership	Cutover
Bord na Móna Land Use	Marginal
Access	Peat Production
Biodiversity Area	Silt ponds
Birch	Works
Bog remnant	Production Zone
	Production Zone
	Peat Stockpile
	Covered or inactive
	Uncovered
	Third Party Production Bog
	Production Bog

Rev	Date	Drawn	Description	Ch'k'd	App'd
B	27/02/19	PPB	Killaun Stockpiles	CM	DH

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 Co. Offaly W bordnamona.ie
 Naturally Driven

Title
 Uncovered Stockpiles
 Killaun Bog

Designed	PP Bertagnolio	AQ Check	C Mills
Drawn	PP Bertagnolio	Coordination	D Hassett
		Approved	D Hassett
Scale at A3	Status	Rev	Security
1:12,500	ISSUED	P1	STD

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B. Monitoring report



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**TOTAL DEPOSITIONAL DUST MONITORING AT KILLAUN BOG ON BEHALF OF BORD NA MONA,
LEABEG, TULLAMORE, CO. OFFALY.**

PREPARED BY ODOUR MONITORING IRELAND ON BEHALF OF MOTT MACDONALD, SOUTH BLOCK, ROCKFIELD, DUNDRUM, DUBLIN 16

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DATE:	16 th Jan 2019
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2018327(1)	Document for review	JMC	JMC	B.A.S	16/01/2019
Revision	Purpose/Description	Originated	Checked	Authorised	Date
					

1. Introduction and scope

1. Introduction

Odour Monitoring Ireland Ltd were commissioned by Mott MacDonald to undertake an Total dust deposition monitoring survey at 16 locations in the vicinity of Killaun Bog, Co. Offaly over 6 individual sampling events.

Total depositional dust monitoring was performed using Bergerhoff gauges in accordance with *VDI 2119 guideline standard*.

Sixteen individual monitoring stations were established within the bog area. Fifteen of these locations were located in the vicinity of milling / processing operations while one location was located off site so as to represent ambient baseline conditions.

This report provides the materials and methods, results and discussions and conclusions of the monitoring survey.

1.2 Scope of the work

The following scope of work was performed. This included:

1. Installation of Bergerhoff gauge monitoring stations at preselected monitoring locations as specified by the client.
2. Installation and removable of monitoring sample containers over 6 individual monitoring events.
3. Reporting of results obtained throughout the study.

2. Materials and methods

This section describes the materials and methods used through the study.

2.1. Total dust deposition monitoring

Total dust deposition was measured on the site using Bergerhoff gauges specified in the German Engineering Institute VDI 2119 entitled “Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method).”

16 individual monitoring locations were installed at preselected locations as detailed in *Figure 2.1 and 2.2*. The purpose of these monitors is to assess the total depositional dust impact at each monitoring station.

Each monitoring stations (glass jar) sample container was installed and replaced each month and delivered to the INAB accredited laboratory for analysis (INAB 005T) in accordance with VDI2119 standard.

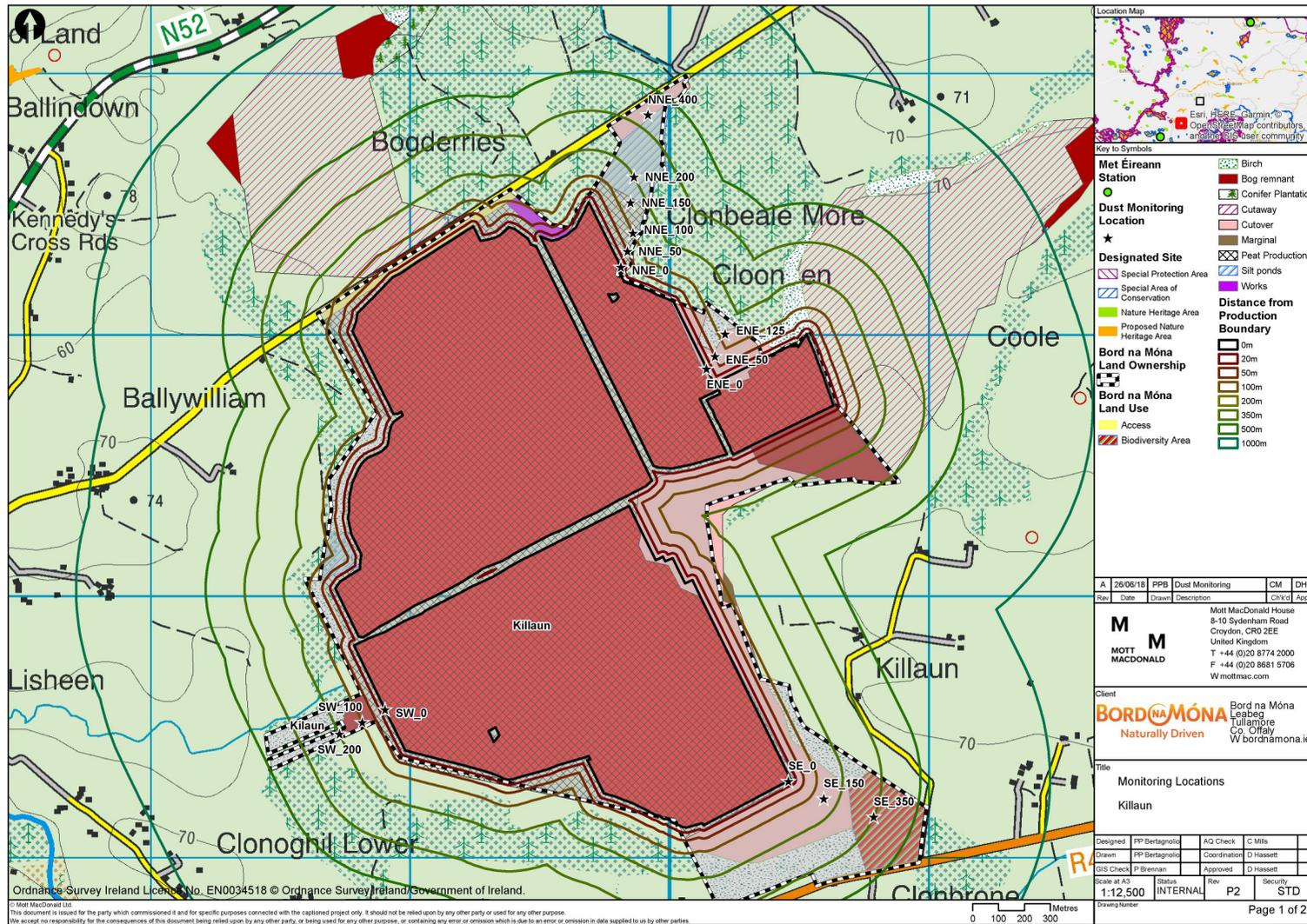


Figure 2.1. Graphical overview of 15 monitoring locations located in the vicinity of Killau Bob, Co. Offaly.

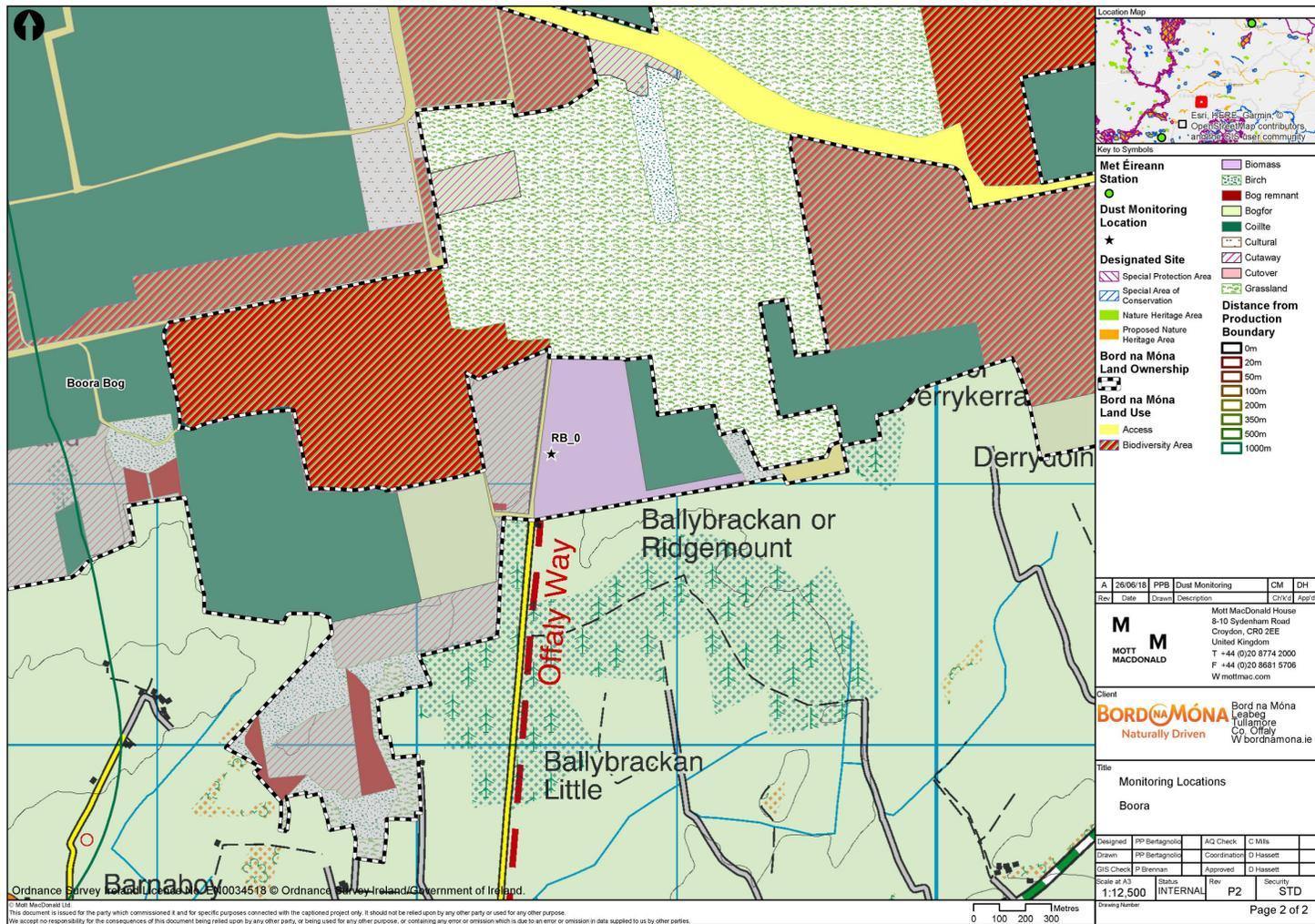


Figure 2.2. Graphical overview of 1 baseline monitoring locations located in the vicinity of Ballybrackan, Co. Offaly.

3. Results and discussion

This section describes the results obtained during the survey.

3.1. Total dust deposition results

Currently in Ireland there are no statutory limits for dust deposition, however, EPA guidance suggest, "a soiling of $10\text{mg}/\text{m}^2/\text{hour}$ is generally considered to pose a soiling nuisance" (TA Luft 2002). This equates to $240\text{mg}/\text{m}^2/\text{day}$ of Total Depositional Dust. The EPA recommend a maximum level of $350\text{mg}/\text{m}^2/\text{day}$ of dust deposition when measured according to TA Luft standard, which includes both soluble and insoluble matter (i.e. EPA compliance monitoring is based on the TA Luft Method).

Table 3.1 presents the results gathered throughout the monitoring 6 monitoring events. Sample identity, Event date and measured deposition value are presented within the table at each monitoring location.

Table 3.1. Monitoring results for each monitoring location over the 6 individual sampling events.

Monitoring location	Monitoring event 1 - 18/06/2018 to 16/07/2018 (mg/m ² /day)	Monitoring event 2 - 16/07/2018 to 15/08/2018 (mg/m ² /day)	Monitoring event 3 - 15/08/2018 to 14/09/2018 (mg/m ² /day)	Monitoring event 4 - 14/09/2018 to 15/10/2018 (mg/m ² /day)	Monitoring event 5 - 15/10/2018 to 14/11/2018 (mg/m ² /day)	Monitoring event 6 - 14/11/2018 to 14/12/2018 (mg/m ² /day)
D1 - NNE 0m	60	40	52	67	45	61
D2 - NNE 50m	73	26	36	38	55	49
D3 - NNE 100m	53	31	27	56	44	47
D4 - NNE 150m	86	36	50	40	57	28
D5 - NNE 200m	71	37	28	41	35	68
D6 - NNE 400m	79	45	51	103	86	16
D7 - ENE 0m	114	38	35	41	61	62
D8 - ENE 50m	150	80	58	49	43	42
D9 - ENE 125m	87	46	48	31	37	51
D10 - SE 0m	172	48	54	63	1136	59
D11 - SE 150m	51	38	44	30	39	20
D12 - SE 350m	59	32	38	27	69	36
D13 - SW 0m	1301	38	31	30	280	41
D14 - SW 100m	1289	58	32	71	186	58
D15 - SW 200m	103	34	140	69	77	67
D16 - RB0	60	125	87	104	77	66

4. Concluding remarks

The following concluding remarks were formed during the study and include:

1. Total dust deposition was measured at 16 individual monitoring locations over 6 monitoring events using Bergerhoff gauges specified in the German Engineering Institute VDI 2119 entitled "Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)."
2. Total depositional dust analysis was performed in accordance with VDI2119 in an INAB accredited laboratory –INAB 005T.
3. Valid data was collected at each monitoring station over each of the sampling events thereby providing 96 individual data points.
4. All results are presented in Table 3.1 of this document for each monitoring station during each sampling event.

5. Appendix I – Pictures of monitoring stations



Figure 5.1. Monitoring location 1 – NNE 0 m



Figure 5.2. Monitoring location 2 – NNE 50 m



Figure 5.3. Monitoring location 3 – NNE 100 m



Figure 5.4. Monitoring location 4 – NNE 150 m



Figure 5.5. Monitoring location 5 – NNE 200 m



Figure 5.6. Monitoring location 6 – NNE 400 m



Figure 5.7. Monitoring location 7 – ENE 0 m



Figure 5.8. Monitoring location 8 – ENE 50 m



Figure 5.9. Monitoring location 9 – ENE 125 m



Figure 5.10. Monitoring location 10 – SE 0 m



Figure 5.11. Monitoring location 11 – SE 150 m



Figure 5.12. Monitoring location 12 – SE 350 m



Figure 5.13. Monitoring location 13 – SW 0 m



Figure 5.14. Monitoring location 14 – SW 100 m



Figure 5.15. Monitoring location 15 – SW 200 m



Figure 5.16. Monitoring location 16 – RBO



Appendix 2. Bord na Mona Pollution Control and Prevention Procedures

4 Pollution Prevention and Control Measures

4.1 General

Bord na Móna carry out peat extraction activities in accordance with an Environmental Management System and operational and environmental procedures have been prepared as part of this system. Bord na Mona have developed these Environmental and Operational procedures to ensure works are carried out in accordance with this licence and with good environmental practice. A copy of these procedures are included in Appendix E herein and the list of procedures that are relevant to this surface water management plan are set out below:

Title	SOP Ref	Rev	Purpose
Bund Maintenance & Integrity Procedure	BM&IP	4	Procedure for the maintenance and integrity testing of bund structures
Communication Procedure	CP	3	Effective communication of environmental issues.
Environmental Complaints Procedure	ECP	3	To ensure all environmental complaints are dealt with effectively.
Composite Sampler Service procedure	VSD		Procedure for servicing of Composite Samplers
Environmental Management Plan (Draft)		1	To specify the method in which emissions and energy usage will be reduced or eliminated over a specified period of time.
Dust Complaint Procedure			Procedure to deal with all complaints relating to emissions air and land
Environmental Communications	VSD		Procedure for external and internal environmental communications
Environmental Training Procedure		4	Procedure for training of operatives in good environmental work practices.
Gas Oil Loading Procedure	VSD	1	Procedure for external delivery, internal loading and dispensing of gas oil.
General ERP	VSD		General Emergency Preparedness and Response
Litter Action Plan			Prevention and control of litter arising from Bord na Mona's activities and from unauthorised dumping on and around its property.
Local Authority Contact Info			Local Authority contact information relating to IPC Incidents
Programme for Public Information			To define how Bord na Mona Peat manages the communication of Environmental information concerning the facility with external parties.
Restoration and Aftercare Procedure	RAP	3	Procedure to address Condition 10, regarding the Restoration & Aftercare requirements of IPC Licence P0499-01 to P0507-01
Service Level Agreement (between AES and BnM)			Document setting out the waste management services provided by AES to Bord Na Móna Peat including the communication lines, responsibilities and response times.
Waste Management Procedure		Rev 1	To define the correct procedure to be followed when requesting a waste collection service from AES regarding removal of all wastes from all sites within the Feedstock group.
Bog Maintenance Flowchart	SOP: FS-BM-01		Flowchart for Bog maintenance
Bog Maintenance Plan	SOP: FS-BM-02	2	SOP for Bog Maintenance Plans to include ditching, piping, pumps, open drains, silt ponds, timber extraction, pile field levelling, screw levelling and headland preparation.
Drainage Planning and Implementation	SOP: FS-BM-03	2	SOP for preparation and implementation of Bog Drainage Plans

Ditching	SOP: FS-BM-04	2	SOP for ditching work as required in Bog Drainage Plan.
Piping and Re-Piping	SOP: FS-BM-05	2	SOP for piping and re-piping work as required in Bog Drainage Plan.
Open Outfalls	SOP: FS-BM-06	2	SOP for opening of outfalls as required in Bog Drainage Plan.
Silt Pond Cleaning	SOP: FS-BM-07	3	SOP for cleaning of Silt Ponds as set out in Bog Maintenance Plan.
Timber Extraction	SOP: FS-BM-08	2	SOP for clearing of Timber as set out in Bog Maintenance Plan.
Headland Levelling	SOP: FS-BM-09	2	SOP for levelling of headlands as set out in Bog Maintenance Plan.
Screw Levelling	SOP: FS-BM-10	2	SOP for use of screw leveller as set out in Bog Maintenance Plan.
Pile Field Lowering	SOP: FS-BM-11	3	SOP for lowering of pile field greater than 1m above adjoining field as set out in Bog Maintenance Plan.
Production Flowchart	SOP: FS-PR-01	2	Flowchart for Peat Production
General Milled Peat Production	SOP: FS-PR-02	2	SOP to describe the general arrangements for the production of milled peat in Bord na Móna Energy.
Milling	SOP: FS-PR-03	1	SOP for milling of peat (Light or new triple miller)
Offset Milling	SOP: FS-PR-04	2	SOP for offset milling of peat to be carried out at start of production or max every fourth harvest.
Harrowing	SOP: FS-PR-05	2	SOP for harrowing of milled peat
Ridging	SOP: FS-PR-06	2	SOP for ridging of harrowed peat.
Pile Rolling	SOP: FS-PR-07	1	SOP for rolling of piles to shape pile profile to be carried out at a minimum every fourth harvest.
Peco Harvesting	SOP: FS-PR-08	4	SOP for harvesting of peat into stockpiles for rail loading and haulage
Haku Harvesting	SOP: FS-PR-09	2	SOP for harvesting of peat into stockpiles for haku trailer loading and haulage.
Preparation of Production Charts	SOP: FS-PR-10	2	SOP for general arrangements for deciding on the Production Chart for each milled peat area
Updating Production Plan	SOP: FS-PR-11	1	SOP for the updating of production charts and starting new stockpiles.
Stockpile Inventory	SOP: FS-PR-12	1	SOP for annual peat stock check.
Headland Harvesting	SOP: FS-PR-13	Draft	SOP for harvesting peat from headlands
Stockpile Survey with Trimble Tablet	SOP: FS-PR-14	1	SOP for survey of stockpile with Trimble Yuma 2 Tablet.
Ridge Sampling	SOP: FS-PR-15	3	SOP for the sampling of ridges during production.
End of Production Season Procedure	SOP: FS-PR-16	Draft	SOP describing end of production Season activities
Document Control	Procedure 001	7	The purpose of this procedure is to describe the arrangements in Bord na Móna Peat Division for document control.
Record Control	Procedure 002	3	Procedure is to describe the arrangements in Bord na Móna Peat Division for record control.
Internal Audit	Procedure 003	4	Procedure is to describe the arrangements in Bord na Móna Peat Division for internal audits.
Hort Bogs - General	SOP: FS-HO-01	2	The purpose of this procedure is to describe the differences (from standard peat division requirements) in the operation and maintenance of horticultural bogs.
Hort Bogs - Bog Maintenance	SOP: FS-HO-02	1	The purpose of this procedure is to describe the differences (from standard Feedstock requirements) in the maintenance of horticultural bogs.
Hort Bogs - Bog Housekeeping	SOP: FS-HO-03	1	The purpose of this procedure is to describe the differences (from standard Feedstock requirements) in the housekeeping of horticultural bogs.
Bog Maintenance Compliance Check List			Bog operations and maintenance check list for peat production activities.

The procedures referred to in (b) above instruct drivers to turn carefully at headlands to avoid dragging peat into drains or manholes. All drainage works are carried out in accordance with a drainage plan (FS-BN-03) which includes for input from Bord Na Móna Environmental as well as Civil Engineering Departments.

(d) harrows, millers, ridgers do not drag loose peat onto manholes or into drains, outside harrow spoons are directed away from drains;

Refer to procedures listed in (b) above which include for a speed limit for milling, harrowing and ridging i.e. 9 to 12 km per hour depending on the operation. The procedure for harrowing, FS-PR-05, also includes for lifting of hydraulic spoons during idle travel. The harrows provided are fitted with outside spoons that are turned inwards away from drains.

(e) silt run-off, while piping or ditching, is minimised;

All run-off from piping and ditching operations is directed through a silt pond. Silt ponds are cleaned twice a year but also inspected on a fortnightly basis and additional cleaning carried out if required. Refer to Silt pond cleaning procedure (FS-BM-07).

(f) outfalls are controlled to minimise silt discharge during cleaning operations;

All outfalls from active areas are diverted through silt ponds. Refer to silt pond cleaning procedure (FM-BM-07) which includes for isolation of silt pond when cleaning.

(g) drains are ditched in dry weather;

Refer to Ditching procedure (FS-BM-04) which requires that weather and bog conditions are taken into account when ditching.

(h) while ditching, outfalls are blocked and ditch towards outfall;

It is not feasible to block all outfalls, however all run-off from piping and ditching operations is directed through a silt pond. Silt ponds are cleaned twice a year but also inspected on a fortnightly basis and additional cleaning carried out if required. Refer to Silt pond cleaning procedure (FS-BM-07).

(i) outlets from stockpile field drains are blocked during stockpile loading;

Outlets are not blocked during stockpile loading as this would lead to a high water level in the adjoining drain. This is not feasible both from a health and safety point of view and also as high water levels could lead to flooding that would undermine the railbed and stockpile field. All stockpile field drains are diverted to silt ponds which are inspected on a fortnightly basis and cleaned at least twice a year.

(j) adequate room is allowed for rail bed beside Peco stockpiles;

Refer to Procedure for Peco harvesting (FS-PR-08) which specifies that a full pile should not have a width of more than 34 ft (10.3m) that is within 9ft (2.7m) of the drain on the rail bed side.

(k) all fields that have been milled are ridged at the end of the production season;

Refer to End of Production Season Procedure (FS-PR-16) which includes the requirement that production fields that have been milled have been ridged.

(l) all fields liable to winter flooding have been cleared of milled peat or recompacted at the end of the production season;

Refer to End of Production Season Procedure (FS-PR-16) which includes the requirement that flood prone production fields are cleared of milled peat or else re-compacted.

All operations are carried out in accordance with these procedures to ensure compliance with the existing IPC licence for the Boora Bog Group. Additional procedures as set out in Table 4 above and Appendix F also ensure that peat production is carried out in a manner that protects surface waters.