FENWICK SOLAR FARM

Fenwick Solar Farm

EN010152

Environmental Statement

Volume III Appendix 11-3: Baseline Noise Survey

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Revision History

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1. Introduction

1.1.1 This Environmental Statement (ES) appendix presents the methodology and results of the baseline noise monitoring carried out to inform the construction and operation and maintenance noise assessments. Noise monitoring locations were determined based on the location of the Order limits with respect to nearby noise-sensitive receptors.

1.1.2 A number of other factors were also taken into consideration when identifying these locations, including:

a. Safety of the surveyors;

b. Security of monitoring equipment; and

c. Site accessibility.

2. Noise Monitoring Methodology

2.1.1 Baseline noise monitoring was carried out to establish the existing noise climate in the area around the Order limits. The monitoring procedures followed guidance from British Standards (BS) 7445-1:2003 Description and measurement of environmental noise – Part 1: Guide to quantities and procedures (Ref. 1) and BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound (Ref. 2). Acoustic field calibrators were applied to each instrument at the start and end of each measurement to check the calibration levels.

2.1.2 Each unattended sound level meter was housed within a weatherproof box with batteries to power the instrument for the full measurement duration. Appropriate outdoor all-weather equipment was used on all microphones. All noise measurements included L_{Aeq}, L_{A90}, and L_{AFmax} sound level indicators over 1-hour contiguous periods.

3. Meteorological Conditions

3.1.1 A weather station was set up at one location during each tranche of monitoring. The weather station measurement included windspeed (m/s), wind direction, rainfall (mm), and temperature (°C). Periods of wind higher than 5 m/s have been excluded from the analysis and are detailed in Section 4.

4. Survey Results

4.1.1 The baseline noise monitoring results of unattended measurements are presented in Table 2 to Table 10. Table 1 presents the dates of noise monitoring and any reasoning for excluded data during the relevant measurement period. Data has been excluded from the overall averaging of results at locations where adverse weather and atypical data (anomalous spikes in noise data that are likely due to activity in the immediate area to the noise monitor) were experienced. Additional baseline noise monitoring results of attended measurements along the Grid Connection Corridor are presented in Table 10. Time-history graphs detailing periods of adverse weather conditions are presented in Plate 1 to Plate 8.

Table 1: Noise Monitoring Dates

Monitor Location	Start Date	End Date	Excluded Data
ML1	29/11/2023	07/12/2023	Rain Exclusions
ML2	07/12/2023	14/12/2023	Rain and Wind Exclusions
ML3	07/12/2023	14/12/2023	Rain and Wind Exclusions
ML4		Monitoring Location Inaccessible	
ML5	07/12/2023	14/12/2023	Rain and Wind Exclusions
ML6	07/12/2023	14/12/2023	Rain and Wind Exclusions
ML7	29/11/2023	07/12/2023	Rain Exclusions
ML8	29/11/2023	07/12/2023	Rain Exclusions
ML9	29/11/2023	07/12/2023	Rain Exclusions

Table 2: ML1 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Wed 29/11/2023	46	45	38	37	35	31
Thu 30/11/2023	46	43	39	39	35	32
Fri 01/12/2023	45	38	34	36	29	28
Sat 02/12/2023	40	42	36	35	34	28
Sun 03/12/2023	40	39	40	30	35	43
Mon 04/12/2023	42	42	41	36	39	41
Tue 05/12/2023	46	45	42	42	36	32
Wed 06/12/2023	45	35	36	40	30	30
Thu 07/12/2023	43	-	-	40	-	-
Arithmetic Average	**44**	**41**	**38**	**37**	**34**	**33**

Table 3: ML2 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Thu 07/12/2023	45	35	36	41	34	29
Fri 08/12/2023	44	41	36	37	33	28
Sat 09/12/2023	51	62	-	38	59	-
Sun 10/12/2023	-	-	35	-	-	34
Mon 11/12/2023	43	40	25	37	26	26
Tue 12/12/2023	-	-	40	-	-	38
Wed 13/12/2023	45	41	38	39	34	26
Thu 14/12/2023	46	-	-	41	-	-
Arithmetic Average	**46**	**44**	**35**	**39**	**37**	**30**

Table 4: ML3 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Thu 07/12/2023	51	42	39	40	27	23
Fri 08/12/2023	50	44	40	35	31	30
Sat 09/12/2023	51	62	-	38	56	-
Sun 10/12/2023	-	-	39	-	-	35
Mon 11/12/2023	58	41	31	36	24	24
Tue 12/12/2023	-	-	42	-	-	41
Wed 13/12/2023	49	44	39	41	35	32
Thu 14/12/2023	50	-	-	39	-	-
Arithmetic Average	**52**	**47**	**38**	**38**	**35**	**31**

Table 5: ML5 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Thu 07/12/2023	63	54	47	49	43	31
Fri 08/12/2023	57	52	48	40	35	37
Sat 09/12/2023	66	71	-	50	62	-
Sun 10/12/2023	-	-	47	-	-	50
Mon 11/12/2023	55	49	39	36	32	31
Tue 12/12/2023	-	-	51	-	-	39
Wed 13/12/2023	58	49	46	47	36	34
Thu 14/12/2023	55	-	-	42	-	-
Arithmetic Average	**59**	**55**	**46**	**44**	**42**	**37**

Table 6: ML6 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Thu 07/12/2023	53	43	36	42	47	25
Fri 08/12/2023	42	37	37	36	33	31
Sat 09/12/2023	51	61	-	37	57	-
Sun 10/12/2023	-	-	34	37	32	33
Mon 11/12/2023	40	32	22	37	26	27
Tue 12/12/2023	-	-	36	33	28	30
Wed 13/12/2023	42	35	34	38	32	26
Thu 14/12/2023	46	-	-	41	-	-
Arithmetic Average	**46**	**42**	**33**	**39**	**39**	**29**

Table 7: ML7 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Wed 29/11/2023	48	44	41	40	30	30
Thu 30/11/2023	45	43	43	39	31	29
Fri 01/12/2023	45	38	39	36	27	25
Sat 02/12/2023	47	46	43	38	35	30
Sun 03/12/2023	43	43	44	29	38	46
Mon 04/12/2023	45	44	44	36	41	38
Tue 05/12/2023	45	45	44	39	33	28
Wed 06/12/2023	48	43	43	37	30	31
Thu 07/12/2023	51	-	-	45	-	-
Arithmetic Average	**46**	**43**	**43**	**38**	**33**	**32**

Table 8: ML8 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Wed 29/11/2023	48	48	38	36	28	23
Thu 30/11/2023	53	44	39	34	28	26
Fri 01/12/2023	46	41	33	34	27	24
Sat 02/12/2023	48	42	33	40	37	30
Sun 03/12/2023	40	39	38	29	31	39
Mon 04/12/2023	43	41	40	38	37	37
Tue 05/12/2023	46	48	44	35	32	26
Wed 06/12/2023	47	40	38	39	31	30
Thu 07/12/2023	49	-	-	42	-	-
Arithmetic Average	**47**	**43**	**38**	**36**	**31**	**29**

Table 9: ML9 Noise Monitoring Results

Date	$L_{Aeq, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00	$L_{A90, T}$ dB 07:00-19:00	19:00-23:00	23:00-07:00
Wed 29/11/2023	57	57	50	34	30	27
Thu 30/11/2023	57	56	50	36	29	27
Fri 01/12/2023	55	54	47	31	26	23
Sat 02/12/2023	53	52	42	40	37	29
Sun 03/12/2023	54	53	49	33	43	51
Mon 04/12/2023	56	56	52	44	46	46
Tue 05/12/2023	57	57	52	37	33	25
Wed 06/12/2023	56	54	49	40	33	34
Thu 07/12/2023	55	-	-	45	-	-
Arithmetic Average	**56**	**55**	**49**	**38**	**35**	**33**

Table 10: Attended Noise Monitoring Results

Location	Date	Time	$L_{Aeq, 1hr}$ dB	$L_{A10, 1hr}$ dB	$L_{A90, 1hr}$ dB	$L_{AMax, 1hr}$ dB
ML10	06/12/2023	08:10	66	70	43	94
ML11	06/12/2023	13:35	57	61	38	82
ML12	14/12/2023	11:05	54	55	38	71
ML13	14/12/2023	13:15	56	52	36	79
ML14	29/11/2023	12:00	59	59	34	79
ML15	06/12/2023	09:15	62	62	40	84
ML16	06/12/2023	10:20	47	45	35	82
ML17	06/12/2023	12:30	58	48	38	88
ML18	14/12/2023	10:05	53	47	39	76
ML19	14/12/2023	11:15	59	60	39	77
ML20	14/12/2023	12:10	54	51	37	70
ML21	14/12/2023	12:25	53	53	36	74
ML22	06/12/2023	11:25	57	60	37	81

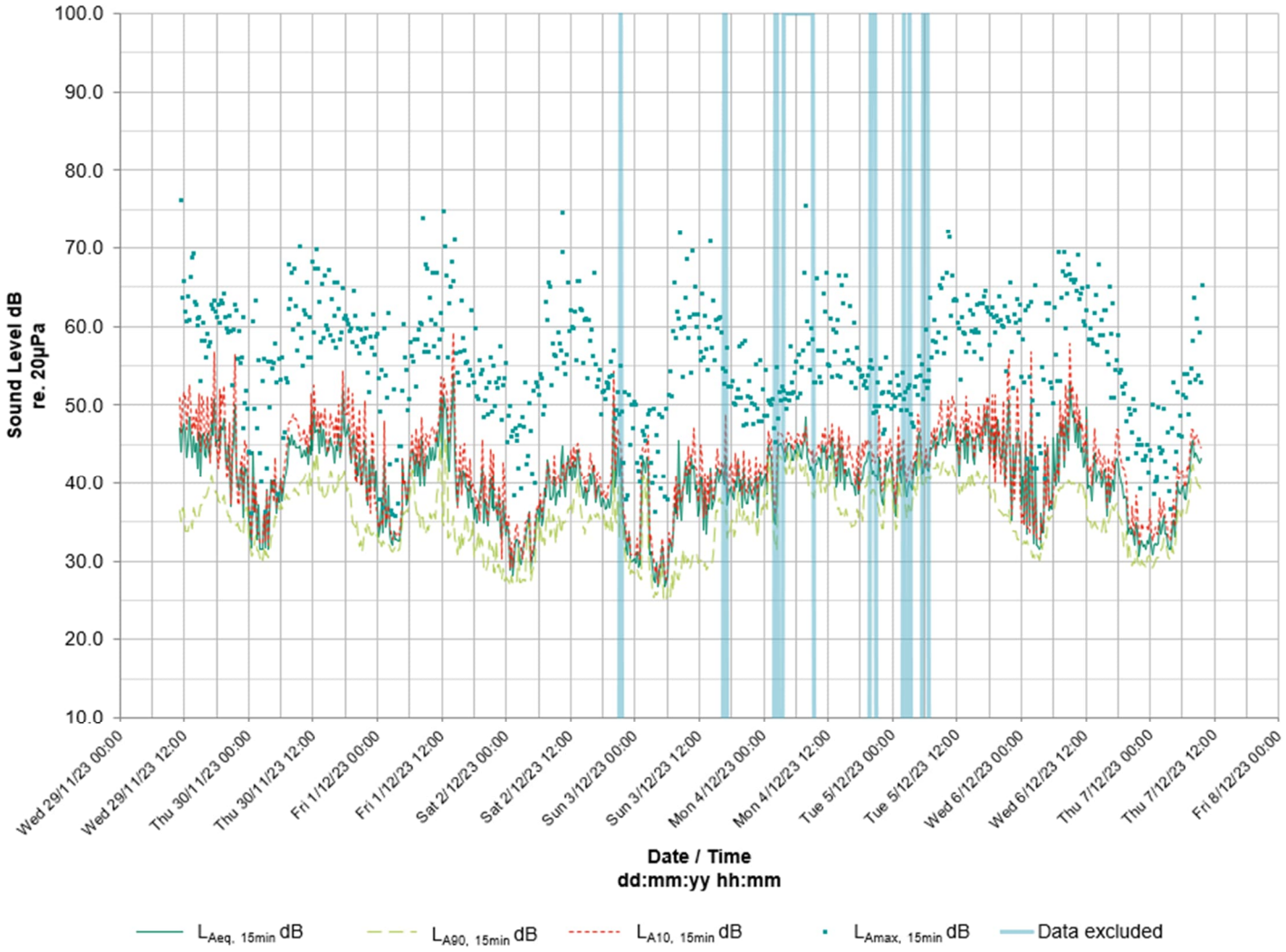

Plate 1: ML1 Time-History Graph

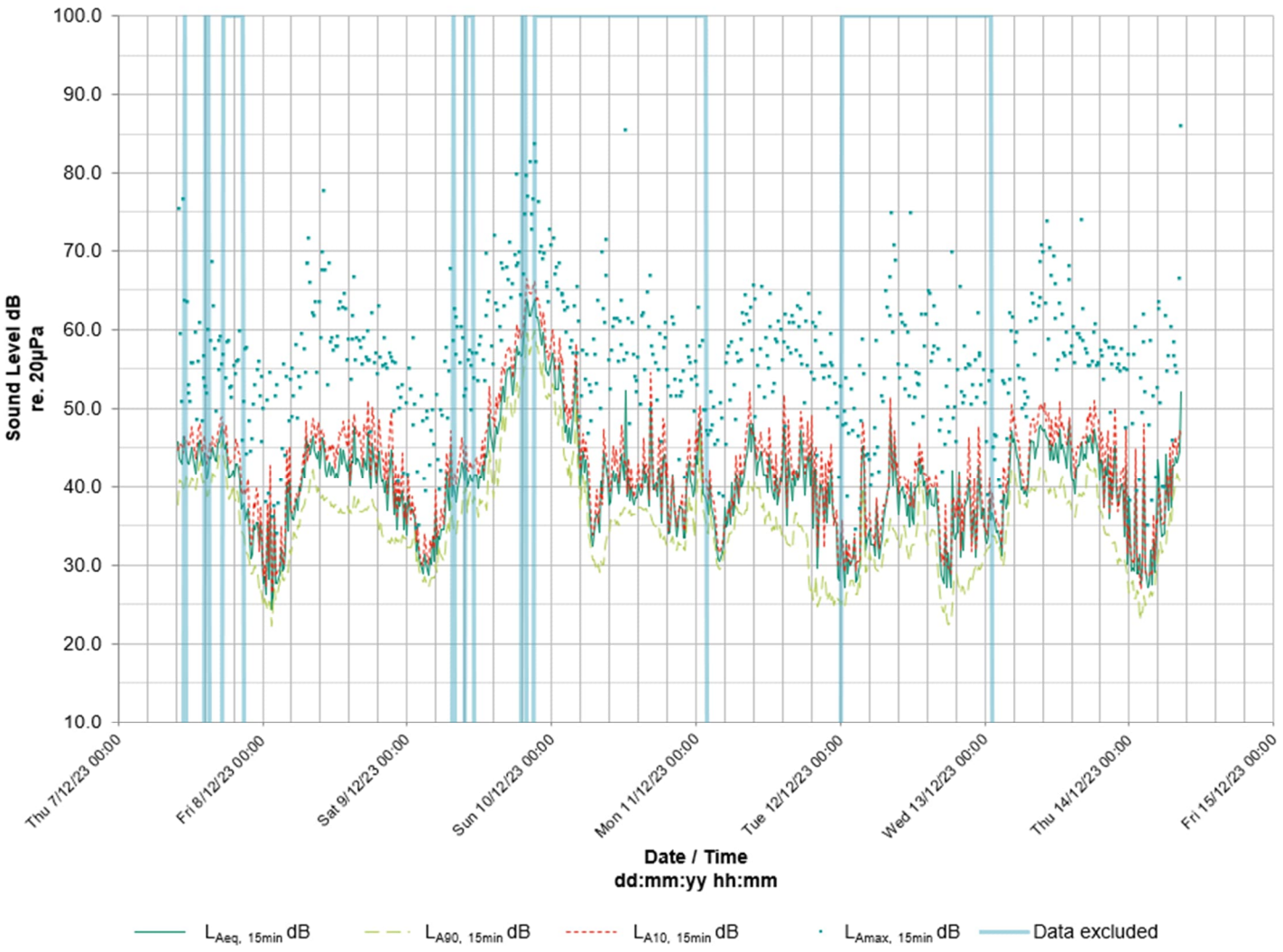

Plate 2: ML2 Time-History Graph

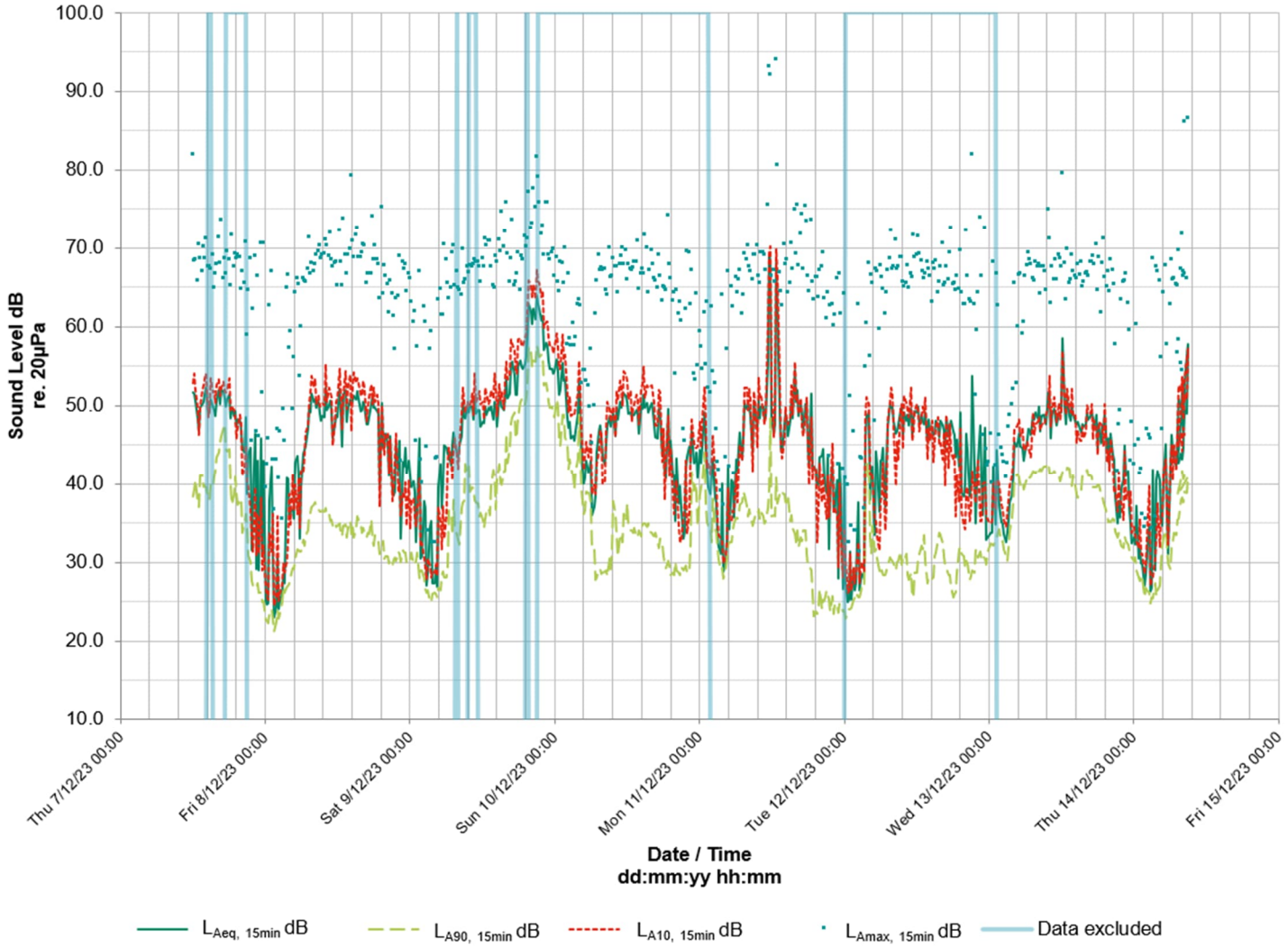

Plate 3: ML3 Time-History Graph

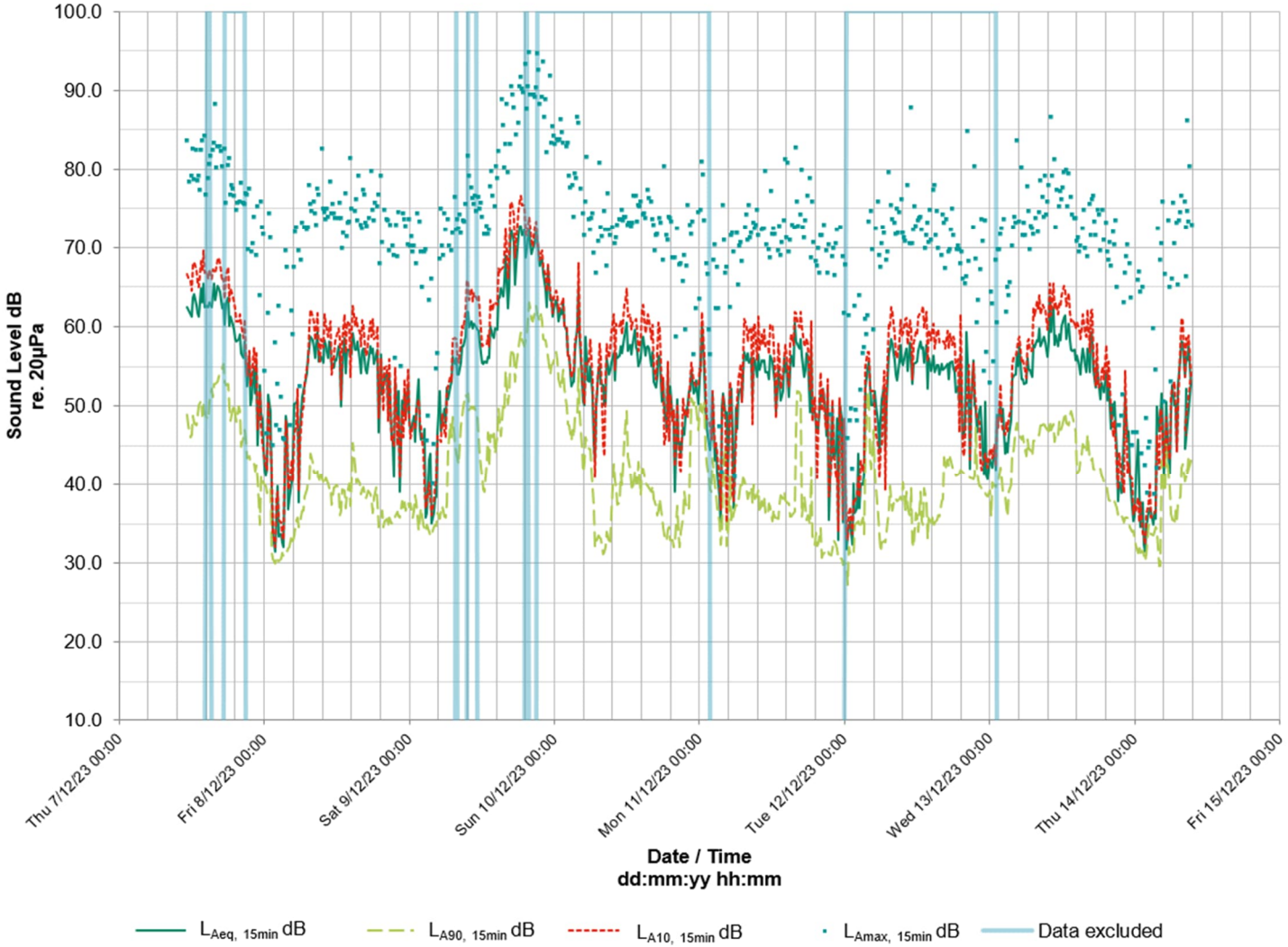

Plate 4: ML5 Time-History Graph

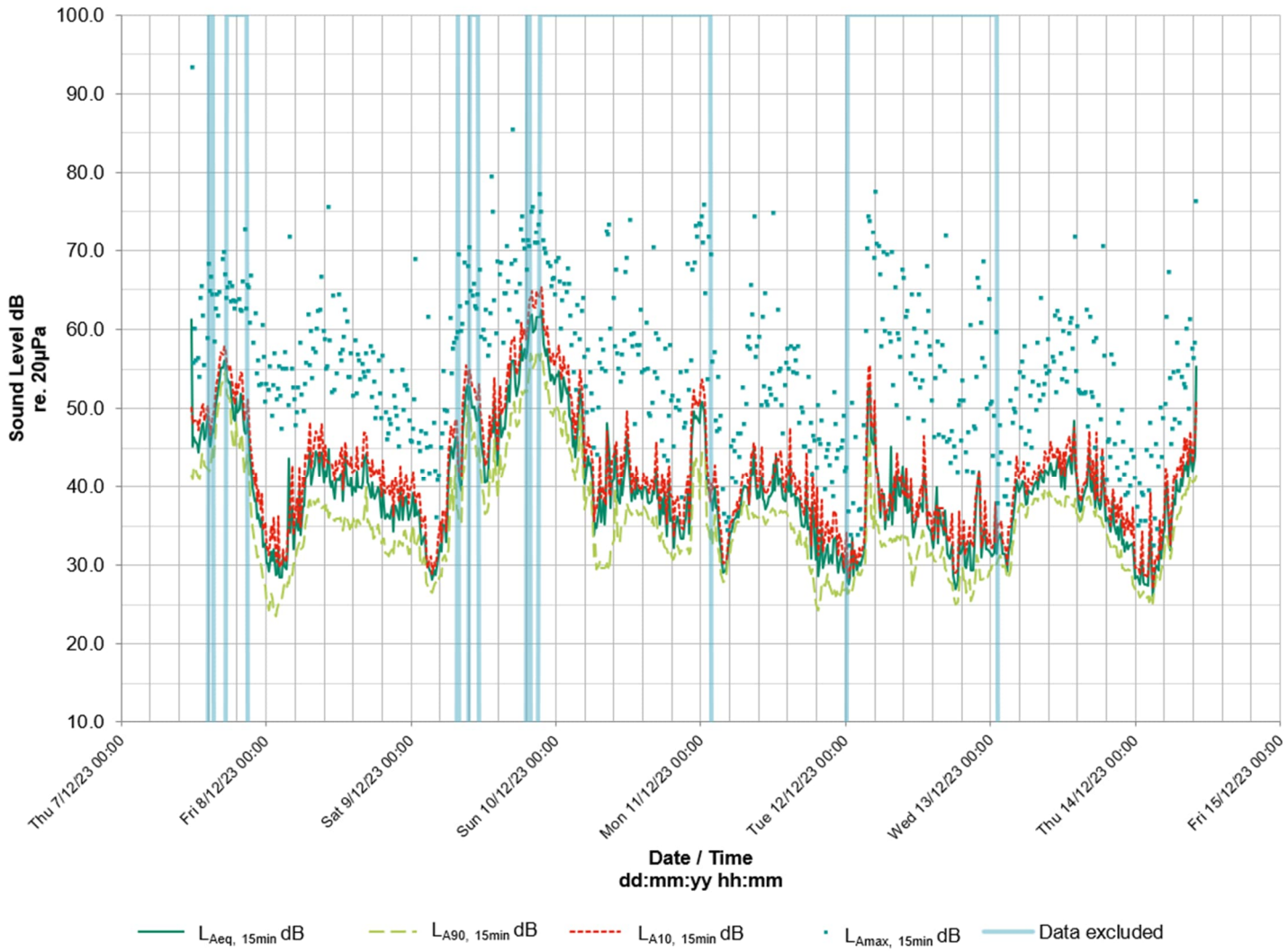

Plate 5: ML6 Time-History Graph

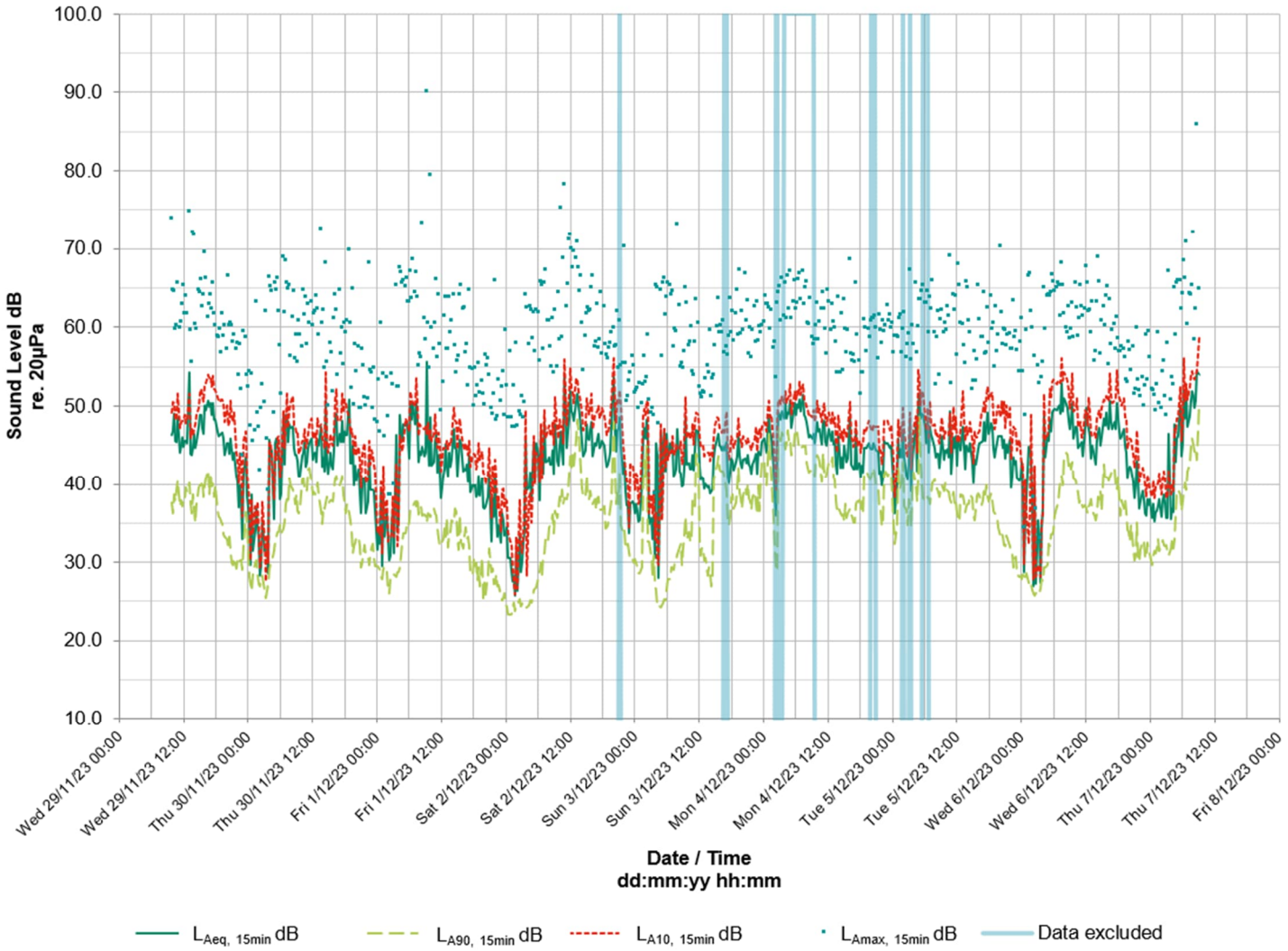

Plate 6: ML7 Time-History Graph

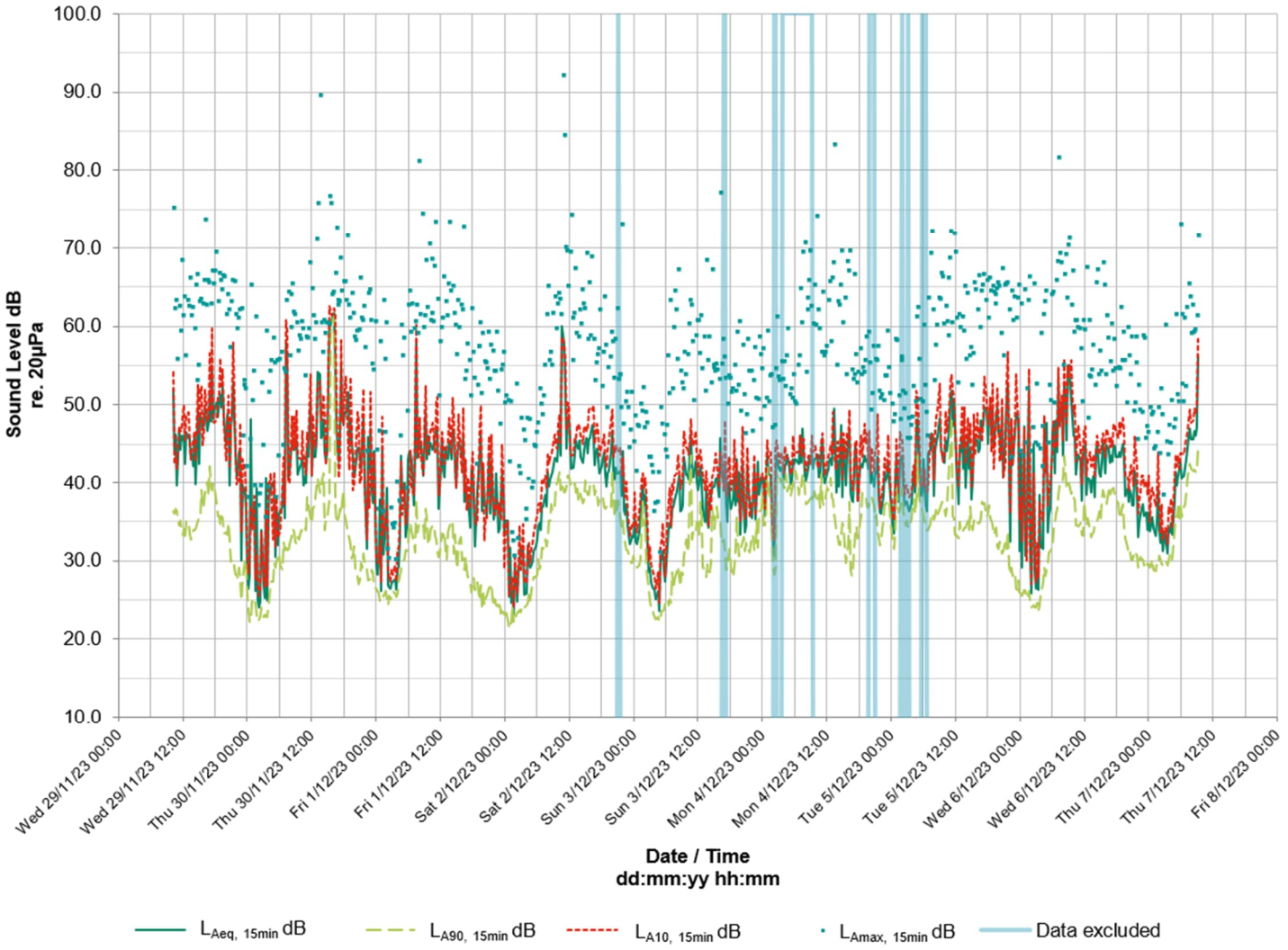

Plate 7: ML8 Time-History Graph

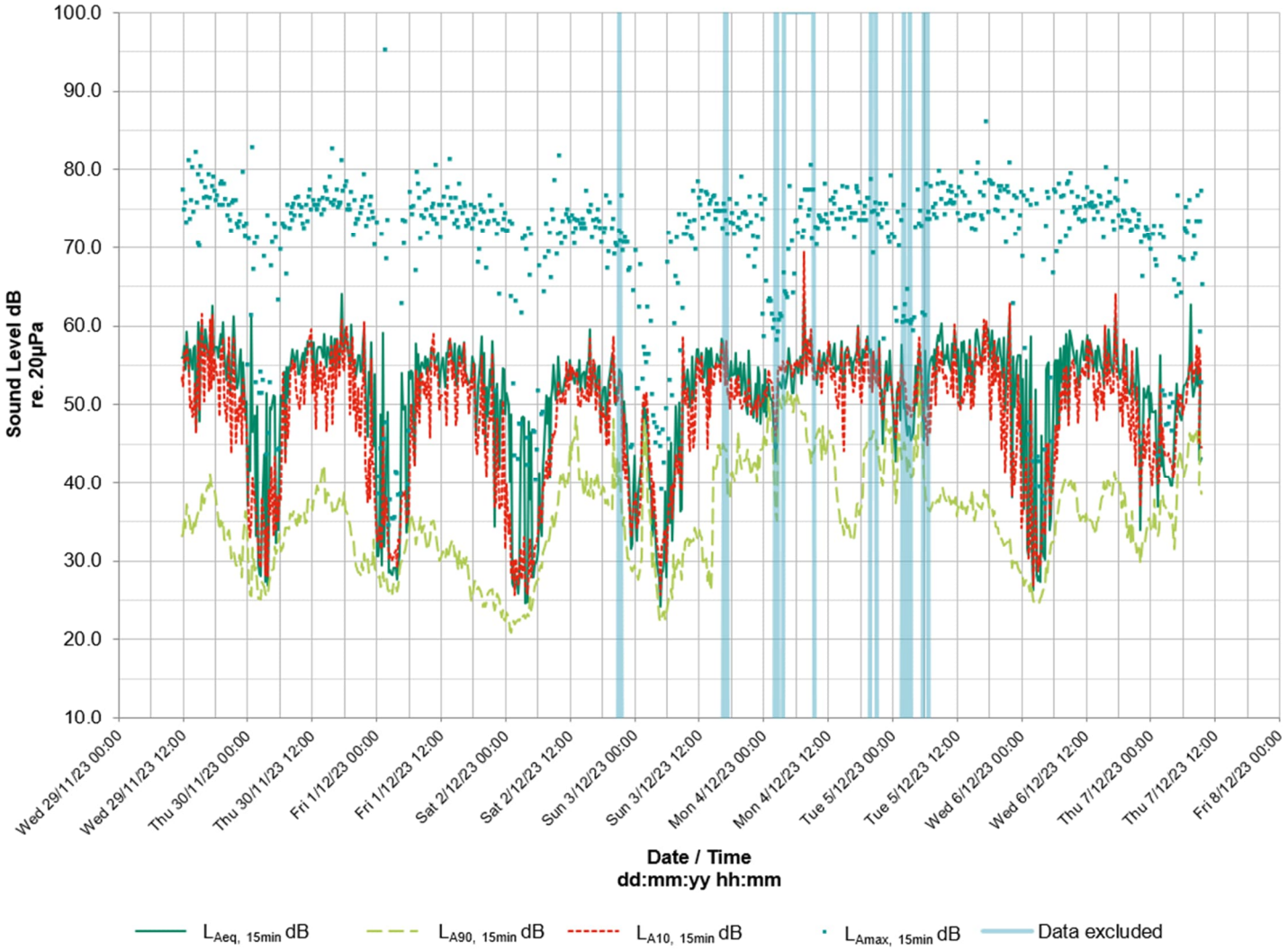

Plate 8: ML9 Time-History Graph

5. References

Ref. 1 British Standards Institute (2003) BS 7445 – Description and environment of environmental noise – Part 1: Guide to quantities and procedures. London: BSI. Available at: https://knowledge.bsigroup.com/products/description-and-measurement-of-environmental-noise-guide-to-quantities-and-procedures/standard. [Accessed 19 August 2024].

Ref. 2 British Standards Institute (2014) BS 4142 – Methods for rating and assessing industrial and commercial sound. London: BSI. Available at: https://knowledge.bsigroup.com/products/methods-for-rating-and-assessing-industrial-and-commercial-sound/standard. [Accessed 19 August 2024].

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