

Appendix 17.2:

Potential Shadow Periods

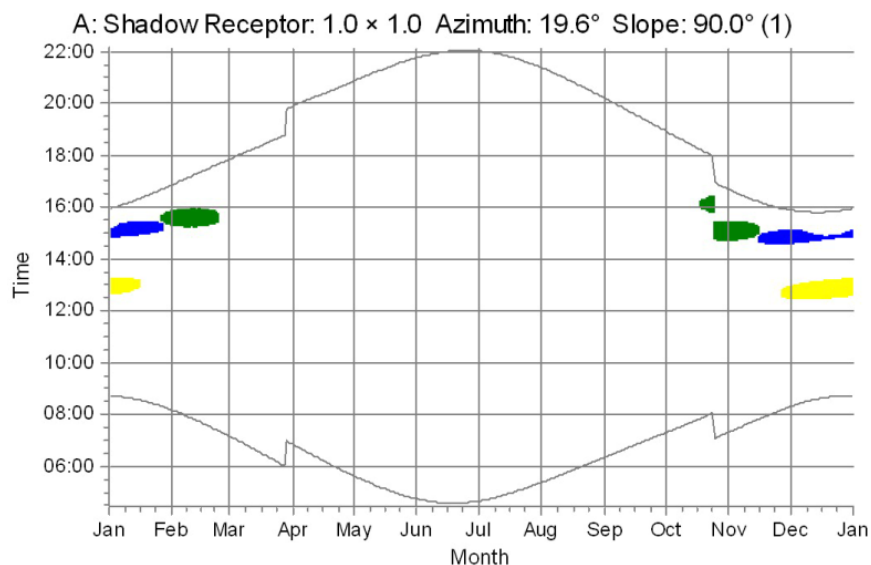
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Appendix 17.2 – Potential Shadow Periods

Graphs 17.2.1 to 17.2.6 below visually represent the potential periods when each receptor may experience shadow flicker during the operational phase of the Proposed Varied Development. These are calculated using commercial software model windPRO Version 4.2 which takes into account the movement of the sun relative to the time of day and time of year predicting the time and duration of expected shadow flicker at each window of an affected receptor (refer to **Chapter 17**). These graphs represent a realistic scenario assuming no mitigation.

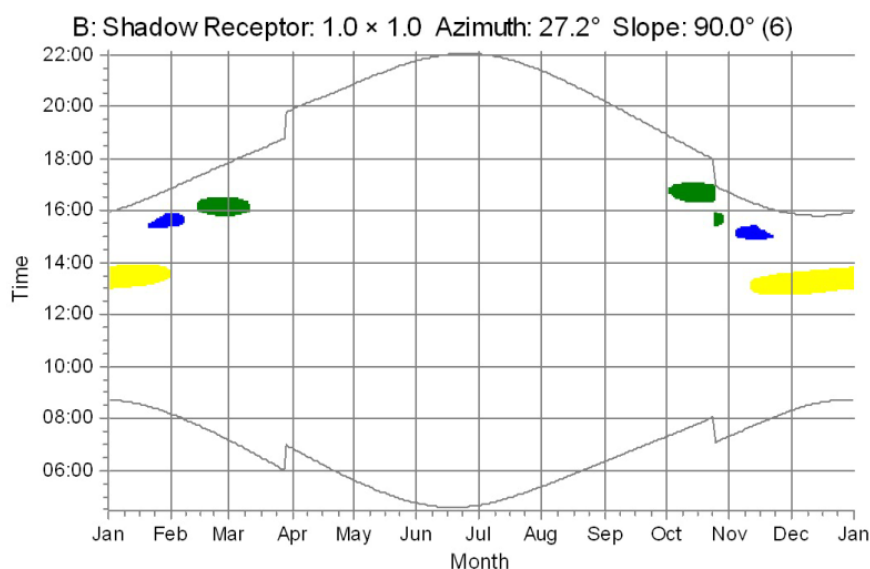
Key

	Turbine 1		Turbine 5
	Turbine 2		Turbine 10
	Turbine 3		Turbine 11
	Turbine 4		



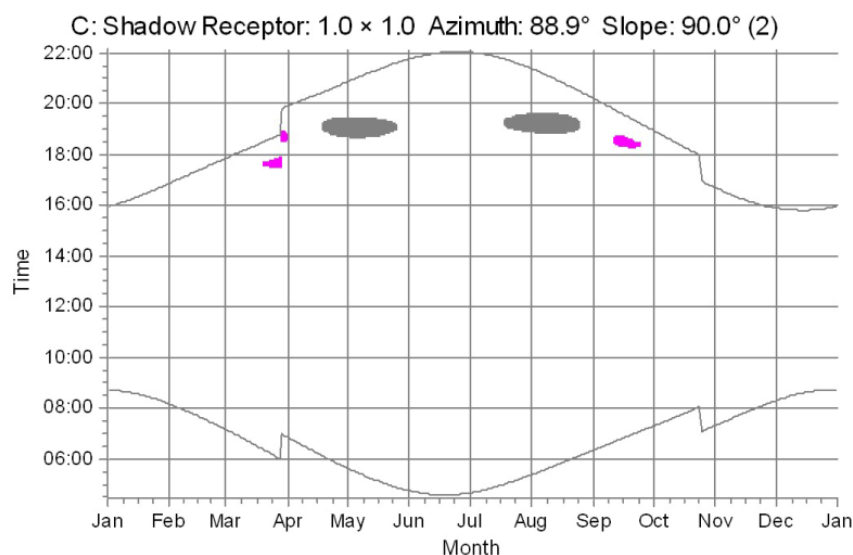
Graph 17.2.1 – Potential Shadow Periods at Receptor A

At Receptor A, there is potential for Turbine 1 to cause shadow flicker at approximately 15:00 to 16:00 in January, February, October and November. There is potential for Turbine 2 to cause shadow flicker at approximately 13:00 during November, December and January. There is also potential for Turbine 3 to cause shadow flicker at approximately 15:00 during November, December and January.



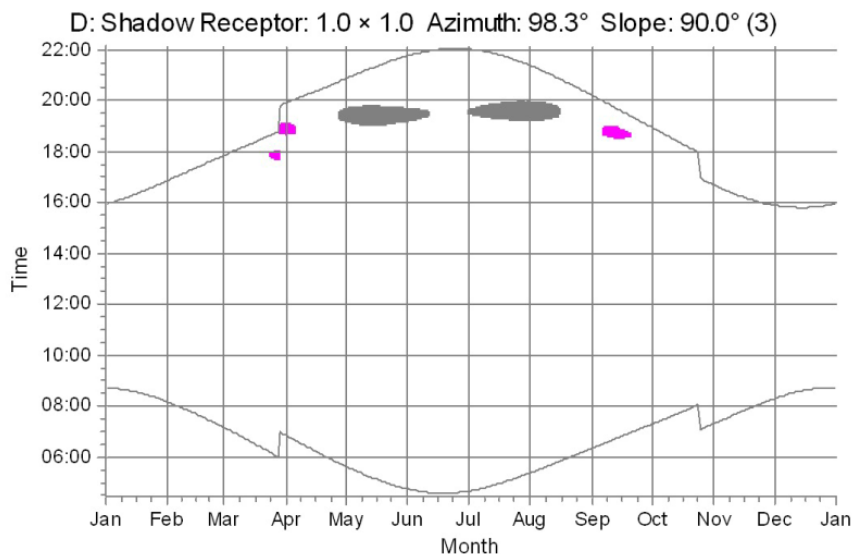
Graph 17.2.2 – Potential Shadow Periods at Receptor B

At Receptor B, there is potential for Turbine 1 to cause shadow flicker at approximately 15:00 to 17:00 in October, February and March. There is potential for Turbine 2 to cause shadow flicker at approximately 13:00 to 14:00 in November, December and January. There is also potential for Turbine 3 to cause shadow flicker at approximately 15:00 to 16:00 in November, January and February.



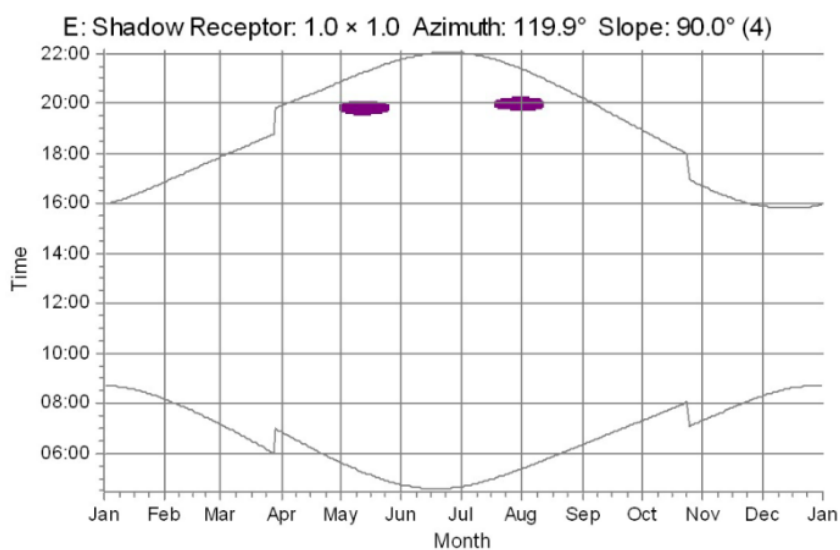
Graph 17.2.3 – Potential Shadow Periods at Receptor C

At Receptor C, there is potential for Turbine 4 to cause shadow flicker at approximately 19:00 in April, May, July and August. Turbine 5 has potential to cause shadow flicker at approximately 15:00 and 19:00 in March and 19:00 in September.



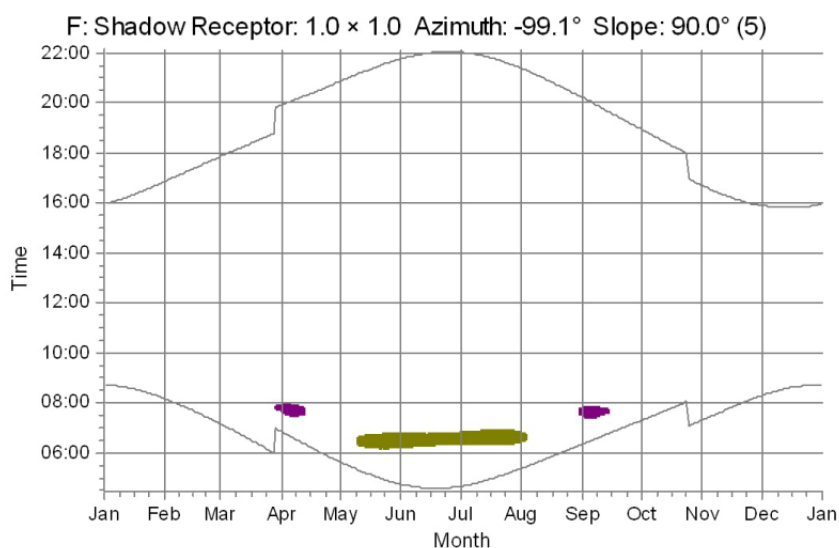
Graph 17.2.4 – Potential Shadow Periods at Receptor D

At Receptor D, there is the potential for Turbine 4 to cause shadow flicker at approximately 19:00 from late April to mid-August. Turbine 5 has the potential to cause shadow flicker at approximately 18:00 and 19:00 in late March and early April, and 19:00 in September.



Graph 17.2.5 – Potential Shadow Periods at Receptor E

At Receptor E, there is the potential for Turbine 11 to cause shadow flicker at approximately 20:00 in May, July and August.



Graph 17.2.6 – Potential Shadow Periods at Receptor F

At Receptor F, there is the potential for Turbine 10 to cause shadow flicker between approximately 06:00 and 07:00 from early May to early August. Turbine 12 has the potential to cause shadow flicker between approximately 07:00 and 08:00 during early and early September.

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

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Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Main Result

Calculation: Shep Rig Real Case 260310

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
48	66	185	48	169	166	241	424	1,266	762	1,241	903

W	WNW	NW	NNW	Sum
1,026	733	140	31	7,449

Monthly aggregation of real case reduction

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

DHM: Project Wizard Elevation Data Grid (UK - Scotland Elevation Model (LIDAR))

Receptor grid resolution: 1.0 m

Topographic shadow included in calculation

All coordinates are in

British TM-OSGB36/Airy (GB/IE)

WTGs

	Easting	Northing	Z	Row data/Description	WTG type				Shadow data			
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
			[m]									
1	262,208	595,979	350.2	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
2	262,752	595,635	328.7	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
3	261,917	595,432	320.1	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
4	262,752	595,076	308.5	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
5	261,921	594,770	294.0	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
6	261,969	593,817	291.2	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
7	262,685	593,323	257.6	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
8	261,654	593,306	321.5	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
9	262,467	592,647	278.6	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
10	261,496	592,707	330.5	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7
11	261,878	592,202	315.4	NORDEX N163/6.X 6800 163.0 !O! ...No		NORDEX	N163/6.X-6,800	6,800	163.0	138.5	1,787	10.7

Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation	Degrees from	Slope of	Direction mode	Eye height
						a.g.l.	south cw	window		(ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]	[°]		[m]
A	262,939	596,654	301.6	1.0	1.0	1.0	19.6	90.0	Fixed direction	2.0
B	263,635	594,934	214.3	1.0	1.0	1.0	77.2	90.0	Fixed direction	2.0
C	263,696	594,824	211.0	1.0	1.0	1.0	98.3	90.0	Fixed direction	2.0
D	263,317	591,700	187.5	1.0	1.0	1.0	-240.1	90.0	Fixed direction	2.0
E	260,305	592,291	221.5	1.0	1.0	1.0	-99.1	90.0	Fixed direction	2.0

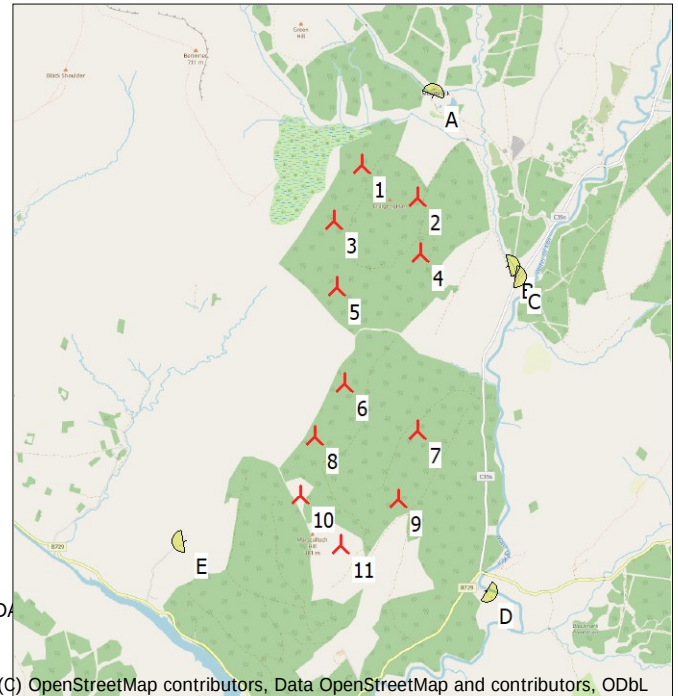
Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]
A	6:56

To be continued on next page...



Scale 1:75,000
 ▲ New WTG ● Shadow receptor

Project:

7190_Shepherds Rig_Shadow Flicker

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Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Main Result

Calculation: Shep Rig Real Case 260310

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]
B	7:23
C	8:10
D	2:43
E	8:01

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Expected [h/year]
1	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (25)	3:38
2	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (24)	1:41
3	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (23)	1:37
4	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (22)	11:49
5	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (21)	1:33
6	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (20)	0:00
7	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (19)	0:00
8	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (18)	0:00
9	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (17)	0:00
10	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (16)	6:46
11	NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (15)	3:58

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

7190_Shepherds Rig_Shadow Flicker

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631
Andrew Robertson / andrew.robertson@slrconsulting.com
Calculated.
10/03/2026 10:24/4.1.273

Calculation: Shep Rig Real Case 260310 Shadow receptor: A - Shadow Receptor: 1.0 x 1.0 Azimuth: 19.6° Slope: 90.0° (1)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
48	66	185	48	169	166	241	424	1,266	762	1,241	903	1,026	733	140	31	7,449

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

7190_Shepherds Rig_Shadow Flicker

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0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: B - Shadow Receptor: 1.0 × 1.0 Azimuth: 77.2° Slope: 90.0° (2)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June
1	08:44 15:57	08:10 16:52	07:10 17:51	06:51 19:53	05:38 20:52	18:43 (4) 21:45
2	08:43 15:59	08:09 16:54	07:07 17:53	06:48 19:55	05:36 20:54	18:43 (4) 21:47
3	08:43 16:00	08:07 16:56	07:05 17:55	06:46 19:57	05:34 20:56	18:42 (4) 21:48
4	08:43 16:01	08:05 16:58	07:02 17:57	06:43 19:59	05:32 20:58	18:42 (4) 21:49
5	08:42 16:02	08:03 17:00	07:00 17:59	06:41 20:01	05:30 21:00	18:42 (4) 21:50
6	08:42 16:04	08:01 17:02	06:57 18:01	06:38 20:03	05:27 21:01	18:42 (4) 21:51
7	08:41 16:05	07:59 17:04	06:55 18:03	06:36 20:05	05:25 21:03	18:42 (4) 21:52
8	08:41 16:07	07:57 17:06	06:52 18:05	06:33 20:07	05:23 21:05	18:42 (4) 21:53
9	08:40 16:08	07:55 17:09	06:50 18:07	06:31 20:09	05:21 21:07	18:42 (4) 21:54
10	08:40 16:10	07:53 17:11	06:47 18:09	06:28 20:11	05:19 21:09	18:43 (4) 21:55
11	08:39 16:11	07:51 17:13	06:45 18:11	06:26 20:12	05:17 21:11	18:44 (4) 21:56
12	08:38 16:13	07:49 17:15	06:42 18:13	06:23 20:14	05:15 21:13	18:44 (4) 21:57
13	08:37 16:15	07:47 17:17	06:40 18:15	06:21 20:16	05:14 21:15	18:44 (4) 21:58
14	08:36 16:16	07:44 17:19	06:37 18:17	06:18 20:18	05:12 21:16	18:45 (4) 21:58
15	08:35 16:18	07:42 17:21	06:35 18:19	06:16 20:20	05:10 21:18	18:46 (4) 21:59
16	08:34 16:20	07:40 17:23	06:32 18:21	06:13 20:22	05:08 21:20	18:46 (4) 22:00
17	08:33 16:22	07:38 17:26	06:29 18:23	06:11 20:24	05:06 21:22	18:48 (4) 22:00
18	08:32 16:24	07:36 17:28	06:27 18:25	06:08 20:26	05:05 21:24	18:48 (4) 22:01
19	08:30 16:25	07:33 17:30	06:24 18:27	06:06 20:28	05:03 21:25	18:50 (4) 22:01
20	08:29 16:27	07:31 17:32	06:22 18:29	06:04 20:30	05:01 21:27	18:50 (4) 22:01
21	08:28 16:29	07:29 17:34	06:19 18:31	06:01 20:32	05:00 21:29	18:52 (4) 22:02
22	08:27 16:31	07:26 17:36	06:17 18:33	05:59 20:34	04:58 21:30	18:54 (4) 22:02
23	08:25 16:33	07:24 17:38	06:14 18:35	05:56 20:36	04:57 21:32	18:55 (4) 22:02
24	08:24 16:35	07:22 17:40	06:11 18:37	05:54 20:38	04:55 21:34	18:58 (4) 22:02
25	08:22 16:37	07:19 17:42	06:09 18:39	05:52 20:40	04:54 21:35	19:01 (4) 22:02
26	08:21 16:39	07:17 17:45	06:06 18:41	05:49 20:42	04:52 21:37	19:08 (4) 22:02
27	08:19 16:41	07:14 17:47	06:04 18:43	05:47 20:44	04:51 21:38	19:10 (4) 22:02
28	08:17 16:43	07:12 17:49	06:01 18:45	05:45 20:46	04:50 21:40	19:12 (4) 22:02
29	08:16 16:45		06:59 19:47	05:43 20:48	04:49 21:41	19:14 (4) 22:02
30	08:14 16:47		06:56 19:49	05:40 20:50	04:47 21:43	19:16 (4) 22:01
31	08:12 16:50		06:53 19:51	05:36 20:50	04:46 21:44	19:18 (4) 22:01
Potential sun hours	242	270	366	423	501	519
Total, worst case			141	369	824	
Sun reduction			0.27	0.33	0.36	
Oper. time red.			0.85	0.85	0.85	
Wind dir. red.			0.63	0.60	0.60	
Total reduction			0.14	0.17	0.18	
Total, real			20	63	152	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

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Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: B - Shadow Receptor: 1.0 × 1.0 Azimuth: 77.2° Slope: 90.0° (2)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	July	August	September	October	November	December
1	04:40 22:01	05:23 21:23	18:54 (4) 19:32 (4)	06:21 20:12	07:18 18:55	07:20 16:41
2	04:41 22:00	05:25 21:21	18:54 (4) 19:33 (4)	06:23 20:10	07:20 18:53	07:22 16:39
3	04:42 22:00	05:27 21:19	18:53 (4) 19:33 (4)	06:25 20:07	07:22 18:50	07:24 16:37
4	04:43 21:59	05:29 21:17	18:53 (4) 19:33 (4)	06:27 20:05	07:24 18:47	07:26 16:35
5	04:44 21:59	05:30 21:15	18:52 (4) 19:34 (4)	06:29 20:02	07:26 18:45	07:28 16:33
6	04:45 21:58	05:32 21:13	18:52 (4) 19:34 (4)	06:31 20:00	07:28 18:42	07:30 16:31
7	04:46 21:57	05:34 21:11	18:51 (4) 19:33 (4)	06:32 19:57	07:29 18:40	07:32 16:29
8	04:47 21:57	05:36 21:08	18:52 (4) 19:34 (4)	06:34 19:54	07:31 18:37	07:34 16:27
9	04:48 21:56	05:38 21:06	18:52 (4) 19:34 (4)	06:36 19:52	07:33 18:35	07:36 16:25
10	04:49 21:55	05:40 21:04	18:51 (4) 19:33 (4)	06:38 19:49	07:35 18:32	07:38 16:23
11	04:50 21:54	05:41 21:02	18:51 (4) 19:33 (4)	06:40 19:47	07:37 18:30	07:40 16:21
12	04:52 21:53	05:43 21:00	18:51 (4) 19:32 (4)	06:42 19:44	07:39 18:28 (5)	07:42 16:19
13	04:53 21:52	05:45 20:58	18:52 (4) 19:32 (4)	06:44 19:42	07:41 18:25 (5)	07:44 16:18
14	04:54 21:51	05:47 20:55	18:51 (4) 19:31 (4)	06:46 19:39	07:43 18:23 (5)	07:46 16:16
15	04:56 21:49	05:49 20:53	18:52 (4) 19:30 (4)	06:48 19:36	07:45 18:22 (5)	07:48 16:14
16	04:57 21:48	05:51 20:51	18:52 (4) 19:30 (4)	06:49 19:34	07:47 18:21 (5)	07:50 16:12
17	04:58 21:47	05:53 20:49	18:53 (4) 19:29 (4)	06:51 19:31	07:49 18:20 (5)	07:52 16:11
18	05:00 21:46	05:55 20:46	18:54 (4) 19:28 (4)	06:53 19:29	07:51 18:19 (5)	07:54 16:09
19	05:01 21:44	19:09 (4) 19:19 (4)	05:57 20:44	06:55 19:26 (4)	07:53 18:19 (5)	07:56 16:08
20	05:03 21:43	19:07 (4) 19:22 (4)	05:58 20:42	06:57 19:25 (4)	07:55 18:19 (5)	07:58 16:06
21	05:04 21:41	19:05 (4) 19:23 (4)	06:00 20:39	06:59 19:23 (4)	07:57 18:19 (5)	08:00 16:05
22	05:06 21:40	19:03 (4) 19:24 (4)	06:02 20:37	07:01 19:21 (4)	07:59 18:20 (5)	08:02 16:03
23	05:08 21:38	19:02 (4) 19:26 (4)	06:04 20:34	07:03 19:17 (4)	08:01 18:21 (5)	08:04 16:02
24	05:09 21:37	19:00 (4) 19:27 (4)	06:06 20:32	07:05 19:05 (4)	08:03 18:24 (5)	08:06 16:01
25	05:11 21:35	19:00 (4) 19:28 (4)	06:08 20:30	07:06 19:11	08:05 17:59	08:08 16:00
26	05:13 21:33	18:59 (4) 19:30 (4)	06:10 20:27	07:08 19:08	08:09 16:54	08:12 15:58
27	05:14 21:32	18:58 (4) 19:30 (4)	06:12 20:25	07:10 19:05	08:11 16:52	08:14 15:57
28	05:16 21:30	18:57 (4) 19:31 (4)	06:14 20:22	07:12 19:03	08:13 16:50	08:16 15:56
29	05:18 21:28	18:56 (4) 19:31 (4)	06:15 20:20	07:14 19:00	08:15 16:47	08:18 15:54
30	05:20 21:26	18:56 (4) 19:32 (4)	06:17 20:17	07:16 18:58	08:16 16:45	08:19 15:53
31	05:21 21:24	18:55 (4) 19:33 (4)	06:19 20:15		07:18 16:43	08:21 15:52
Potential sun hours	521	465	383	326	253	225
Total, worst case	349	853	144			
Sun reduction	0.30	0.31	0.29			
Oper. time red.	0.85	0.85	0.85			
Wind dir. red.	0.60	0.60	0.63			
Total reduction	0.16	0.16	0.15			
Total, real	54	133	22			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: C - Shadow Receptor: 1.0 × 1.0 Azimuth: 98.3° Slope: 90.0° (3)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June
1	08:44 15:57	08:10 16:52	07:10 17:51	06:51 19:53	18:42 (5) 19:03 (5)	05:38 20:52
2	08:43 15:59	08:09 16:54	07:07 17:53	06:48 19:55	18:43 (5) 19:02 (5)	05:36 20:54
3	08:43 16:00	08:07 16:56	07:05 17:55	06:46 19:57	18:43 (5) 19:01 (5)	05:34 20:56
4	08:43 16:01	08:05 16:58	07:02 17:57	06:43 19:59	18:45 (5) 19:00 (5)	05:32 20:58
5	08:42 16:02	08:03 17:00	07:00 17:59	06:41 20:01	18:46 (5) 18:57 (5)	05:30 21:00
6	08:42 16:04	08:01 17:02	06:57 18:01	06:38 20:03	05:27 21:01	20:57 21:51
7	08:41 16:05	07:59 17:04	06:55 18:03	06:36 20:05	05:25 21:03	20:49 21:52
8	08:41 16:07	07:57 17:06	06:52 18:05	06:33 20:07	05:23 21:05	20:47 21:53
9	08:40 16:08	07:55 17:09	06:50 18:07	06:31 20:09	05:21 21:07	20:45 21:54
10	08:40 16:10	07:53 17:11	06:47 18:09	06:28 20:11	05:19 21:09	20:43 21:55
11	08:39 16:11	07:51 17:13	06:45 18:11	06:26 20:12	05:17 21:11	20:41 21:56
12	08:38 16:13	07:49 17:15	06:42 18:13	06:23 20:14	05:15 21:13	20:39 21:57
13	08:37 16:15	07:47 17:17	06:40 18:15	06:21 20:16	05:14 21:15	20:37 21:58
14	08:36 16:16	07:44 17:19	06:37 18:17	06:18 20:18	05:12 21:16	20:35 21:58
15	08:35 16:18	07:42 17:21	06:35 18:19	06:16 20:20	05:10 21:18	20:33 21:59
16	08:34 16:20	07:40 17:23	06:32 18:21	06:13 20:22	05:08 21:20	20:31 22:00
17	08:33 16:22	07:38 17:26	06:29 18:23	06:11 20:24	05:06 21:22	20:29 22:00
18	08:32 16:24	07:35 17:28	06:27 18:25	06:08 20:26	05:05 21:24	20:27 22:01
19	08:30 16:25	07:33 17:30	06:24 18:27	06:06 20:28	05:03 21:25	20:25 22:01
20	08:29 16:27	07:31 17:32	06:22 18:29	06:04 20:30	05:01 21:27	20:23 22:01
21	08:28 16:29	07:29 17:34	06:19 18:31	06:01 20:32	05:00 21:29	20:21 22:02
22	08:26 16:31	07:26 17:36	06:17 18:33	05:59 20:34	04:58 21:30	20:19 22:02
23	08:25 16:33	07:24 17:38	06:14 18:35	05:56 20:36	04:57 21:32	20:17 22:02
24	08:24 16:35	07:22 17:40	06:11 18:37	05:54 20:38	04:55 21:34	20:15 22:02
25	08:22 16:37	07:19 17:42	06:09 18:39	05:52 20:40	04:54 21:35	20:13 22:02
26	08:21 16:39	07:17 17:45	06:06 18:41	05:49 20:42	04:52 21:37	20:11 22:02
27	08:19 16:41	07:14 17:47	06:04 18:43	05:47 20:44	04:51 21:38	20:09 22:02
28	08:17 16:43	07:12 17:49	06:01 18:45	05:45 20:46	04:50 21:40	20:07 22:02
29	08:16 16:45		06:59 19:47	05:43 20:48	04:49 21:41	20:05 22:01
30	08:14 16:47		06:56 19:49	05:40 20:50	04:47 21:43	20:03 22:01
31	08:12 16:50		06:53 19:51	05:43 20:51	04:46 21:44	20:01 22:01
Potential sun hours	243	270	366	423	501	519
Total, worst case			102	136	1077	185
Sun reduction			0.27	0.33	0.36	0.29
Oper. time red.			0.85	0.85	0.85	0.85
Wind dir. red.			0.62	0.61	0.59	0.59
Total reduction			0.14	0.17	0.18	0.14
Total, real			14	23	195	27

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: C - Shadow Receptor: 1.0 × 1.0 Azimuth: 98.3° Slope: 90.0° (3)
 Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	July			August			September			October	November	December
1	04:40		19:31 (4)	05:23		19:15 (4)	06:21			07:18	07:20	08:18
	22:01	4	19:35 (4)	21:23	39	19:54 (4)	20:12			18:55	16:41	15:53
2	04:41		19:29 (4)	05:25		19:15 (4)	06:23			07:20	07:22	08:20
	22:00	7	19:36 (4)	21:21	39	19:54 (4)	20:10			18:53	16:39	15:52
3	04:42		19:28 (4)	05:27		19:15 (4)	06:25			07:22	07:24	08:21
	22:00	10	19:38 (4)	21:19	38	19:53 (4)	20:07			18:50	16:37	15:52
4	04:43		19:27 (4)	05:29		19:15 (4)	06:27			07:24	07:26	08:23
	21:59	12	19:39 (4)	21:17	38	19:53 (4)	20:05			18:47	16:35	15:51
5	04:44		19:26 (4)	05:30		19:16 (4)	06:29			07:26	07:28	08:24
	21:59	15	19:41 (4)	21:15	37	19:53 (4)	20:02			18:45	16:33	15:50
6	04:45		19:25 (4)	05:32		19:17 (4)	06:31			07:28	07:30	08:26
	21:58	17	19:42 (4)	21:13	36	19:53 (4)	20:00			18:42	16:31	15:50
7	04:46		19:25 (4)	05:34		19:16 (4)	06:32		18:41 (5)	07:29	07:32	08:27
	21:57	18	19:43 (4)	21:11	35	19:51 (4)	19:57	11	18:52 (5)	18:40	16:29	15:49
8	04:47		19:24 (4)	05:36		19:17 (4)	06:34		18:39 (5)	07:31	07:34	08:29
	21:57	20	19:44 (4)	21:08	34	19:51 (4)	19:54	15	18:54 (5)	18:37	16:27	15:49
9	04:48		19:23 (4)	05:38		19:18 (4)	06:36		18:38 (5)	07:33	07:36	08:30
	21:56	22	19:45 (4)	21:06	32	19:50 (4)	19:52	17	18:55 (5)	18:35	16:25	15:48
10	04:49		19:23 (4)	05:40		19:18 (4)	06:38		18:37 (5)	07:35	07:38	08:31
	21:55	23	19:46 (4)	21:04	30	19:48 (4)	19:49	18	18:55 (5)	18:32	16:23	15:48
11	04:50		19:22 (4)	05:41		19:19 (4)	06:40		18:36 (5)	07:37	07:40	08:32
	21:54	24	19:46 (4)	21:02	28	19:47 (4)	19:47	20	18:56 (5)	18:30	16:21	15:48
12	04:52		19:21 (4)	05:43		19:21 (4)	06:42		18:35 (5)	07:39	07:42	08:33
	21:53	26	19:47 (4)	21:00	25	19:46 (4)	19:44	21	18:56 (5)	18:27	16:19	15:47
13	04:53		19:20 (4)	05:45		19:23 (4)	06:44		18:34 (5)	07:41	07:44	08:35
	21:52	28	19:48 (4)	20:58	21	19:44 (4)	19:42	20	18:54 (5)	18:25	16:18	15:47
14	04:54		19:21 (4)	05:47		19:24 (4)	06:46		18:34 (5)	07:43	07:46	08:36
	21:51	28	19:49 (4)	20:55	17	19:41 (4)	19:39	18	18:52 (5)	18:22	16:16	15:47
15	04:56		19:20 (4)	05:49		19:28 (4)	06:48		18:34 (5)	07:45	07:48	08:37
	21:49	29	19:49 (4)	20:53	9	19:37 (4)	19:36	15	18:49 (5)	18:20	16:14	15:47
16	04:57		19:19 (4)	05:51			06:49		18:34 (5)	07:47	07:50	08:38
	21:48	31	19:50 (4)	20:51			19:34	13	18:47 (5)	18:18	16:12	15:47
17	04:58		19:18 (4)	05:53			06:51		18:35 (5)	07:49	07:52	08:38
	21:47	32	19:50 (4)	20:49			19:31	10	18:45 (5)	18:15	16:11	15:47
18	05:00		19:18 (4)	05:55			06:53		18:36 (5)	07:51	07:54	08:39
	21:46	33	19:51 (4)	20:46			19:29	7	18:43 (5)	18:13	16:09	15:47
19	05:01		19:18 (4)	05:57			06:55		18:37 (5)	07:53	07:56	08:40
	21:44	33	19:51 (4)	20:44			19:26	3	18:40 (5)	18:10	16:08	15:48
20	05:03		19:18 (4)	05:58			06:57		07:55	07:58	08:01	08:41
	21:43	35	19:53 (4)	20:42			19:23		18:08	16:06	15:48	15:48
21	05:04		19:17 (4)	06:00			06:59		07:57	08:00	08:03	08:41
	21:41	36	19:53 (4)	20:39			19:21		18:06	16:05	15:48	15:48
22	05:06		19:16 (4)	06:02			07:01		07:59	08:02	08:05	08:42
	21:40	36	19:52 (4)	20:37			19:18		18:03	16:03	15:49	15:49
23	05:08		19:16 (4)	06:04			07:03		08:01	08:04	08:07	08:42
	21:38	37	19:53 (4)	20:34			19:16		18:01	16:02	15:49	15:49
24	05:09		19:16 (4)	06:06			07:05		08:03	08:06	08:09	08:43
	21:37	37	19:53 (4)	20:32			19:13		17:59	16:01	15:50	15:50
25	05:11		19:16 (4)	06:08			07:06		07:05	08:08	08:11	08:43
	21:35	38	19:54 (4)	20:30			19:11		16:56	16:00	15:51	15:51
26	05:13		19:16 (4)	06:10			07:08		07:07	08:09	08:12	08:43
	21:33	39	19:55 (4)	20:27			19:08		16:54	15:58	15:51	15:51
27	05:14		19:15 (4)	06:12			07:10		07:09	08:11	08:14	08:44
	21:32	39	19:54 (4)	20:25			19:05		16:52	15:57	15:52	15:52
28	05:16		19:16 (4)	06:14			07:12		07:12	08:13	08:16	08:44
	21:30	39	19:55 (4)	20:22			19:03		16:50	15:56	15:53	15:53
29	05:18		19:15 (4)	06:15			07:14		07:14	08:15	08:18	08:44
	21:28	39	19:54 (4)	20:20			19:00		16:47	15:55	15:54	15:54
30	05:20		19:15 (4)	06:17			07:16		07:16	08:16	08:19	08:44
	21:26	39	19:54 (4)	20:17			18:58		16:45	15:54	15:55	15:55
31	05:21		19:16 (4)	06:19					07:18		08:18	08:44
	21:24	39	19:55 (4)	20:15					16:43		15:56	15:56
Potential sun hours	521			465			383		326	253	225	
Total, worst case		865			458		188					
Sun reduction		0.30			0.31		0.29					
Oper. time red.		0.85			0.85		0.85					
Wind dir. red.		0.59			0.59		0.62					
Total reduction		0.15			0.15		0.15					
Total, real		132			70		29					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: D - Shadow Receptor: 1.0 × 1.0 Azimuth: 119.9° Slope: 90.0° (4)
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:44	08:10	07:10	06:51	05:38	19:45 (11)	04:45	04:41	05:23	19:45 (11)	06:21	07:18	07:20	08:18	
	15:58	16:52	17:51	19:53	20:52	19:51 (11)	21:45	22:01	21:22	20:10 (11)	20:12	18:55	16:41	15:53	
2	08:43	08:09	07:07	06:48	05:36	19:42 (11)	04:44	04:41	05:25	19:45 (11)	06:23	07:20	07:22	08:20	
	15:59	16:54	17:53	19:55	20:54	19:54 (11)	21:46	22:00	21:21	20:10 (11)	20:10	18:53	16:39	15:53	
3	08:43	08:07	07:05	06:46	05:34	19:40 (11)	04:43	04:42	05:27	19:45 (11)	06:25	07:22	07:24	08:21	
	16:00	16:56	17:55	19:57	20:56	19:56 (11)	21:48	22:00	21:19	20:11 (11)	20:07	18:50	16:37	15:52	
4	08:43	08:05	07:02	06:43	05:32	19:38 (11)	04:42	04:43	05:29	19:45 (11)	06:27	07:24	07:26	08:23	
	16:01	16:58	17:57	19:59	20:57	19:57 (11)	21:49	21:59	21:17	20:10 (11)	20:05	18:47	16:35	15:51	
5	08:42	08:03	07:00	06:41	05:30	19:37 (11)	04:42	04:44	05:31	19:46 (11)	06:29	07:26	07:28	08:24	
	16:03	17:00	17:59	20:01	20:59	19:58 (11)	21:50	21:59	21:15	20:09 (11)	20:02	18:45	16:33	15:50	
6	08:42	08:01	06:57	06:38	05:28	19:36 (11)	04:41	04:45	05:32	19:46 (11)	06:31	07:28	07:30	08:26	
	16:04	17:02	18:01	20:03	21:01	19:59 (11)	21:51	21:58	21:13	20:09 (11)	20:00	18:42	16:31	15:50	
7	08:41	07:59	06:55	06:36	05:26	19:36 (11)	04:40	04:46	05:34	19:46 (11)	06:33	07:29	07:32	08:27	
	16:05	17:04	18:03	20:05	21:03	19:59 (11)	21:52	21:57	21:10	20:08 (11)	19:57	18:40	16:29	15:49	
8	08:41	07:57	06:52	06:33	05:23	19:35 (11)	04:39	04:47	05:36	19:47 (11)	06:34	07:31	07:34	08:28	
	16:07	17:07	18:05	20:07	21:05	19:59 (11)	21:53	21:56	21:08	20:07 (11)	19:54	18:37	16:27	15:49	
9	08:40	07:55	06:50	06:31	05:21	19:35 (11)	04:39	04:48	05:38	19:48 (11)	06:36	07:33	07:36	08:30	
	16:08	17:09	18:07	20:09	21:07	20:00 (11)	21:54	21:56	21:06	20:06 (11)	19:52	18:35	16:25	15:48	
10	08:39	07:53	06:47	06:28	05:19	19:35 (11)	04:38	04:49	05:40	19:50 (11)	06:38	07:35	07:38	08:31	
	16:10	17:11	18:09	20:10	21:09	20:00 (11)	21:55	21:55	21:04	20:05 (11)	19:49	18:32	16:23	15:48	
11	08:39	07:51	06:45	06:26	05:18	19:35 (11)	04:38	04:51	05:42	19:51 (11)	06:40	07:37	07:40	08:32	
	16:12	17:13	18:11	20:12	21:11	20:00 (11)	21:56	21:54	21:02	20:02 (11)	19:47	18:30	16:21	15:48	
12	08:38	07:49	06:42	06:23	05:16	19:34 (11)	04:37	04:52	05:43	19:50 (11)	06:42	07:39	07:42	08:33	
	16:13	17:15	18:13	20:14	21:13	20:00 (11)	21:57	21:53	21:00	19:44	18:27	16:19	15:48	15:48	
13	08:37	07:46	06:40	06:21	05:14	19:35 (11)	04:37	04:53	05:45	19:46 (11)	06:44	07:41	07:44	08:34	
	16:15	17:17	18:15	20:16	21:14	20:00 (11)	21:58	21:52	20:58	19:42	18:25	16:18	15:47	15:47	
14	08:36	07:44	06:37	06:18	05:12	19:35 (11)	04:36	04:54	05:47	19:46 (11)	06:46	07:43	07:46	08:35	
	16:17	17:19	18:17	20:18	21:16	20:00 (11)	21:58	21:50	20:55	19:39	18:22	16:16	15:47	15:47	
15	08:35	07:42	06:35	06:16	05:10	19:35 (11)	04:36	04:56	05:49	19:46 (11)	06:48	07:45	07:48	08:36	
	16:18	17:21	18:19	20:20	21:18	19:59 (11)	21:59	21:49	20:53	19:36	18:20	16:14	15:47	15:47	
16	08:34	07:40	06:32	06:13	05:08	19:36 (11)	04:36	04:57	05:51	19:46 (11)	06:49	07:47	07:50	08:37	
	16:20	17:24	18:21	20:22	21:20	20:00 (11)	21:59	21:48	20:51	19:34	18:18	16:13	15:47	15:47	
17	08:33	07:38	06:29	06:11	05:06	19:36 (11)	04:36	04:59	05:53	19:46 (11)	06:51	07:49	07:52	08:38	
	16:22	17:26	18:23	20:24	21:22	19:59 (11)	22:00	21:47	20:48	19:31	18:15	16:11	15:47	15:47	
18	08:32	07:35	06:27	06:08	05:05	19:37 (11)	04:36	05:00	05:55	19:46 (11)	06:53	07:51	07:54	08:39	
	16:24	17:28	18:25	20:26	21:23	19:59 (11)	22:00	21:45	20:46	19:29	18:13	16:09	15:48	15:48	
19	08:30	07:33	06:24	06:06	05:03	19:37 (11)	04:36	05:02	05:57	19:46 (11)	06:55	07:53	07:56	08:40	
	16:26	17:30	18:27	20:28	21:25	19:58 (11)	22:01	21:44	20:44	19:26	18:10	16:08	15:48	15:48	
20	08:29	07:31	06:22	06:04	05:01	19:38 (11)	04:36	05:03	05:59	19:52 (11)	06:57	07:55	07:58	08:40	
	16:28	17:32	18:29	20:30	21:27	19:58 (11)	22:01	21:43	20:41	19:23	18:08	16:06	15:48	15:48	
21	08:28	07:29	06:19	06:01	05:00	19:39 (11)	04:36	05:05	06:00	19:50 (11)	06:59	07:57	08:00	08:41	
	16:29	17:34	18:31	20:32	21:29	19:56 (11)	22:01	21:41	20:39	19:21	18:06	16:05	15:49	15:49	
22	08:26	07:26	06:17	05:59	04:58	19:40 (11)	04:36	05:06	06:02	19:50 (11)	06:02	07:01	07:59	08:02	08:42
	16:31	17:36	18:33	20:34	21:30	19:56 (11)	22:02	21:40	20:37	19:18	18:03	16:04	15:49	15:49	
23	08:25	07:24	06:14	05:56	04:57	19:42 (11)	04:36	05:08	06:04	19:49 (11)	06:04	07:03	08:01	08:04	08:42
	16:33	17:38	18:35	20:36	21:32	19:55 (11)	22:02	21:38	20:34	19:16	18:01	16:02	15:50	15:50	
24	08:23	07:22	06:12	05:54	04:55	19:42 (11)	04:37	05:09	06:06	19:48 (11)	06:06	07:05	08:03	08:06	08:43
	16:35	17:40	18:37	20:38	21:33	19:53 (11)	22:02	21:37	20:32	19:13	17:59	16:01	15:50	15:50	
25	08:22	07:19	06:09	05:52	04:54	19:45 (11)	04:37	05:11	06:08	19:47 (11)	06:08	07:06	08:04	08:07	08:43
	16:37	17:42	18:39	20:40	21:35	19:51 (11)	22:02	21:35	20:29	19:11	17:59	16:00	15:51	15:51	
26	08:20	07:17	06:06	05:50	04:53	19:46 (11)	04:38	05:13	06:10	19:47 (11)	06:10	07:08	08:07	08:10	08:43
	16:39	17:45	18:41	20:42	21:37	19:46 (11)	22:02	21:33	20:27	19:08	17:54	16:04	15:59	15:52	
27	08:19	07:14	06:04	05:47	04:51	19:46 (11)	04:38	05:15	06:12	19:46 (11)	06:12	07:10	08:09	08:11	08:43
	16:41	17:47	18:43	20:44	21:38	19:46 (11)	22:02	21:32	20:25	19:05	17:52	16:02	15:57	15:52	
28	08:17	07:12	06:01	05:45	04:50	19:46 (11)	04:39	05:16	06:14	19:46 (11)	06:14	07:12	08:11	08:13	08:44
	16:43	17:49	18:45	20:46	21:40	19:46 (11)	22:02	21:30	20:22	19:03	17:50	16:02	15:56	15:53	
29	08:16		06:59	05:43	04:49	19:46 (11)	04:39	05:18	06:16	19:46 (11)	06:16	07:14	08:15	08:17	08:44
	16:46		19:47	20:48	21:41	19:46 (11)	22:01	21:28	20:20	19:00	17:40	16:47	15:55	15:54	
30	08:14		06:56	05:40	04:48	19:46 (11)	04:40	05:20	06:17	19:46 (11)	06:17	07:16	08:16	08:18	08:44
	16:48		19:49	20:50	21:42	19:46 (11)	22:01	21:26	20:17	18:58	17:45	16:45	15:54	15:55	
31	08:12		06:54		04:46	19:46 (11)		05:21	06:19	19:46 (11)	06:19	07:18	08:18	08:20	08:44
	16:50		19:51		21:44	19:46 (11)		21:24	20:15	19:46 (11)	06:15	16:43	15:54	15:56	
Potential sun hours	243	270	366	423	501	519	521	464		383	326	253	225		
Total, worst case					492			257		233					
Sun reduction					0.36			0.30		0.31					
Oper. time red.					0.85			0.85		0.85					
Wind dir. red.					0.59			0.59		0.59					
Total reduction					0.18			0.15		0.15					
Total, real					89			39		36					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: E - Shadow Receptor: 1.0 × 1.0 Azimuth: -99.1° Slope: 90.0° (5)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June
1	08:44	08:11	07:10	06:51	07:43 (11)	05:38
	15:58	16:52	17:51	19:53	12 07:55 (11)	20:52
2	08:44	08:09	07:07	06:49	07:40 (11)	05:36
	15:59	16:54	17:53	19:55	15 07:55 (11)	20:54
3	08:43	08:07	07:05	06:46	07:39 (11)	05:34
	16:00	16:56	17:55	19:57	17 07:56 (11)	20:56
4	08:43	08:05	07:02	06:44	07:36 (11)	05:32
	16:01	16:58	17:57	19:59	19 07:55 (11)	20:58
5	08:43	08:03	07:00	06:41	07:34 (11)	05:30
	16:03	17:00	17:59	20:01	22 07:56 (11)	21:00
6	08:42	08:01	06:57	06:38	07:31 (11)	05:28
	16:04	17:02	18:01	20:03	24 07:55 (11)	21:02
7	08:42	07:59	06:55	06:36	07:32 (11)	05:26
	16:06	17:05	18:03	20:05	22 07:54 (11)	21:03
8	08:41	07:57	06:52	06:33	07:31 (11)	05:24
	16:07	17:07	18:05	20:07	22 07:53 (11)	21:05
9	08:40	07:55	06:50	06:31	07:32 (11)	05:22
	16:09	17:09	18:07	20:09	20 07:52 (11)	21:07
10	08:40	07:53	06:47	06:28	07:33 (11)	05:20
	16:10	17:11	18:09	20:11	17 07:50 (11)	21:09
11	08:39	07:51	06:45	06:26	07:34 (11)	05:18
	16:12	17:13	18:11	20:13	15 07:49 (11)	21:11
12	08:38	07:49	06:42	06:23	07:36 (11)	05:16
	16:13	17:15	18:13	20:15	10 07:46 (11)	21:13
13	08:37	07:47	06:40	06:21	05:14	06:17 (10)
	16:15	17:17	18:15	20:17	22 21:15	06:39 (10)
14	08:36	07:45	06:37	06:18	05:12	06:16 (10)
	16:17	17:20	18:17	20:19	24 21:16	06:40 (10)
15	08:35	07:42	06:35	06:16	05:10	06:15 (10)
	16:18	17:22	18:19	20:21	25 21:18	06:40 (10)
16	08:34	07:40	06:32	06:13	05:08	06:15 (10)
	16:20	17:24	18:21	20:22	26 21:20	06:41 (10)
17	08:33	07:38	06:30	06:11	05:07	06:14 (10)
	16:22	17:26	18:23	20:24	28 21:22	06:42 (10)
18	08:32	07:36	06:27	06:09	05:05	06:14 (10)
	16:24	17:28	18:25	20:26	29 21:24	06:43 (10)
19	08:31	07:33	06:25	06:06	05:03	06:13 (10)
	16:26	17:30	18:27	20:28	29 21:25	06:42 (10)
20	08:29	07:31	06:22	06:04	05:02	06:13 (10)
	16:28	17:32	18:29	20:30	30 21:27	06:43 (10)
21	08:28	07:29	06:19	06:01	05:00	06:12 (10)
	16:30	17:34	18:31	20:32	31 21:29	06:43 (10)
22	08:27	07:26	06:17	05:59	04:58	06:13 (10)
	16:32	17:36	18:33	20:34	30 21:30	06:43 (10)
23	08:25	07:24	06:14	05:57	04:57	06:13 (10)
	16:34	17:39	18:35	20:36	31 21:32	06:44 (10)
24	08:24	07:22	06:12	05:54	04:56	06:12 (10)
	16:36	17:41	18:37	20:38	31 21:34	06:43 (10)
25	08:22	07:19	06:09	05:52	04:54	06:12 (10)
	16:38	17:43	18:39	20:40	32 21:35	06:44 (10)
26	08:21	07:17	06:07	05:50	04:53	06:13 (10)
	16:40	17:45	18:41	20:42	31 21:37	06:44 (10)
27	08:19	07:15	06:04	05:47	04:51	06:13 (10)
	16:42	17:47	18:43	20:44	31 21:38	06:44 (10)
28	08:17	07:12	06:01	05:45	04:50	06:13 (10)
	16:44	17:49	18:45	20:46	31 21:40	06:44 (10)
29	08:16		06:59	07:49 (11)	05:43	06:14 (10)
	16:46		19:47	1 07:50 (11)	20:48	06:44 (10)
30	08:14		06:56	07:47 (11)	05:41	06:14 (10)
	16:48		19:49	6 07:53 (11)	20:50	06:44 (10)
31	08:12		06:54	07:45 (11)		06:14 (10)
	16:50		19:51	9 07:54 (11)		06:44 (10)
Potential sun hours	243	270	366	423	501	519
Total, worst case			16	215	598	754
Sun reduction			0.27	0.33	0.36	0.29
Oper. time red.			0.85	0.85	0.85	0.85
Wind dir. red.			0.62	0.62	0.67	0.67
Total reduction			0.14	0.17	0.21	0.16
Total, real			2	37	123	124

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar

Calculation: Shep Rig Real Case 260310 Shadow receptor: E - Shadow Receptor: 1.0 × 1.0 Azimuth: -99.1° Slope: 90.0° (5)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	July			August			September			October			November			December		
1	04:41		06:22 (10)	05:23		06:29 (10)	06:21		07:33 (11)	07:18		07:20	08:18					
	22:01	26	06:48 (10)	21:23	18	06:47 (10)	20:12	15	07:48 (11)	18:55		16:41	15:54					
2	04:41		06:23 (10)	05:25		06:31 (10)	06:23		07:32 (11)	07:20		07:22	08:20					
	22:00	25	06:48 (10)	21:21	14	06:45 (10)	20:10	17	07:49 (11)	18:53		16:39	15:53					
3	04:42		06:22 (10)	05:27		06:34 (10)	06:25		07:29 (11)	07:22		07:24	08:21					
	22:00	26	06:48 (10)	21:19	9	06:43 (10)	20:07	20	07:49 (11)	18:50		16:37	15:52					
4	04:43		06:22 (10)	05:29			06:27		07:28 (11)	07:24		07:26	08:23					
	21:59	27	06:49 (10)	21:17			20:05	22	07:50 (11)	18:48		16:35	15:51					
5	04:44		06:22 (10)	05:31			06:29		07:28 (11)	07:26		07:28	08:24					
	21:59	27	06:49 (10)	21:15			20:02	22	07:50 (11)	18:45		16:33	15:51					
6	04:45		06:22 (10)	05:33			06:31		07:27 (11)	07:28		07:30	08:26					
	21:58	28	06:50 (10)	21:13			20:00	24	07:51 (11)	18:43		16:31	15:50					
7	04:46		06:22 (10)	05:34			06:33		07:29 (11)	07:30		07:32	08:27					
	21:57	28	06:50 (10)	21:11			19:57	22	07:51 (11)	18:40		16:29	15:49					
8	04:47		06:22 (10)	05:36			06:35		07:30 (11)	07:32		07:34	08:29					
	21:57	29	06:51 (10)	21:09			19:55	19	07:49 (11)	18:38		16:27	15:49					
9	04:48		06:22 (10)	05:38			06:36		07:32 (11)	07:34		07:36	08:30					
	21:56	29	06:51 (10)	21:06			19:52	17	07:49 (11)	18:35		16:25	15:49					
10	04:49		06:22 (10)	05:40			06:38		07:33 (11)	07:36		07:38	08:31					
	21:55	29	06:51 (10)	21:04			19:50	15	07:48 (11)	18:33		16:23	15:48					
11	04:51		06:22 (10)	05:42			06:40		07:35 (11)	07:37		07:40	08:32					
	21:54	29	06:51 (10)	21:02			19:47	12	07:47 (11)	18:30		16:21	15:48					
12	04:52		06:22 (10)	05:44			06:42		07:37 (11)	07:39		07:42	08:34					
	21:53	30	06:52 (10)	21:00			19:44	9	07:46 (11)	18:28		16:20	15:48					
13	04:53		06:22 (10)	05:46			06:44		07:38 (11)	07:41		07:44	08:35					
	21:52	31	06:53 (10)	20:58			19:42	7	07:45 (11)	18:25		16:18	15:48					
14	04:55		06:22 (10)	05:47			06:46		07:39 (11)	07:43		07:47	08:36					
	21:51	31	06:53 (10)	20:56			19:39	2	07:41 (11)	18:23		16:16	15:47					
15	04:56		06:22 (10)	05:49			06:48			07:45		07:49	08:37					
	21:49	31	06:53 (10)	20:53			19:37			18:20		16:14	15:47					
16	04:57		06:22 (10)	05:51			06:50			07:47		07:51	08:38					
	21:48	31	06:53 (10)	20:51			19:34			18:18		16:13	15:47					
17	04:59		06:22 (10)	05:53			06:52			07:49		07:52	08:38					
	21:47	32	06:54 (10)	20:49			19:31			18:15		16:11	15:48					
18	05:00		06:22 (10)	05:55			06:53			07:51		07:54	08:39					
	21:46	31	06:53 (10)	20:46			19:29			18:13		16:10	15:48					
19	05:02		06:22 (10)	05:57			06:55			07:53		07:56	08:40					
	21:44	31	06:53 (10)	20:44			19:26			18:11		16:08	15:48					
20	05:03		06:23 (10)	05:59			06:57			07:55		07:58	08:41					
	21:43	31	06:54 (10)	20:42			19:24			18:08		16:07	15:48					
21	05:05		06:22 (10)	06:01			06:59			07:57		08:00	08:41					
	21:41	31	06:53 (10)	20:39			19:21			18:06		16:05	15:49					
22	05:06		06:23 (10)	06:03			07:01			07:59		08:02	08:42					
	21:40	31	06:54 (10)	20:37			19:18			18:03		16:04	15:49					
23	05:08		06:23 (10)	06:04			07:03			08:01		08:04	08:42					
	21:38	30	06:53 (10)	20:35			19:16			18:01		16:02	15:50					
24	05:10		06:24 (10)	06:06			07:05			08:03		08:06	08:43					
	21:37	29	06:53 (10)	20:32			19:13			17:59		16:01	15:50					
25	05:11		06:24 (10)	06:08			07:07			07:06		08:08	08:43					
	21:35	29	06:53 (10)	20:30			19:11			16:57		16:00	15:51					
26	05:13		06:24 (10)	06:10			07:09			07:08		08:10	08:43					
	21:33	29	06:53 (10)	20:27			19:08			16:54		15:59	15:52					
27	05:15		06:24 (10)	06:12			07:10			07:10		08:11	08:44					
	21:32	28	06:52 (10)	20:25			19:06			16:52		15:58	15:53					
28	05:16		06:25 (10)	06:14			07:12			07:12		08:13	08:44					
	21:30	26	06:51 (10)	20:22			19:03			16:50		15:57	15:53					
29	05:18		06:27 (10)	06:16			07:14			07:14		08:15	08:44					
	21:28	24	06:51 (10)	20:20			19:00			16:48		15:56	15:54					
30	05:20		06:27 (10)	06:18			07:16			07:16		08:16	08:44					
	21:26	23	06:50 (10)	20:17			18:58			16:45		15:55	15:55					
31	05:22		06:28 (10)	06:20		07:35 (11)				07:18			08:44					
	21:25	21	06:49 (10)	20:15	11	07:46 (11)				16:43			15:56					
Potential sun hours	521			464			383			326		253	225					
Total, worst case		883			52		223											
Sun reduction		0.30			0.31		0.29											
Oper. time red.		0.85			0.85		0.85											
Wind dir. red.		0.67			0.66		0.62											
Total reduction		0.17			0.17		0.15											
Total, real		153			9		34											

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

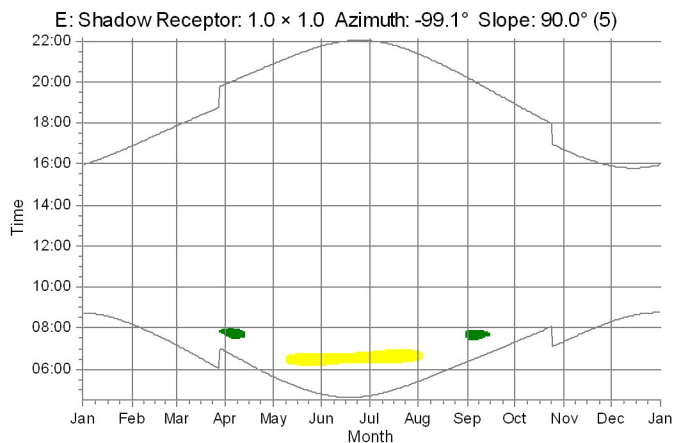
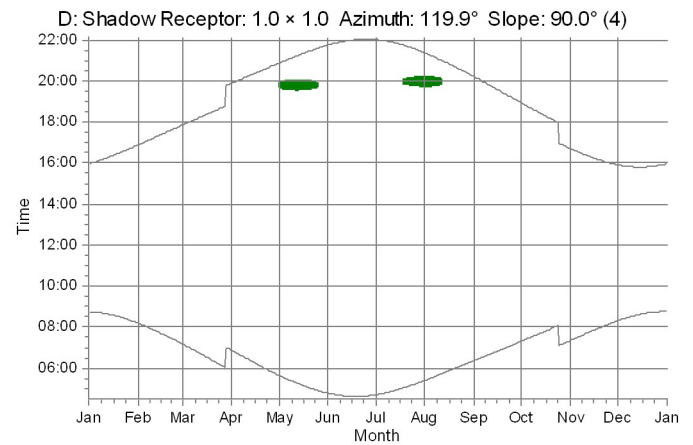
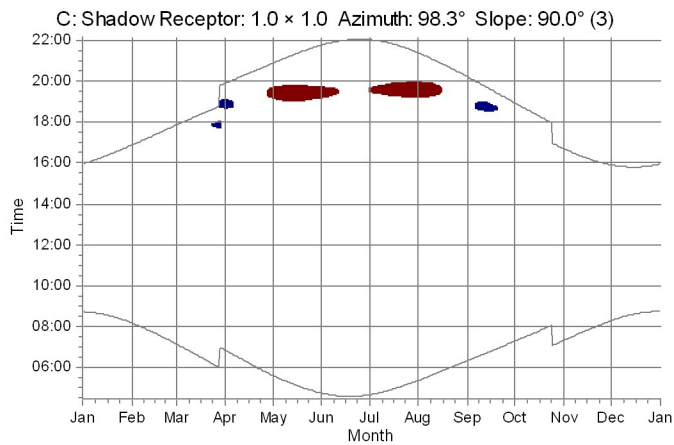
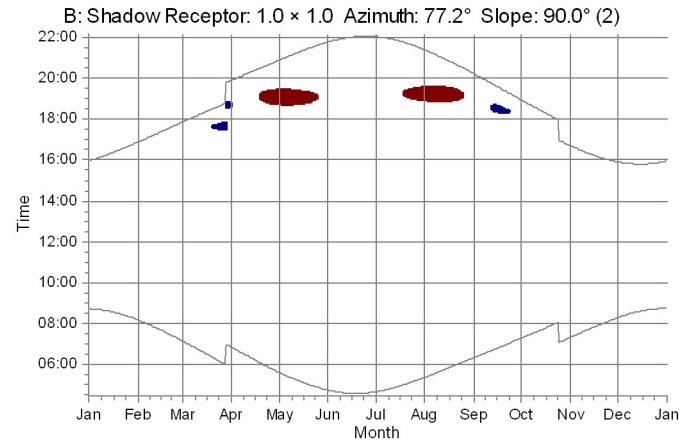
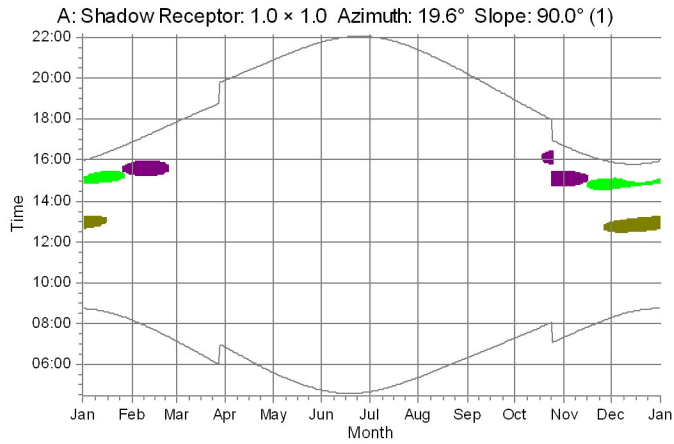
Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar, graphical

Calculation: Shep Rig Real Case 260310



WTGs

- 11: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (15)
- 10: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (16)
- 5: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (21)
- 4: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (22)

- 3: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (23)
- 2: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (24)
- 1: NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (25)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 1 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (25)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

Operational time

		N		NNE		NE		ENE		E		ESE		SE		SSE		S		SSW		SW		WSW		W		WNW		NW		NNW		Sum	
		48		66		185		48		169		166		241		424		1,266		762		1,241		903		1,026		733		140		31		7,449	
		January		February		March		April		May		June		July		August		September		October				November				December							
1	08:44	08:11	15:20-15:49/29	07:10	06:51	05:38	04:45	04:40	05:23	06:21	07:18			07:20	14:46-15:24/38	08:18			07:20	14:46-15:24/38	08:20			07:22	14:46-15:24/38	08:20			07:22	14:46-15:24/38	08:20				
2	08:44	08:09	15:19-15:50/31	07:07	06:48	05:36	04:44	04:41	05:25	06:23	07:20			06:23	14:46-15:24/38	08:20			06:23	14:46-15:24/38	08:20			06:23	14:46-15:24/38	08:20			06:23	14:46-15:24/38	08:20				
3	08:43	08:07	15:19-15:51/32	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22			06:25	14:46-15:23/37	08:21			06:25	14:46-15:23/37	08:21			06:25	14:46-15:23/37	08:21			06:25	14:46-15:23/37	08:21				
4	08:43	08:05	15:18-15:52/34	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24			06:27	14:46-15:23/37	08:23			06:27	14:46-15:23/37	08:23			06:27	14:46-15:23/37	08:23			06:27	14:46-15:23/37	08:23				
5	08:43	08:03	15:18-15:53/35	07:00	06:41	05:30	04:41	04:44	05:30	06:29	07:26			06:29	14:47-15:23/36	08:24			06:29	14:47-15:23/36	08:24			06:29	14:47-15:23/36	08:24			06:29	14:47-15:23/36	08:24				
6	08:42	08:01	15:18-15:54/36	06:57	06:38	05:27	04:41	04:45	05:32	06:31	07:28			06:31	14:48-15:22/34	08:26			06:31	14:48-15:22/34	08:26			06:31	14:48-15:22/34	08:26			06:31	14:48-15:22/34	08:26				
7	08:42	07:59	15:16-15:53/37	06:55	06:36	05:25	04:40	04:46	05:34	06:33	07:30			06:33	14:48-15:22/34	08:27			06:33	14:48-15:22/34	08:27			06:33	14:48-15:22/34	08:27			06:33	14:48-15:22/34	08:27				
8	08:41	07:57	15:16-15:54/38	06:52	06:33	05:23	04:39	04:47	05:36	06:34	07:32			06:34	14:49-15:21/32	08:29			06:34	14:49-15:21/32	08:29			06:34	14:49-15:21/32	08:29			06:34	14:49-15:21/32	08:29				
9	08:40	07:55	15:16-15:54/38	06:50	06:31	05:21	04:39	04:48	05:38	06:36	07:33			06:36	14:50-15:21/31	08:30			06:36	14:50-15:21/31	08:30			06:36	14:50-15:21/31	08:30			06:36	14:50-15:21/31	08:30				
10	08:40	07:53	15:17-15:55/38	06:47	06:28	05:19	04:38	04:49	05:40	06:38	07:35			06:38	14:51-15:20/29	08:31			06:38	14:51-15:20/29	08:31			06:38	14:51-15:20/29	08:31			06:38	14:51-15:20/29	08:31				
11	08:39	07:51	15:17-15:55/38	06:45	06:26	05:17	04:37	04:50	05:42	06:40	07:37			06:40	14:52-15:18/26	08:32			06:40	14:52-15:18/26	08:32			06:40	14:52-15:18/26	08:32			06:40	14:52-15:18/26	08:32				
12	08:38	07:49	15:16-15:54/38	06:42	06:23	05:15	04:37	04:52	05:43	06:42	07:39			06:42	14:54-15:18/24	08:34			06:42	14:54-15:18/24	08:34			06:42	14:54-15:18/24	08:34			06:42	14:54-15:18/24	08:34				
13	08:37	07:47	15:17-15:54/37	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41			06:44	14:56-15:16/20	08:35			06:44	14:56-15:16/20	08:35			06:44	14:56-15:16/20	08:35			06:44	14:56-15:16/20	08:35				
14	08:36	07:45	15:17-15:55/38	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43			06:46	14:58-15:14/16	08:36			06:46	14:58-15:14/16	08:36			06:46	14:58-15:14/16	08:36			06:46	14:58-15:14/16	08:36				
15	08:35	07:42	15:17-15:53/36	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45			06:48	15:01-15:11/10	08:37			06:48	15:01-15:11/10	08:37			06:48	15:01-15:11/10	08:37			06:48	15:01-15:11/10	08:37				
16	08:34	07:40	15:18-15:53/35	06:32	06:13	05:08	04:36	04:57	05:51	06:49	07:47			06:49	15:01-15:11/10	08:38			06:49	15:01-15:11/10	08:38			06:49	15:01-15:11/10	08:38			06:49	15:01-15:11/10	08:38				
17	08:33	07:38	15:19-15:53/34	06:30	06:11	05:06	04:36	04:58	05:53	06:51	07:49			06:51	15:03-16:11/8	08:40			06:51	15:03-16:11/8	08:40			06:51	15:03-16:11/8	08:40			06:51	15:03-16:11/8	08:40				
18	08:32	07:36	15:19-15:52/33	06:27	06:08	05:05	04:36	05:00	05:55	06:53	07:51			06:53	15:05-16:17/22	08:41			06:53	15:05-16:17/22	08:41			06:53	15:05-16:17/22	08:41			06:53	15:05-16:17/22	08:41				
19	08:31	07:33	15:21-15:51/30	06:24	06:06	05:03	04:36	05:01	05:57	06:55	07:53			06:55	15:05-16:17/22	08:41			06:55	15:05-16:17/22	08:41			06:55	15:05-16:17/22	08:41			06:55	15:05-16:17/22	08:41				
20	08:29	07:31	15:21-15:49/28	06:22	06:04	05:01	04:36	05:03	05:59	06:57	07:55			06:57	15:05-16:17/22	08:41			06:57	15:05-16:17/22	08:41			06:57	15:05-16:17/22	08:41			06:57	15:05-16:17/22	08:41				
21	08:28	07:29	15:23-15:48/25	06:19	06:01	05:00	04:36	05:05	06:00	06:59	07:57			06:59	15:05-16:17/22	08:41			06:59	15:05-16:17/22	08:41			06:59	15:05-16:17/22	08:41			06:59	15:05-16:17/22	08:41				
22	08:27	07:26	15:26-15:46/20	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59			07:01	15:05-16:17/22	08:42			07:01	15:05-16:17/22	08:42			07:01	15:05-16:17/22	08:42			07:01	15:05-16:17/22	08:42				
23	08:25	07:24	15:28-15:43/15	06:14	05:56	04:57	04:36	05:08	06:04	07:03	08:01			07:03	15:05-16:17/22	08:42			07:03	15:05-16:17/22	08:42			07:03	15:05-16:17/22	08:42			07:03	15:05-16:17/22	08:42				
24	08:24	07:22		06:12	05:54	04:55	04:37	05:09	06:06	07:05	08:03			07:05	15:05-16:17/22	08:43			07:05	15:05-16:17/22	08:43			07:05	15:05-16:17/22	08:43			07:05	15:05-16:17/22	08:43				
25	08:22	07:19		06:09	05:52	04:54	04:37	05:11	06:08	07:07	07:05			07:07	15:05-16:17/22	08:43			07:07	15:05-16:17/22	08:43			07:07	15:05-16:17/22	08:43			07:07	15:05-16:17/22	08:43				
26	08:21	07:17		06:06	05:49	04:52	04:37	05:13	06:10	07:08	07:08			07:08	14:47-15:23/36	08:10			07:08	14:47-15:23/36	08:10			07:08	14:47-15:23/36	08:10			07:08	14:47-15:23/36	08:10				
27	08:19	15:29-15:39/10	07:15	06:04	05:47	04:51	04:38	05:14	06:12	07:10	07:10			07:10	14:46-15:23/37	08:11			07:10	14:46-15:23/37	08:11			07:10	14:46-15:23/37	08:11			07:10	14:46-15:23/37	08:11				
28	08:17	15:26-15:42/16	07:12	06:01	05:45	04:50	04:38	05:16	06:14	07:12	07:12			07:12	14:47-15:24/37	08:13			07:12	14:47-15:24/37	08:13			07:12	14:47-15:24/37	08:13			07:12	14:47-15:24/37	08:13				
29	08:16	15:24-15:44/20	07:10	06:00	05:43	04:49	04:39	05:18	06:16	07:14	07:14			07:14	14:46-15:24/38	08:15			07:14	14:46-15:24/38	08:15			07:14	14:46-15:24/38	08:15			07:14	14:46-15:24/38	08:15				
30	08:14	15:22-15:46/24	07:08	05:58	05:40	04:47	04:40	05:20	06:17	07:16	07:16			07:16	14:46-15:24/38	08:17			07:16	14:46-15:24/38	08:17			07:16	14:46-15:24/38	08:17			07:16	14:46-15:24/38	08:17				
31	08:12	15:21-15:47/26	07:06	05:54		04:46		05:21	06:19	07:18	07:18			07:18	14:45-15:24/39	08:18			07:18	14:45-15:24/39	08:18			07:18	14:45-15:24/39	08:18			07:18	14:45-15:24/39	08:18				
Potential sun hours	242	270	366	423	501	520	521	465	383	326	253			225	0			0			0			0			0			0			0		
Sum of minutes with flicker	96	755	0	0	0	0	0	0	0	0	0			0	426			442			0			0			0			0			0		

7190_Shepherds Rig_Shadow Flicker

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Calculated:

10/03/2026 10:24/4.1.273

Calculation: Shep Rig Real Case 260310 WTG: 2 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (24)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
48	66	185	48	169	166	241	424	1,266	762	1,241	903	1,026	733	140	31	7,449

	January		February		March		April		May		June		July		August		September		October		November		December	
1	08:44	12:41-13:14/33	08:11	07:10	06:51	05:38	04:45	04:40	05:23	06:21	07:18	07:20	08:18	12:31-12:55/24										
	15:57		16:52	17:51	19:53	20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53											
2	08:44	12:41-13:14/33	08:09	07:07	06:48	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20	12:31-12:56/25										
	15:59		16:54	17:53	19:55	20:54	21:47	22:01	21:21	20:10	18:53	16:39	15:52											
3	08:43	12:42-13:14/32	08:07	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21	12:31-12:57/26										
	16:00		16:56	17:55	19:57	20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52											
4	08:43	12:42-13:14/32	08:05	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23	12:30-12:58/28										
	16:01		16:58	17:57	19:59	20:58	21:49	21:59	21:17	20:05	18:47	16:35	15:51											
5	08:43	12:43-13:14/31	08:03	07:00	06:41	05:30	04:41	04:44	05:30	06:29	07:26	07:28	08:24	12:30-12:59/29										
	16:02		17:00	17:59	20:01	21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50											
6	08:42	12:44-13:14/30	08:01	06:57	06:38	05:27	04:41	04:45	05:32	06:31	07:28	07:30	08:26	12:30-13:00/30										
	16:04		17:02	18:01	20:03	21:02	21:51	21:58	21:13	20:00	18:42	16:31	15:50											
7	08:42	12:45-13:14/29	07:59	06:55	06:36	05:25	04:40	04:46	05:34	06:33	07:30	07:32	08:27	12:30-13:01/31										
	16:05		17:04	18:03	20:05	21:03	21:53	21:57	21:11	19:57	18:40	16:29	15:49											
8	08:41	12:46-13:14/28	07:57	06:52	06:33	05:23	04:39	04:47	05:36	06:34	07:32	07:34	08:29	12:30-13:02/32										
	16:07		17:06	18:05	20:07	21:05	21:54	21:57	21:09	19:55	18:37	16:27	15:49											
9	08:40	12:47-13:13/26	07:55	06:50	06:31	05:21	04:38	04:48	05:38	06:36	07:33	07:36	08:30	12:30-13:02/32										
	16:08		17:09	18:07	20:09	21:07	21:55	21:56	21:06	19:52	18:35	16:25	15:48											
10	08:40	12:48-13:13/25	07:53	06:47	06:28	05:19	04:38	04:49	05:40	06:38	07:35	07:38	08:31	12:30-13:03/33										
	16:10		17:11	18:09	20:11	21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48											
11	08:39	12:49-13:12/23	07:51	06:45	06:26	05:17	04:37	04:50	05:42	06:40	07:37	07:40	08:32	12:31-13:04/33										
	16:11		17:13	18:11	20:13	21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48											
12	08:38	12:51-13:12/21	07:49	06:42	06:23	05:15	04:37	04:52	05:43	06:42	07:39	07:42	08:34	12:31-13:05/34										
	16:13		17:15	18:13	20:15	21:13	21:57	21:53	21:00	19:44	18:27	16:19	15:47											
13	08:37	12:53-13:11/18	07:47	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41	07:44	08:35	12:31-13:05/34										
	16:15		17:17	18:15	20:16	21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47											
14	08:36	12:55-13:10/15	07:44	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43	07:46	08:36	12:31-13:06/35										
	16:16		17:19	18:17	20:18	21:17	21:59	21:51	20:55	19:39	18:22	16:16	15:47											
15	08:35	12:58-13:08/10	07:42	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45	07:48	08:37	12:31-13:06/35										
	16:18		17:21	18:19	20:20	21:18	21:59	21:50	20:53	19:37	18:20	16:14	15:47											
16	08:34		07:40	06:32	06:13	05:08	04:36	04:57	05:51	06:49	07:47	07:50	08:38	12:32-13:07/35										
	16:20		17:24	18:21	20:22	21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47											
17	08:33		07:38	06:30	06:11	05:06	04:36	04:58	05:53	06:51	07:49	07:52	08:38	12:32-13:07/35										
	16:22		17:26	18:23	20:24	21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47											
18	08:32		07:36	06:27	06:08	05:05	04:36	05:00	05:55	06:53	07:51	07:54	08:39	12:33-13:08/35										
	16:24		17:28	18:25	20:26	21:24	22:01	21:46	20:46	19:29	18:13	16:09	15:47											
19	08:31		07:33	06:24	06:06	05:03	04:36	05:01	05:57	06:55	07:53	07:56	08:40	12:32-13:08/36										
	16:25		17:30	18:27	20:28	21:25	22:01	21:44	20:44	19:26	18:10	16:08	15:48											
20	08:29		07:31	06:22	06:04	05:01	04:36	05:03	05:58	06:57	07:55	07:58	08:41	12:33-13:09/36										
	16:27		17:32	18:29	20:30	21:27	22:01	21:43	20:42	19:24	18:08	16:06	15:48											
21	08:28		07:29	06:19	06:01	05:00	04:36	05:05	06:00	06:59	07:57	08:00	08:41	12:34-13:10/36										
	16:29		17:34	18:31	20:32	21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:48											
22	08:27		07:26	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59	08:02	08:42	12:34-13:10/36										
	16:31		17:36	18:33	20:34	21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49											
23	08:25		07:24	06:14	05:56	04:57	04:36	05:08	06:04	07:03	08:01	08:04	08:42	12:35-13:11/36										
	16:33		17:38	18:35	20:36	21:32	22:02	21:38	20:34	19:16	18:01	16:02	15:49											
24	08:24		07:22	06:12	05:54	04:55	04:37	05:09	06:06	07:05	08:03	08:06	08:43	12:35-13:11/36										
	16:35		17:40	18:37	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50											
25	08:22		07:19	06:09	05:52	04:54	04:37	05:11	06:08	07:06	07:05	08:08	08:43	12:36-13:11/35										
	16:37		17:42	18:39	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51											
26	08:21		07:17	06:06	05:49	04:52	04:37	05:13	06:10	07:08	07:07	08:10	08:43	12:36-13:11/35										
	16:39		17:45	18:41	20:42	21:37	22:02	21:33	20:27	19:08	16:54	15:58	15:51											
27	08:19		07:15	06:04	05:47	04:51	04:38	05:14	06:12	07:10	07:10	08:11	12:37-12:47/10	08:44	12:37-13:12/35									
	16:41		17:47	18:43	20:44	21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52											
28	08:17		07:12	06:01	05:45	04:50	04:38	05:16	06:14	07:12	07:12	08:13	12:35-12:50/15	08:44	12:37-13:12/35									
	16:43		17:49	18:45	20:46	21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53											
29	08:16			06:59	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	12:34-12:52/18	08:44	12:38-13:12/34									
	16:45			16:47	20:48	21:41	22:02	21:28	20:20	19:00	16:47	15:55	15:54											
30	08:14			06:56	05:40	04:47	04:40	05:20	06:17	07:16	07:16	08:17	12:32-12:53/21	08:44	12:39-13:13/34									
	16:47			16:49	20:50	21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55											
31	08:12			06:54		04:46			05:21	06:19		07:18		08:44	12:39-13:13/34									
	16:50			19:51		21:44			21:25	20:15		16:43		15:56										
Potential sun hours	242		270	366	423	501	520	521	465	383	326	253	64	1024										
Sum of minutes with flicker	386	0	0	0	0	0	0	0	0	0	0	0	0	0										

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 3 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (23)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
48	66	185	48	169	166	241	424	1,266	762	1,241	903	1,026	733	140	31	7,449

	January		February		March		April		May		June		July		August		September		October		November		December	
1	08:44	14:54-15:04/10	08:11	07:10	06:51	05:38	04:45	04:40	05:23	06:21	07:18	07:20	08:18	14:38-15:03/25										
	15:57		16:52	17:51	19:53	20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53											
2	08:44	14:54-15:06/12	08:09	07:07	06:48	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20	14:38-15:03/25										
	15:59		16:54	17:53	19:55	20:54	21:47	22:01	21:21	20:10	18:53	16:39	15:53											
3	08:43	14:54-15:08/14	08:07	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21	14:39-15:04/25										
	16:00		16:56	17:55	19:57	20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52											
4	08:43	14:54-15:10/16	08:05	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23	14:39-15:02/23										
	16:01		16:58	17:57	19:59	20:58	21:49	22:00	21:17	20:05	18:48	16:35	15:51											
5	08:43	14:54-15:12/18	08:03	07:00	06:41	05:30	04:41	04:44	05:30	06:29	07:26	07:28	08:24	14:40-15:02/22										
	16:02		17:00	17:59	20:01	21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50											
6	08:42	14:55-15:15/20	08:01	06:57	06:38	05:28	04:41	04:45	05:32	06:31	07:28	07:30	08:26	14:41-15:02/21										
	16:04		17:02	18:01	20:03	21:02	21:52	21:58	21:13	20:00	18:42	16:31	15:50											
7	08:42	14:55-15:17/22	07:59	06:55	06:36	05:25	04:40	04:46	05:34	06:33	07:30	07:32	08:27	14:41-15:00/19										
	16:05		17:04	18:03	20:05	21:03	21:53	21:57	21:11	19:57	18:40	16:29	15:49											
8	08:41	14:55-15:18/23	07:57	06:52	06:33	05:23	04:39	04:47	05:36	06:34	07:32	07:34	08:29	14:42-14:59/17										
	16:07		17:07	18:05	20:07	21:05	21:54	21:57	21:09	19:55	18:37	16:27	15:49											
9	08:40	14:55-15:20/25	07:55	06:50	06:31	05:21	04:39	04:48	05:38	06:36	07:34	07:36	08:30	14:42-14:57/15										
	16:08		17:09	18:07	20:09	21:07	21:55	21:56	21:06	19:52	18:35	16:25	15:48											
10	08:40	14:55-15:20/25	07:53	06:47	06:28	05:19	04:38	04:49	05:40	06:38	07:35	07:38	08:31	14:43-14:55/12										
	16:10		17:11	18:09	20:11	21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48											
11	08:39	14:56-15:21/25	07:51	06:45	06:26	05:17	04:37	04:50	05:42	06:40	07:37	07:40	08:32	14:44-14:55/11										
	16:11		17:13	18:11	20:13	21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48											
12	08:38	14:56-15:21/25	07:49	06:42	06:23	05:16	04:37	04:52	05:43	06:42	07:39	07:42	08:34	14:44-14:54/10										
	16:13		17:15	18:13	20:15	21:13	21:57	21:53	21:00	19:44	18:27	16:19	15:47											
13	08:37	14:57-15:22/25	07:47	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41	07:45	08:35	14:45-14:53/8										
	16:15		17:17	18:15	20:17	21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47											
14	08:36	14:57-15:22/25	07:45	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43	07:47	08:36	14:45-14:52/7										
	16:16		17:19	18:17	20:19	21:17	21:59	21:51	20:56	19:39	18:22	16:16	15:47											
15	08:35	14:58-15:23/25	07:42	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45	07:49	08:37	14:46-14:52/6										
	16:18		17:21	18:19	20:20	21:18	21:59	21:50	20:53	19:37	18:20	16:14	15:47											
16	08:34	14:58-15:23/25	07:40	06:32	06:13	05:08	04:36	04:57	05:51	06:50	07:47	07:51	08:38	14:47-14:51/4										
	16:20		17:24	18:21	20:22	21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47											
17	08:33	14:59-15:23/24	07:38	06:30	06:11	05:06	04:36	04:59	05:53	06:51	07:49	07:53	08:39	14:47-14:50/3										
	16:22		17:26	18:23	20:24	21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47											
18	08:32	14:59-15:23/24	07:36	06:27	06:08	05:05	04:36	05:00	05:55	06:53	07:51	07:54	08:39	14:48-14:50/2										
	16:24		17:28	18:25	20:26	21:24	22:01	21:46	20:46	19:29	18:13	16:09	15:47											
19	08:31	15:00-15:23/23	07:33	06:24	06:06	05:03	04:36	05:01	05:57	06:55	07:53	07:56	08:40	14:48-14:50/2										
	16:26		17:30	18:27	20:28	21:25	22:01	21:44	20:44	19:26	18:10	16:08	15:48											
20	08:29	15:00-15:22/22	07:31	06:22	06:04	05:01	04:36	05:03	05:59	06:57	07:55	07:58	08:41	14:49-14:50/1										
	16:27		17:32	18:29	20:30	21:27	22:02	21:43	20:42	19:24	18:08	16:06	15:48											
21	08:28	15:02-15:23/21	07:29	06:19	06:01	05:00	04:36	05:05	06:00	06:59	07:57	08:00	08:41	14:50-14:51/1										
	16:29		17:34	18:31	20:32	21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:48											
22	08:27	15:02-15:22/20	07:26	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59	08:02	08:42	14:50-14:51/1										
	16:31		17:36	18:33	20:34	21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49											
23	08:25	15:04-15:22/18	07:24	06:14	05:56	04:57	04:36	05:08	06:04	07:03	08:01	08:04	08:42	14:51-14:52/1										
	16:33		17:38	18:35	20:36	21:32	22:02	21:38	20:35	19:16	18:01	16:02	15:49											
24	08:24	15:05-15:21/16	07:22	06:12	05:54	04:55	04:37	05:09	06:06	07:05	08:03	08:06	08:43	14:51-14:52/1										
	16:35		17:40	18:37	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50											
25	08:22	15:07-15:19/12	07:19	06:09	05:52	04:54	04:37	05:11	06:08	07:07	07:06	08:08	08:43	14:51-14:53/2										
	16:37		17:43	18:39	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51											
26	08:21	15:09-15:17/8	07:17	06:06	05:50	04:52	04:37	05:13	06:10	07:08	07:08	08:10	08:43	14:51-14:54/3										
	16:39		17:45	18:41	20:42	21:37	22:02	21:34	20:27	19:08	16:54	15:59	15:51											
27	08:19		07:15	06:04	05:47	04:51	04:38	05:14	06:12	07:10	07:10	08:11	08:44	14:52-14:55/3										
	16:41		17:47	18:43	20:44	21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52											
28	08:17		07:12	06:01	05:45	04:50	04:38	05:16	06:14	07:12	07:12	08:13	08:44	14:52-14:57/5										
	16:43		17:49	18:45	20:46	21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53											
29	08:16			06:59	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	08:44	14:52-14:59/7										
	16:45			19:47	20:48	21:41	22:02	21:28	20:20	19:00	16:47	15:55	15:54											
30	08:14			06:56	05:40	04:47	04:40	05:20	06:17	07:16	07:16	08:17	08:44	14:53-15:00/7										
	16:48			19:49	20:50	21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55											
31	08:12			06:54		04:46		05:21	06:19		07:18		08:44	14:53-15:02/9										
	16:50			19:51		21:44		21:25	20:15		16:43		15:56											
Potential sun hours	242		270	366	423	501	520	521	465	383	326	253	315	298										
Sum of minutes with flicker	523	0	0	0	0	0	0	0	0	0	0	0	315	298										

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

7190_Shepherds Rig_Shadow Flicker

10/03/2026 10:24/4.1.273

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 5 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (21)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.01	2.13	3.16	4.69	5.83	4.99	5.10	4.58	3.68	2.39	1.48	0.84

Operational time

				N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum											
				48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449											
		January	February	March	April	May	June	July	August	September	October	November	December		
1	08:44	08:11	07:10	06:51	18:42-19:03/21	05:38	04:45	04:40	05:23	06:21	07:18	07:20	08:18		
	15:58	16:52	17:51	19:53		20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53		
2	08:44	08:09	07:07	06:48	18:43-19:02/19	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20		
	15:59	16:54	17:53	19:55		20:54	21:47	22:01	21:21	20:10	18:53	16:39	15:53		
3	08:43	08:07	07:05	06:46	18:43-19:01/18	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21		
	16:00	16:56	17:55	19:57		20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52		
4	08:43	08:05	07:02	06:43	18:45-19:00/15	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23		
	16:01	16:58	17:57	19:59		20:58	21:49	21:59	21:17	20:05	18:48	16:35	15:51		
5	08:43	08:03	07:00	06:41	18:46-18:57/11	05:30	04:41	04:44	05:30	06:29	07:26	07:28	08:24		
	16:02	17:00	17:59	20:01		21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50		
6	08:42	08:01	06:57	06:38		05:28	04:41	04:45	05:32	06:31	07:28	07:30	08:26		
	16:04	17:02	18:01	20:03		21:02	21:51	21:58	21:13	20:00	18:42	16:31	15:50		
7	08:42	07:59	06:55	06:36		05:25	04:40	04:46	05:34	06:33	18:41-18:52/11	07:30	07:32	08:27	
	16:05	17:04	18:03	20:05		21:03	21:53	21:57	21:11	19:57	18:40	16:29	15:49		
8	08:41	07:57	06:52	06:33		05:23	04:39	04:47	05:36	06:34	18:39-18:54/15	07:32	07:34	08:29	
	16:07	17:07	18:05	20:07		21:05	21:54	21:57	21:09	19:55	18:37	16:27	15:49		
9	08:40	07:55	06:50	06:31		05:21	04:39	04:48	05:38	06:36	18:38-18:55/17	07:33	07:36	08:30	
	16:08	17:09	18:07	20:09		21:07	21:55	21:56	21:06	19:52	18:35	16:25	15:48		
10	08:40	07:53	06:47	06:28		05:19	04:38	04:49	05:40	06:38	18:37-18:55/18	07:35	07:38	08:31	
	16:10	17:11	18:09	20:11		21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48		
11	08:39	07:51	06:45	06:26		05:17	04:38	04:50	05:42	06:40	18:36-18:56/20	07:37	07:40	08:32	
	16:11	17:13	18:11	20:13		21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48		
12	08:38	07:49	06:42	06:23		05:16	04:37	04:52	05:43	06:42	18:28-18:56/28	07:39	07:42	08:34	
	16:13	17:15	18:13	20:15		21:13	21:57	21:53	21:00	19:44	18:27	16:19	15:47		
13	08:37	07:47	06:40	06:21		05:14	04:37	04:53	05:45	06:44	18:25-18:54/29	07:41	07:44	08:35	
	16:15	17:17	18:15	20:17		21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47		
14	08:36	07:44	06:37	06:18		05:12	04:36	04:54	05:47	06:46	18:23-18:52/29	07:43	07:47	08:36	
	16:17	17:19	18:17	20:18		21:17	21:59	21:51	20:55	19:39	18:23	16:16	15:47		
15	08:35	07:42	06:35	06:16		05:10	04:36	04:56	05:49	06:48	18:22-18:49/27	07:45	07:49	08:37	
	16:18	17:21	18:19	20:20		21:18	21:59	21:50	20:53	19:37	18:20	16:14	15:47		
16	08:34	07:40	06:32	06:13		05:08	04:36	04:57	05:51	06:50	18:21-18:47/26	07:47	07:51	08:38	
	16:20	17:24	18:21	20:22		21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47		
17	08:33	07:38	06:30	06:11		05:06	04:36	04:59	05:53	06:51	18:20-18:45/25	07:49	07:52	08:38	
	16:22	17:26	18:23	20:24		21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47		
18	08:32	07:36	06:27	06:08		05:05	04:36	05:00	05:55	06:53	18:36-18:43/7	07:51	07:54	08:39	
	16:24	17:28	18:25	20:26		21:24	22:01	21:46	20:46	19:29	18:20-18:34/14	18:13	16:09	15:48	
19	08:31	07:33	06:24	06:06		05:03	04:36	05:02	05:57	06:55	18:37-18:40/3	07:53	07:56	08:40	
	16:26	17:30	18:27	20:28		21:25	22:01	21:44	20:44	19:26	18:19-18:31/12	18:10	16:08	15:48	
20	08:29	07:31	06:22	17:37-17:39/2	06:04	05:01	04:36	05:03	05:59	06:57	18:19-18:29/10	07:55	07:58	08:41	
	16:27	17:32	18:29	20:30		21:27	22:01	21:43	20:42	19:24	18:08	16:06	15:48		
21	08:28	07:29	06:19	17:35-17:41/6	06:01	05:00	04:36	05:05	06:00	06:59	18:19-18:27/8	07:57	08:00	08:41	
	16:29	17:34	18:31	20:32		21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:49		
22	08:27	07:26	06:17	17:34-17:41/7	05:59	04:58	04:36	05:06	06:02	07:01	18:20-18:26/6	07:59	08:02	08:42	
	16:31	17:36	18:33	20:34		21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49		
23	08:25	07:24	06:14	17:33-17:43/10	05:57	04:57	04:36	05:08	06:04	07:03	18:21-18:24/3	08:01	08:04	08:42	
	16:33	17:38	18:35	20:36		21:32	22:02	21:38	20:34	19:16	18:01	16:02	15:50		
24	08:24	07:22	06:12	17:51-17:53/2	05:54	04:55	04:37	05:09	06:06	07:05	08:03	08:06	08:43		
	16:35	17:40	18:37	17:32-17:44/12	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50		
25	08:22	07:19	06:09	17:48-17:54/6	05:52	04:54	04:37	05:11	06:08	07:07	07:05	08:08	08:43		
	16:37	17:43	18:39	17:32-17:45/13	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51		
26	08:21	07:17	06:06	17:32-17:56/24	05:50	04:52	04:37	05:13	06:10	07:08	07:08	08:10	08:43		
	16:39	17:45	18:41	20:42		21:37	22:02	21:33	20:27	19:08	16:54	15:59	15:51		
27	08:19	07:15	06:04	17:32-17:57/25	05:47	04:51	04:38	05:14	06:12	07:10	07:10	08:11	08:44		
	16:41	17:47	18:43	20:44		21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52		
28	08:17	07:12	06:01	17:32-18:00/28	05:45	04:50	04:38	05:16	06:14	07:12	07:12	08:13	08:44		
	16:43	17:49	18:45	20:46		21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53		
29	08:16		06:59	18:33-19:01/28	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	08:44		
	16:45		19:47	20:48		21:41	22:02	21:28	20:20	19:00	16:47	15:55	15:54		
30	08:14		06:56	18:34-19:03/29	05:40	04:47	04:40	05:20	06:17	07:16	07:16	08:17	08:44		
	16:48		19:49	20:50		21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55		
31	08:12		06:54	18:36-19:04/28		04:46		05:21	06:19		07:18		08:44		
	16:50		19:51			21:44		21:25	20:15		16:43		15:56		
Potential sun hours	243	270	366	423	501	519	521	465	383	308	326	253	225	0	0
Sum of minutes with flicker	0	0	220	84	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 6 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (20)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:44	08:10	07:10	06:51	05:38	04:45	04:40	05:23	06:21	07:18	07:20	08:18
	15:58	16:52	17:51	19:53	20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53
2	08:44	08:09	07:07	06:48	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20
	15:59	16:54	17:53	19:55	20:54	21:47	22:00	21:21	20:10	18:53	16:39	15:53
3	08:43	08:07	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21
	16:00	16:56	17:55	19:57	20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52
4	08:43	08:05	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23
	16:01	16:58	17:57	19:59	20:58	21:49	21:59	21:17	20:05	18:48	16:35	15:51
5	08:43	08:03	07:00	06:41	05:30	04:42	04:44	05:31	06:29	07:26	07:28	08:24
	16:03	17:00	17:59	20:01	21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50
6	08:42	08:01	06:57	06:38	05:28	04:41	04:45	05:32	06:31	07:28	07:30	08:26
	16:04	17:02	18:01	20:03	21:01	21:51	21:58	21:13	20:00	18:42	16:31	15:50
7	08:42	07:59	06:55	06:36	05:26	04:40	04:46	05:34	06:33	07:30	07:32	08:27
	16:05	17:04	18:03	20:05	21:03	21:52	21:57	21:11	19:57	18:40	16:29	15:49
8	08:41	07:57	06:52	06:33	05:23	04:39	04:47	05:36	06:34	07:32	07:34	08:29
	16:07	17:07	18:05	20:07	21:05	21:54	21:57	21:09	19:55	18:37	16:27	15:49
9	08:40	07:55	06:50	06:31	05:21	04:39	04:48	05:38	06:36	07:33	07:36	08:30
	16:08	17:09	18:07	20:09	21:07	21:54	21:56	21:06	19:52	18:35	16:25	15:48
10	08:40	07:53	06:47	06:28	05:19	04:38	04:49	05:40	06:38	07:35	07:38	08:31
	16:10	17:11	18:09	20:11	21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48
11	08:39	07:51	06:45	06:26	05:18	04:38	04:51	05:42	06:40	07:37	07:40	08:32
	16:12	17:13	18:11	20:13	21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48
12	08:38	07:49	06:42	06:23	05:16	04:37	04:52	05:44	06:42	07:39	07:42	08:34
	16:13	17:15	18:13	20:15	21:13	21:57	21:53	21:00	19:44	18:27	16:19	15:47
13	08:37	07:47	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41	07:44	08:35
	16:15	17:17	18:15	20:17	21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47
14	08:36	07:44	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43	07:46	08:36
	16:17	17:19	18:17	20:18	21:16	21:58	21:51	20:55	19:39	18:23	16:16	15:47
15	08:35	07:42	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45	07:48	08:37
	16:18	17:22	18:19	20:20	21:18	21:59	21:49	20:53	19:37	18:20	16:14	15:47
16	08:34	07:40	06:32	06:13	05:08	04:36	04:57	05:51	06:50	07:47	07:50	08:38
	16:20	17:24	18:21	20:22	21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47
17	08:33	07:38	06:30	06:11	05:06	04:36	04:59	05:53	06:51	07:49	07:52	08:38
	16:22	17:26	18:23	20:24	21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47
18	08:32	07:36	06:27	06:08	05:05	04:36	05:00	05:55	06:53	07:51	07:54	08:39
	16:24	17:28	18:25	20:26	21:24	22:01	21:46	20:46	19:29	18:13	16:09	15:48
19	08:31	07:33	06:24	06:06	05:03	04:36	05:02	05:57	06:55	07:53	07:56	08:40
	16:26	17:30	18:27	20:28	21:25	22:01	21:44	20:44	19:26	18:10	16:08	15:48
20	08:29	07:31	06:22	06:04	05:01	04:36	05:03	05:59	06:57	07:55	07:58	08:41
	16:28	17:32	18:29	20:30	21:27	22:01	21:43	20:42	19:24	18:08	16:06	15:48
21	08:28	07:29	06:19	06:01	05:00	04:36	05:05	06:00	06:59	07:57	08:00	08:41
	16:29	17:34	18:31	20:32	21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:49
22	08:27	07:26	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59	08:02	08:42
	16:31	17:36	18:33	20:34	21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49
23	08:25	07:24	06:14	05:57	04:57	04:36	05:08	06:04	07:03	08:01	08:04	08:42
	16:33	17:38	18:35	20:36	21:32	22:02	21:38	20:34	19:16	18:01	16:02	15:50
24	08:24	07:22	06:12	05:54	04:55	04:37	05:09	06:06	07:05	08:03	08:06	08:43
	16:35	17:40	18:37	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50
25	08:22	07:19	06:09	05:52	04:54	04:37	05:11	06:08	07:07	07:05	08:08	08:43
	16:37	17:43	18:39	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51
26	08:21	07:17	06:06	05:50	04:53	04:37	05:13	06:10	07:08	07:08	08:10	08:43
	16:39	17:45	18:41	20:42	21:37	22:02	21:33	20:27	19:08	16:54	15:59	15:52
27	08:19	07:15	06:04	05:47	04:51	04:38	05:15	06:12	07:10	07:10	08:11	08:44
	16:41	17:47	18:43	20:44	21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52
28	08:17	07:12	06:01	05:45	04:50	04:39	05:16	06:14	07:12	07:12	08:13	08:44
	16:43	17:49	18:45	20:46	21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53
29	08:16		06:59	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	08:44
	16:46		19:47	20:48	21:41	22:02	21:28	20:20	19:00	16:48	15:55	15:54
30	08:14		06:56	05:40	04:47	04:40	05:20	06:18	07:16	07:16	08:16	08:44
	16:48		19:49	20:50	21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55
31	08:12		06:54		04:46		05:21	06:19		07:18		08:44
	16:50		19:51		21:44		21:25	20:15		16:43		15:56
Potential sun hours	243	270	366	423	501	519	521	464	383	326	253	225
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 7 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (19)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:44	08:10	07:10	06:51	05:38	04:45	04:40	05:23	06:21	07:18	07:20	08:18
	15:58	16:52	17:51	19:53	20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53
2	08:43	08:09	07:07	06:48	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20
	15:59	16:54	17:53	19:55	20:54	21:47	22:00	21:21	20:10	18:53	16:39	15:53
3	08:43	08:07	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21
	16:00	16:56	17:55	19:57	20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52
4	08:43	08:05	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23
	16:01	16:58	17:57	19:59	20:58	21:49	21:59	21:17	20:05	18:47	16:35	15:51
5	08:42	08:03	07:00	06:41	05:30	04:41	04:44	05:30	06:29	07:26	07:28	08:24
	16:03	17:00	17:59	20:01	21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50
6	08:42	08:01	06:57	06:38	05:28	04:41	04:45	05:32	06:31	07:28	07:30	08:26
	16:04	17:02	18:01	20:03	21:01	21:51	21:58	21:13	20:00	18:42	16:31	15:50
7	08:41	07:59	06:55	06:36	05:25	04:40	04:46	05:34	06:33	07:30	07:32	08:27
	16:05	17:04	18:03	20:05	21:03	21:52	21:57	21:11	19:57	18:40	16:29	15:49
8	08:41	07:57	06:52	06:33	05:23	04:39	04:47	05:36	06:34	07:31	07:34	08:29
	16:07	17:07	18:05	20:07	21:05	21:53	21:57	21:08	19:55	18:37	16:27	15:49
9	08:40	07:55	06:50	06:31	05:21	04:39	04:48	05:38	06:36	07:33	07:36	08:30
	16:08	17:09	18:07	20:09	21:07	21:54	21:56	21:06	19:52	18:35	16:25	15:48
10	08:39	07:53	06:47	06:28	05:19	04:38	04:49	05:40	06:38	07:35	07:38	08:31
	16:10	17:11	18:09	20:11	21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48
11	08:39	07:51	06:45	06:26	05:17	04:38	04:50	05:42	06:40	07:37	07:40	08:32
	16:11	17:13	18:11	20:13	21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48
12	08:38	07:49	06:42	06:23	05:16	04:37	04:52	05:43	06:42	07:39	07:42	08:33
	16:13	17:15	18:13	20:14	21:13	21:57	21:53	21:00	19:44	18:27	16:19	15:47
13	08:37	07:47	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41	07:44	08:35
	16:15	17:17	18:15	20:16	21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47
14	08:36	07:44	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43	07:46	08:36
	16:17	17:19	18:17	20:18	21:16	21:58	21:51	20:55	19:39	18:22	16:16	15:47
15	08:35	07:42	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45	07:48	08:37
	16:18	17:21	18:19	20:20	21:18	21:59	21:49	20:53	19:36	18:20	16:14	15:47
16	08:34	07:40	06:32	06:13	05:08	04:36	04:57	05:51	06:49	07:47	07:50	08:37
	16:20	17:24	18:21	20:22	21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47
17	08:33	07:38	06:30	06:11	05:06	04:36	04:59	05:53	06:51	07:49	07:52	08:38
	16:22	17:26	18:23	20:24	21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47
18	08:32	07:36	06:27	06:08	05:05	04:36	05:00	05:55	06:53	07:51	07:54	08:39
	16:24	17:28	18:25	20:26	21:24	22:01	21:46	20:46	19:29	18:13	16:09	15:48
19	08:30	07:33	06:24	06:06	05:03	04:36	05:02	05:57	06:55	07:53	07:56	08:40
	16:26	17:30	18:27	20:28	21:25	22:01	21:44	20:44	19:26	18:10	16:08	15:48
20	08:29	07:31	06:22	06:04	05:01	04:36	05:03	05:59	06:57	07:55	07:58	08:41
	16:27	17:32	18:29	20:30	21:27	22:01	21:43	20:42	19:24	18:08	16:06	15:48
21	08:28	07:29	06:19	06:01	05:00	04:36	05:05	06:00	06:59	07:57	08:00	08:41
	16:29	17:34	18:31	20:32	21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:49
22	08:26	07:26	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59	08:02	08:42
	16:31	17:36	18:33	20:34	21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49
23	08:25	07:24	06:14	05:56	04:57	04:36	05:08	06:04	07:03	08:01	08:04	08:42
	16:33	17:38	18:35	20:36	21:32	22:02	21:38	20:34	19:16	18:01	16:02	15:50
24	08:24	07:22	06:12	05:54	04:55	04:37	05:09	06:06	07:05	08:03	08:06	08:43
	16:35	17:40	18:37	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50
25	08:22	07:19	06:09	05:52	04:54	04:37	05:11	06:08	07:06	07:05	08:08	08:43
	16:37	17:43	18:39	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51
26	08:21	07:17	06:06	05:50	04:52	04:37	05:13	06:10	07:08	07:07	08:09	08:43
	16:39	17:45	18:41	20:42	21:37	22:02	21:33	20:27	19:08	16:54	15:59	15:52
27	08:19	07:14	06:04	05:47	04:51	04:38	05:14	06:12	07:10	07:09	08:11	08:44
	16:41	17:47	18:43	20:44	21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52
28	08:17	07:12	06:01	05:45	04:50	04:38	05:16	06:14	07:12	07:12	08:13	08:44
	16:43	17:49	18:45	20:46	21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53
29	08:16		06:59	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	08:44
	16:45		19:47	20:48	21:41	22:01	21:28	20:20	19:00	16:47	15:55	15:54
30	08:14		06:56	05:40	04:47	04:40	05:20	06:17	07:16	07:16	08:16	08:44
	16:48		19:49	20:50	21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55
31	08:12		06:54		04:46		05:21	06:19		07:18		08:44
	16:50		19:51		21:44		21:24	20:15		16:43		15:56
Potential sun hours	243	270	366	423	501	519	521	464	383	326	253	225
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 8 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (18)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:44	08:10	07:10	06:51	05:38	04:45	04:41	05:23	06:21	07:18	07:20	08:18
	15:58	16:52	17:51	19:53	20:52	21:45	22:01	21:23	20:12	18:55	16:41	15:53
2	08:43	08:09	07:07	06:49	05:36	04:44	04:41	05:25	06:23	07:20	07:22	08:20
	15:59	16:54	17:53	19:55	20:54	21:47	22:00	21:21	20:10	18:53	16:39	15:53
3	08:43	08:07	07:05	06:46	05:34	04:43	04:42	05:27	06:25	07:22	07:24	08:21
	16:00	16:56	17:55	19:57	20:56	21:48	22:00	21:19	20:07	18:50	16:37	15:52
4	08:43	08:05	07:02	06:43	05:32	04:42	04:43	05:29	06:27	07:24	07:26	08:23
	16:01	16:58	17:57	19:59	20:58	21:49	21:59	21:17	20:05	18:48	16:35	15:51
5	08:42	08:03	07:00	06:41	05:30	04:42	04:44	05:31	06:29	07:26	07:28	08:24
	16:03	17:00	17:59	20:01	21:00	21:50	21:59	21:15	20:02	18:45	16:33	15:50
6	08:42	08:01	06:57	06:38	05:28	04:41	04:45	05:32	06:31	07:28	07:30	08:26
	16:04	17:02	18:01	20:03	21:01	21:51	21:58	21:13	20:00	18:42	16:31	15:50
7	08:42	07:59	06:55	06:36	05:26	04:40	04:46	05:34	06:33	07:30	07:32	08:27
	16:05	17:05	18:03	20:05	21:03	21:52	21:57	21:11	19:57	18:40	16:29	15:49
8	08:41	07:57	06:52	06:33	05:24	04:39	04:47	05:36	06:35	07:32	07:34	08:29
	16:07	17:07	18:05	20:07	21:05	21:53	21:57	21:09	19:55	18:37	16:27	15:49
9	08:40	07:55	06:50	06:31	05:21	04:39	04:48	05:38	06:36	07:33	07:36	08:30
	16:08	17:09	18:07	20:09	21:07	21:54	21:56	21:06	19:52	18:35	16:25	15:48
10	08:40	07:53	06:47	06:28	05:20	04:38	04:49	05:40	06:38	07:35	07:38	08:31
	16:10	17:11	18:09	20:11	21:09	21:55	21:55	21:04	19:49	18:32	16:23	15:48
11	08:39	07:51	06:45	06:26	05:18	04:38	04:51	05:42	06:40	07:37	07:40	08:32
	16:12	17:13	18:11	20:13	21:11	21:56	21:54	21:02	19:47	18:30	16:21	15:48
12	08:38	07:49	06:42	06:23	05:16	04:37	04:52	05:44	06:42	07:39	07:42	08:34
	16:13	17:15	18:13	20:15	21:13	21:57	21:53	21:00	19:44	18:27	16:20	15:48
13	08:37	07:47	06:40	06:21	05:14	04:37	04:53	05:45	06:44	07:41	07:44	08:35
	16:15	17:17	18:15	20:17	21:15	21:58	21:52	20:58	19:42	18:25	16:18	15:47
14	08:36	07:44	06:37	06:18	05:12	04:36	04:54	05:47	06:46	07:43	07:46	08:36
	16:17	17:19	18:17	20:18	21:16	21:58	21:51	20:55	19:39	18:23	16:16	15:47
15	08:35	07:42	06:35	06:16	05:10	04:36	04:56	05:49	06:48	07:45	07:48	08:37
	16:18	17:22	18:19	20:20	21:18	21:59	21:49	20:53	19:37	18:20	16:14	15:47
16	08:34	07:40	06:32	06:13	05:08	04:36	04:57	05:51	06:50	07:47	07:50	08:38
	16:20	17:24	18:21	20:22	21:20	22:00	21:48	20:51	19:34	18:18	16:13	15:47
17	08:33	07:38	06:30	06:11	05:07	04:36	04:59	05:53	06:51	07:49	07:52	08:38
	16:22	17:26	18:23	20:24	21:22	22:00	21:47	20:49	19:31	18:15	16:11	15:47
18	08:32	07:36	06:27	06:09	05:05	04:36	05:00	05:55	06:53	07:51	07:54	08:39
	16:24	17:28	18:25	20:26	21:24	22:01	21:46	20:46	19:29	18:13	16:09	15:48
19	08:31	07:33	06:24	06:06	05:03	04:36	05:02	05:57	06:55	07:53	07:56	08:40
	16:26	17:30	18:27	20:28	21:25	22:01	21:44	20:44	19:26	18:10	16:08	15:48
20	08:29	07:31	06:22	06:04	05:02	04:36	05:03	05:59	06:57	07:55	07:58	08:41
	16:28	17:32	18:29	20:30	21:27	22:01	21:43	20:42	19:24	18:08	16:06	15:48
21	08:28	07:29	06:19	06:01	05:00	04:36	05:05	06:01	06:59	07:57	08:00	08:41
	16:29	17:34	18:31	20:32	21:29	22:02	21:41	20:39	19:21	18:06	16:05	15:49
22	08:27	07:26	06:17	05:59	04:58	04:36	05:06	06:02	07:01	07:59	08:02	08:42
	16:31	17:36	18:33	20:34	21:30	22:02	21:40	20:37	19:18	18:03	16:04	15:49
23	08:25	07:24	06:14	05:57	04:57	04:36	05:08	06:04	07:03	08:01	08:04	08:42
	16:33	17:38	18:35	20:36	21:32	22:02	21:38	20:34	19:16	18:01	16:02	15:50
24	08:24	07:22	06:12	05:54	04:55	04:37	05:10	06:06	07:05	08:03	08:06	08:43
	16:35	17:40	18:37	20:38	21:34	22:02	21:37	20:32	19:13	17:59	16:01	15:50
25	08:22	07:19	06:09	05:52	04:54	04:37	05:11	06:08	07:07	07:05	08:08	08:43
	16:37	17:43	18:39	20:40	21:35	22:02	21:35	20:30	19:11	16:56	16:00	15:51
26	08:21	07:17	06:06	05:50	04:53	04:38	05:13	06:10	07:08	07:08	08:10	08:43
	16:39	17:45	18:41	20:42	21:37	22:02	21:33	20:27	19:08	16:54	15:59	15:52
27	08:19	07:15	06:04	05:47	04:51	04:38	05:15	06:12	07:10	07:10	08:11	08:44
	16:41	17:47	18:43	20:44	21:38	22:02	21:32	20:25	19:05	16:52	15:57	15:52
28	08:17	07:12	06:01	05:45	04:50	04:39	05:16	06:14	07:12	07:12	08:13	08:44
	16:43	17:49	18:45	20:46	21:40	22:02	21:30	20:22	19:03	16:50	15:56	15:53
29	08:16		06:59	05:43	04:49	04:39	05:18	06:16	07:14	07:14	08:15	08:44
	16:46		19:47	20:48	21:41	22:02	21:28	20:20	19:00	16:48	15:55	15:54
30	08:14		06:56	05:41	04:48	04:40	05:20	06:18	07:16	07:16	08:16	08:44
	16:48		19:49	20:50	21:43	22:01	21:26	20:17	18:58	16:45	15:54	15:55
31	08:12		06:54		04:46		05:22	06:19		07:18		08:44
	16:50		19:51		21:44		21:25	20:15		16:43		15:56
Potential sun hours	243	270	366	423	501	519	521	464	383	326	253	225
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 9 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (17)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:44 15:58	08:10 16:52	07:10 17:51	06:51 19:53	05:38 20:52	04:45 21:45	04:41 22:01	05:23 21:23	06:21 20:12	07:18 18:55	07:20 16:41	08:18 15:53
2	08:43 15:59	08:09 16:54	07:07 17:53	06:48 19:55	05:36 20:54	04:44 21:47	04:41 22:00	05:25 21:21	06:23 20:10	07:20 18:53	07:22 16:39	08:20 15:53
3	08:43 16:00	08:07 16:56	07:05 17:55	06:46 19:57	05:34 20:56	04:43 21:48	04:42 22:00	05:27 21:19	06:25 20:07	07:22 18:50	07:24 16:37	08:21 15:52
4	08:43 16:01	08:05 16:58	07:02 17:57	06:43 19:59	05:32 20:58	04:42 21:49	04:43 21:59	05:29 21:17	06:27 20:05	07:24 18:48	07:26 16:35	08:23 15:51
5	08:42 16:03	08:03 17:00	07:00 17:59	06:41 20:01	05:30 21:00	04:42 21:50	04:44 21:59	05:31 21:15	06:29 20:02	07:26 18:45	07:28 16:33	08:24 15:50
6	08:42 16:04	08:01 17:02	06:57 18:01	06:38 20:03	05:28 21:01	04:41 21:51	04:45 21:58	05:32 21:13	06:31 20:00	07:28 18:42	07:30 16:31	08:26 15:50
7	08:41 16:05	07:59 17:04	06:55 18:03	06:36 20:05	05:26 21:03	04:40 21:52	04:46 21:57	05:34 21:11	06:33 19:57	07:30 18:40	07:32 16:29	08:27 15:49
8	08:41 16:07	07:57 17:07	06:52 18:05	06:33 20:07	05:23 21:05	04:39 21:53	04:47 21:56	05:36 21:08	06:34 19:55	07:31 18:37	07:34 16:27	08:28 15:49
9	08:40 16:08	07:55 17:09	06:50 18:07	06:31 20:09	05:21 21:07	04:39 21:54	04:48 21:56	05:38 21:06	06:36 19:52	07:33 18:35	07:36 16:25	08:30 15:48
10	08:39 16:10	07:53 17:11	06:47 18:09	06:28 20:11	05:19 21:09	04:38 21:55	04:49 21:55	05:40 21:04	06:38 19:49	07:35 18:32	07:38 16:23	08:31 15:48
11	08:39 16:12	07:51 17:13	06:45 18:11	06:26 20:13	05:18 21:11	04:38 21:56	04:51 21:54	05:42 21:02	06:40 19:47	07:37 18:30	07:40 16:21	08:32 15:48
12	08:38 16:13	07:49 17:15	06:42 18:13	06:23 20:14	05:16 21:13	04:37 21:57	04:52 21:53	05:44 21:00	06:42 19:44	07:39 18:27	07:42 16:19	08:33 15:48
13	08:37 16:15	07:47 17:17	06:40 18:15	06:21 20:16	05:14 21:15	04:37 21:58	04:53 21:52	05:45 20:58	06:44 19:42	07:41 18:25	07:44 16:18	08:35 15:47
14	08:36 16:17	07:44 17:19	06:37 18:17	06:18 20:18	05:12 21:16	04:36 21:58	04:54 21:51	05:47 20:55	06:46 19:39	07:43 18:22	07:46 16:16	08:36 15:47
15	08:35 16:18	07:42 17:21	06:35 18:19	06:16 20:20	05:10 21:18	04:36 21:59	04:56 21:49	05:49 20:53	06:48 19:36	07:45 18:20	07:48 16:14	08:37 15:47
16	08:34 16:20	07:40 17:24	06:32 18:21	06:13 20:22	05:08 21:20	04:36 22:00	04:57 21:48	05:51 20:51	06:49 19:34	07:47 18:18	07:50 16:13	08:37 15:47
17	08:33 16:22	07:38 17:26	06:30 18:23	06:11 20:24	05:07 21:22	04:36 22:00	04:59 21:47	05:53 20:49	06:51 19:31	07:49 18:15	07:52 16:11	08:38 15:47
18	08:32 16:24	07:36 17:28	06:27 18:25	06:08 20:26	05:05 21:24	04:36 22:01	05:00 21:46	05:55 20:46	06:53 19:29	07:51 18:13	07:54 16:09	08:39 15:48
19	08:30 16:26	07:33 17:30	06:24 18:27	06:06 20:28	05:03 21:25	04:36 22:01	05:02 21:44	05:57 20:44	06:55 19:26	07:53 18:10	07:56 16:08	08:40 15:48
20	08:29 16:28	07:31 17:32	06:22 18:29	06:04 20:30	05:01 21:27	04:36 22:01	05:03 21:43	05:59 20:42	06:57 19:24	07:55 18:08	07:58 16:06	08:41 15:48
21	08:28 16:29	07:29 17:34	06:19 18:31	06:01 20:32	05:00 21:29	04:36 22:02	05:05 21:41	06:00 20:39	06:59 19:21	07:57 18:06	08:00 16:05	08:41 15:49
22	08:26 16:31	07:26 17:36	06:17 18:33	05:59 20:34	04:58 21:30	04:36 22:02	05:06 21:40	06:02 20:37	07:01 19:18	07:59 18:03	08:02 16:04	08:42 15:49
23	08:25 16:33	07:24 17:38	06:14 18:35	05:57 20:36	04:57 21:32	04:36 22:02	05:08 21:38	06:04 20:34	07:03 19:16	08:01 18:01	08:04 16:02	08:42 15:50
24	08:24 16:35	07:22 17:40	06:12 18:37	05:54 20:38	04:55 21:34	04:37 22:02	05:10 21:37	06:06 20:32	07:05 19:13	08:03 17:59	08:06 16:01	08:43 15:50
25	08:22 16:37	07:19 17:43	06:09 18:39	05:52 20:40	04:54 21:35	04:37 22:02	05:11 21:35	06:08 20:30	07:06 19:11	07:05 16:56	08:08 16:00	08:43 15:51
26	08:21 16:39	07:17 17:45	06:06 18:41	05:50 20:42	04:53 21:37	04:38 22:02	05:13 21:33	06:10 20:27	07:08 19:08	07:07 16:54	08:09 15:59	08:43 15:52
27	08:19 16:41	07:14 17:47	06:04 18:43	05:47 20:44	04:51 21:38	04:38 22:02	05:15 21:32	06:12 20:25	07:10 19:05	07:09 16:52	08:11 15:57	08:44 15:52
28	08:17 16:43	07:12 17:49	06:01 18:45	05:45 20:46	04:50 21:40	04:39 22:02	05:16 21:30	06:14 20:22	07:12 19:03	07:12 16:50	08:13 15:56	08:44 15:53
29	08:16 16:46		06:59 19:47	05:43 20:48	04:49 21:41	04:39 22:01	05:18 21:28	06:16 20:20	07:14 19:00	07:14 16:48	08:15 15:55	08:44 15:54
30	08:14 16:48		06:56 19:49	05:40 20:50	04:48 21:43	04:40 22:01	05:20 21:26	06:17 20:17	07:16 18:58	07:16 16:45	08:16 15:54	08:44 15:55
31	08:12 16:50		06:54 19:51		04:46 21:44		05:22 21:24	06:19 20:15		07:18 16:43		08:44 15:56
Potential sun hours	243	270	366	423	501	519	521	464	383	326	253	225
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

7190_Shepherds Rig_Shadow Flicker

SLR Consulting Limited

0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

Calculation: Shep Rig Real Case 260310 WTG: 10 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (16)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
48	66	185	48	169	166	241	424	1,266	762	1,241	903	1,026	733	140	31	7,449

		January	February	March	April	May	June	July	August	September	October	November	December			
1	08:44 15:58	08:10 16:52	07:10 17:51	06:51 19:53	05:38 20:52		04:45 21:45	06:14-06:44/30	04:41 22:01	06:22-06:48/26	05:23 21:23	06:29-06:47/18	06:21 20:12	07:18 18:55	07:20 16:41	08:18 15:54
2	08:43 15:59	08:09 16:54	07:07 17:53	06:49 19:55	05:36 20:54		04:44 21:47	06:14-06:44/30	04:41 22:00	06:23-06:48/25	05:25 21:21	06:31-06:45/14	06:23 20:10	07:20 18:53	07:22 16:39	08:20 15:53
3	08:43 16:00	08:07 16:56	07:05 17:55	06:46 19:57	05:34 20:56		04:43 21:48	06:14-06:44/30	04:42 22:00	06:22-06:48/26	05:27 21:19	06:34-06:43/9	06:25 20:07	07:22 18:50	07:24 16:37	08:21 15:52
4	08:43 16:01	08:05 16:58	07:02 17:57	06:43 19:59	05:32 20:58		04:42 21:49	06:16-06:44/28	04:43 21:59	06:22-06:49/27	05:29 21:17		06:27 20:05	07:24 18:48	07:26 16:35	08:23 15:51
5	08:42 16:03	08:03 17:00	07:00 17:59	06:41 20:01	05:30 21:00		04:42 21:50	06:16-06:44/28	04:44 21:59	06:22-06:49/27	05:31 21:15		06:29 20:02	07:26 18:45	07:28 16:33	08:24 15:50
6	08:42 16:04	08:01 17:02	06:57 18:01	06:38 20:03	05:28 21:01		04:41 21:51	06:16-06:43/27	04:45 21:58	06:22-06:50/28	05:32 21:13		06:31 20:00	07:28 18:42	07:30 16:31	08:26 15:50
7	08:41 16:05	07:59 17:05	06:55 18:03	06:36 20:05	05:26 21:03		04:40 21:52	06:17-06:44/27	04:46 21:57	06:22-06:50/28	05:34 21:11		06:33 19:57	07:30 18:40	07:32 16:29	08:27 15:49
8	08:41 16:07	07:57 17:07	06:52 18:05	06:33 20:07	05:24 21:05		04:39 21:53	06:17-06:43/26	04:47 21:57	06:22-06:51/29	05:36 21:09		06:35 19:55	07:32 18:37	07:34 16:27	08:29 15:49
9	08:40 16:08	07:55 17:09	06:50 18:07	06:31 20:09	05:22 21:07		04:39 21:54	06:18-06:44/26	04:48 21:56	06:22-06:51/29	05:38 21:06		06:36 19:52	07:33 18:35	07:36 16:25	08:30 15:48
10	08:40 16:10	07:53 17:11	06:47 18:09	06:28 20:11	05:20 21:09	06:22-06:34/12	04:38 21:55	06:17-06:43/26	04:49 21:55	06:22-06:51/29	05:40 21:04		06:38 19:49	07:35 18:32	07:38 16:23	08:31 15:48
11	08:39 16:12	07:51 17:13	06:45 18:11	06:26 20:13	05:18 21:11	06:20-06:36/16	04:38 21:56	06:18-06:44/26	04:51 21:54	06:22-06:51/29	05:42 21:02		06:40 19:47	07:37 18:30	07:40 16:21	08:32 15:48
12	08:38 16:13	07:49 17:15	06:42 18:13	06:23 20:15	05:16 21:13	06:18-06:37/19	04:37 21:57	06:19-06:44/25	04:52 21:53	06:22-06:52/30	05:44 21:00		06:42 19:44	07:39 18:27	07:42 16:20	08:33 15:48
13	08:37 16:15	07:47 17:17	06:40 18:15	06:21 20:17	05:14 21:15	06:17-06:39/22	04:37 21:58	06:19-06:43/24	04:53 21:52	06:22-06:53/31	05:45 20:58		06:44 19:42	07:41 18:25	07:44 16:18	08:35 15:47
14	08:36 16:17	07:44 17:19	06:37 18:17	06:18 20:18	05:12 21:16	06:16-06:40/24	04:37 21:58	06:19-06:43/24	04:54 21:51	06:22-06:53/31	05:47 20:55		06:46 19:39	07:43 18:23	07:46 16:16	08:36 15:47
15	08:35 16:18	07:42 17:22	06:35 18:19	06:16 20:20	05:10 21:18	06:15-06:40/25	04:36 21:59	06:20-06:44/24	04:56 21:49	06:22-06:53/31	05:49 20:53		06:48 19:37	07:45 18:20	07:48 16:14	08:37 15:47
16	08:34 16:20	07:40 17:24	06:32 18:21	06:13 20:22	05:08 21:20	06:15-06:41/26	04:36 22:00	06:20-06:44/24	04:57 21:48	06:22-06:53/31	05:51 20:51		06:50 19:34	07:47 18:18	07:50 16:13	08:38 15:47
17	08:33 16:22	07:38 17:26	06:30 18:23	06:11 20:24	05:07 21:22	06:14-06:42/28	04:36 22:00	06:20-06:44/24	04:59 21:47	06:22-06:54/32	05:53 20:49		06:51 19:31	07:49 18:15	07:52 16:11	08:38 15:47
18	08:32 16:24	07:36 17:28	06:27 18:25	06:09 20:26	05:05 21:24	06:14-06:43/29	04:36 22:01	06:21-06:44/23	05:00 21:46	06:22-06:53/31	05:55 20:46		06:53 19:29	07:51 18:13	07:54 16:10	08:39 15:48
19	08:30 16:26	07:33 17:30	06:24 18:27	06:06 20:28	05:03 21:25	06:13-06:42/29	04:36 22:01	06:21-06:44/23	05:02 21:44	06:22-06:53/31	05:57 20:44		06:55 19:26	07:53 18:10	07:56 16:08	08:40 15:48
20	08:29 16:28	07:31 17:32	06:22 18:29	06:04 20:30	05:02 21:27	06:13-06:43/30	04:36 22:01	06:21-06:44/23	05:03 21:43	06:23-06:54/31	05:59 20:42		06:57 19:24	07:55 18:08	07:58 16:07	08:41 15:48
21	08:28 16:30	07:29 17:34	06:19 18:31	06:01 20:32	05:00 21:29	06:12-06:43/31	04:36 22:02	06:21-06:44/23	05:05 21:41	06:22-06:53/31	06:01 20:39		06:59 19:21	07:57 18:06	08:00 16:05	08:41 15:49
22	08:27 16:31	07:26 17:36	06:17 18:33	05:59 20:34	04:58 21:30	06:13-06:43/30	04:36 22:02	06:21-06:44/23	05:06 21:40	06:23-06:54/31	06:02 20:37		07:01 19:18	07:59 18:03	08:02 16:04	08:42 15:49
23	08:25 16:33	07:24 17:38	06:14 18:35	05:57 20:36	04:57 21:32	06:13-06:44/31	04:36 22:02	06:22-06:45/23	05:08 21:38	06:23-06:53/30	06:04 20:34		07:03 19:16	08:01 18:01	08:04 16:02	08:42 15:50
24	08:24 16:35	07:22 17:41	06:12 18:37	05:54 20:38	04:55 21:34	06:12-06:43/31	04:37 22:02	06:22-06:45/23	05:10 21:37	06:24-06:53/29	06:06 20:32		07:05 19:13	08:03 17:59	08:06 16:01	08:43 15:50
25	08:22 16:37	07:19 17:43	06:09 18:39	05:52 20:40	04:54 21:35	06:12-06:44/32	04:37 22:02	06:22-06:45/23	05:11 21:35	06:24-06:53/29	06:08 20:30		07:07 19:11	07:05 16:56	08:08 16:00	08:43 15:51
26	08:21 16:39	07:17 17:45	06:06 18:41	05:50 20:42	04:53 21:37	06:13-06:44/31	04:38 22:02	06:22-06:46/24	05:13 21:33	06:24-06:53/29	06:10 20:27		07:08 19:08	07:08 16:54	08:09 15:59	08:43 15:52
27	08:19 16:41	07:15 17:47	06:04 18:43	05:47 20:44	04:51 21:38	06:13-06:44/31	04:38 22:02	06:22-06:46/24	05:15 21:32	06:24-06:52/28	06:12 20:25		07:10 19:05	07:10 16:52	08:11 15:58	08:44 15:52
28	08:17 16:44	07:12 17:49	06:01 18:45	05:45 20:46	04:50 21:40	06:13-06:44/31	04:39 22:02	06:22-06:46/24	05:16 21:30	06:25-06:51/26	06:14 20:22		07:12 19:03	07:12 16:50	08:13 15:56	08:44 15:53
29	08:16 16:46	07:16 17:49	06:59 18:47	05:43 20:48	04:49 21:41	06:14-06:44/30	04:39 22:01	06:23-06:47/24	05:18 21:28	06:27-06:51/24	06:16 20:20		07:14 19:00	07:14 16:48	08:15 15:55	08:44 15:54
30	08:14 16:48	07:16 17:49	06:56 18:49	05:41 20:50	04:48 21:43	06:14-06:44/30	04:40 22:01	06:22-06:47/25	05:20 21:26	06:27-06:50/23	06:18 20:17		07:16 18:58	07:16 16:45	08:16 15:54	08:44 15:55
31	08:12 16:50	07:17 19:51	06:54 19:51	05:46 21:44	04:46 21:44	06:14-06:44/30	04:46 21:24	06:28-06:49/21	05:22 20:15	06:28-06:49/21	06:19 20:15		07:18 16:43	07:18 16:43	08:17 15:56	08:44 15:56
Potential sun hours		243	270	366	423	501	519	521	464	41	383	326	253	225	0	0
Sum of minutes with flicker		0	0	0	0	598	754	883	41	0	0	0	0	0	0	0

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 11 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (15)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	January	February	March	April	May	June
1	08:44 15:58	08:10 16:52	07:10 17:51	06:51 19:53	07:43-07:55/12 20:52	05:38 19:45-19:51/6 21:45
2	08:43 15:59	08:09 16:54	07:07 17:53	06:49 19:55	07:40-07:55/15 20:54	05:36 19:42-19:54/12 21:47
3	08:43 16:00	08:07 16:56	07:05 17:55	06:46 19:57	07:39-07:56/17 20:56	05:34 19:40-19:56/16 21:48
4	08:43 16:01	08:05 16:58	07:02 17:57	06:43 19:59	07:36-07:55/19 20:58	05:32 19:38-19:57/19 21:49
5	08:42 16:03	08:03 17:00	07:00 17:59	06:41 20:01	07:34-07:56/22 21:00	05:30 19:37-19:58/21 21:50
6	08:42 16:04	08:01 17:02	06:57 18:01	06:38 20:03	07:31-07:55/24 21:01	05:28 19:36-19:59/23 21:51
7	08:41 16:05	07:59 17:05	06:55 18:03	06:36 20:05	07:32-07:54/22 21:03	05:26 19:36-19:59/23 21:52
8	08:41 16:07	07:57 17:07	06:52 18:05	06:33 20:07	07:31-07:53/22 21:05	05:24 19:35-19:59/24 21:53
9	08:40 16:08	07:55 17:09	06:50 18:07	06:31 20:09	07:32-07:52/20 21:07	05:22 19:35-20:00/25 21:54
10	08:39 16:10	07:53 17:11	06:47 18:09	06:28 20:11	07:33-07:50/17 21:09	05:20 19:35-20:00/25 21:55
11	08:39 16:12	07:51 17:13	06:45 18:11	06:26 20:13	07:34-07:49/15 21:11	05:18 19:35-20:00/25 21:56
12	08:38 16:13	07:49 17:15	06:42 18:13	06:23 20:15	07:36-07:46/10 21:13	05:16 19:34-20:00/26 21:57
13	08:37 16:15	07:47 17:17	06:40 18:15	06:21 20:16	05:14 21:15	19:35-20:00/25 21:58
14	08:36 16:17	07:44 17:19	06:37 18:17	06:18 20:18	05:12 21:16	19:35-20:00/25 21:58
15	08:35 16:18	07:42 17:22	06:35 18:19	06:16 20:20	05:10 21:18	19:35-19:59/24 21:59
16	08:34 16:20	07:40 17:24	06:32 18:21	06:13 20:22	05:08 21:20	19:36-20:00/24 22:00
17	08:33 16:22	07:38 17:26	06:30 18:23	06:11 20:24	05:07 21:22	19:36-19:59/23 22:00
18	08:32 16:24	07:36 17:28	06:27 18:25	06:09 20:26	05:05 21:24	19:37-19:59/22 22:01
19	08:30 16:26	07:33 17:30	06:24 18:27	06:06 20:28	05:03 21:25	19:37-19:58/21 22:01
20	08:29 16:28	07:31 17:32	06:22 18:29	06:04 20:30	05:02 21:27	19:38-19:58/20 22:01
21	08:28 16:30	07:29 17:34	06:19 18:31	06:01 20:32	05:00 21:29	19:39-19:56/17 22:02
22	08:26 16:31	07:26 17:36	06:17 18:33	05:59 20:34	04:58 21:30	19:40-19:56/16 22:02
23	08:25 16:33	07:24 17:38	06:14 18:35	05:57 20:36	04:57 21:32	19:42-19:55/13 22:02
24	08:24 16:35	07:22 17:40	06:12 18:37	05:54 20:38	04:55 21:34	19:42-19:53/11 22:02
25	08:22 16:37	07:19 17:43	06:09 18:39	05:52 20:40	04:54 21:35	19:45-19:51/6 22:02
26	08:21 16:39	07:17 17:45	06:06 18:41	05:50 20:42	04:53 21:37	04:38 22:02
27	08:19 16:41	07:14 17:47	06:04 18:43	05:47 20:44	04:51 21:38	04:38 22:02
28	08:17 16:44	07:12 17:49	06:01 18:45	05:45 20:46	04:50 21:40	04:39 22:02
29	08:16 16:46		06:59 19:47	07:49-07:50/1 20:48	04:49 21:41	04:39 22:01
30	08:14 16:48		06:56 19:49	07:47-07:53/6 20:50	04:48 21:43	04:40 22:01
31	08:12 16:50		06:54 19:51	07:45-07:54/9 21:44	04:46 21:44	
Potential sun hours	243	270	366	423	501	519
Sum of minutes with flicker	0	0	16	215	492	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited
The Tun, 4 Jackson's Entry
GB-EDINBURGH EH8 8PJ
0044 330 088 6631

Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG

Calculation: Shep Rig Real Case 260310 WTG: 11 - NORDEX N163/6.X 6800 163.0 !O! hub: 138.5 m (TOT: 220.0 m) (15)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.01 2.13 3.16 4.69 5.83 4.99 5.10 4.58 3.68 2.39 1.48 0.84

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
48 66 185 48 169 166 241 424 1,266 762 1,241 903 1,026 733 140 31 7,449

	July	August	September	October	November	December
1	04:41 22:01	05:23 19:45-20:10/25 21:23	06:21 07:33-07:48/15 20:12	07:18 18:55	07:20 16:41	08:18 15:54
2	04:41 22:00	05:25 19:45-20:10/25 21:21	06:23 07:32-07:49/17 20:10	07:20 18:53	07:22 16:39	08:20 15:53
3	04:42 22:00	05:27 19:45-20:11/26 21:19	06:25 07:29-07:49/20 20:07	07:22 18:50	07:24 16:37	08:21 15:52
4	04:43 21:59	05:29 19:45-20:10/25 21:17	06:27 07:28-07:50/22 20:05	07:24 18:48	07:26 16:35	08:23 15:51
5	04:44 21:59	05:31 19:46-20:09/23 21:15	06:29 07:28-07:50/22 20:02	07:26 18:45	07:28 16:33	08:24 15:50
6	04:45 21:58	05:32 19:46-20:09/23 21:13	06:31 07:27-07:51/24 20:00	07:28 18:42	07:30 16:31	08:26 15:50
7	04:46 21:57	05:34 19:46-20:08/22 21:11	06:33 07:29-07:51/22 19:57	07:30 18:40	07:32 16:29	08:27 15:49
8	04:47 21:56	05:36 19:47-20:07/20 21:08	06:35 07:30-07:49/19 19:55	07:32 18:37	07:34 16:27	08:28 15:49
9	04:48 21:56	05:38 19:48-20:06/18 21:06	06:36 07:32-07:49/17 19:52	07:33 18:35	07:36 16:25	08:30 15:48
10	04:49 21:55	05:40 19:50-20:05/15 21:04	06:38 07:33-07:48/15 19:49	07:35 18:32	07:38 16:23	08:31 15:48
11	04:51 21:54	05:42 19:51-20:02/11 21:02	06:40 07:35-07:47/12 19:47	07:37 18:30	07:40 16:21	08:32 15:48
12	04:52 21:53	05:44 21:00	06:42 07:37-07:46/9 19:44	07:39 18:27	07:42 16:20	08:33 15:48
13	04:53 21:52	05:45 20:58	06:44 07:38-07:45/7 19:42	07:41 18:25	07:44 16:18	08:35 15:47
14	04:54 21:51	05:47 20:55	06:46 07:39-07:41/2 19:39	07:43 18:23	07:46 16:16	08:36 15:47
15	04:56 21:49	05:49 20:53	06:48 19:37	07:45 18:20	07:48 16:14	08:37 15:47
16	04:57 21:48	05:51 20:51	06:50 19:34	07:47 18:18	07:50 16:13	08:37 15:47
17	04:59 21:47	05:53 20:49	06:51 19:31	07:49 18:15	07:52 16:11	08:38 15:47
18	05:00 21:46	05:55 20:46	06:53 19:29	07:51 18:13	07:54 16:10	08:39 15:48
19	05:02 19:53-20:02/9 21:44	05:57 20:44	06:55 19:26	07:53 18:10	07:56 16:08	08:40 15:48
20	05:03 19:52-20:04/12 21:43	05:59 20:42	06:57 19:24	07:55 18:08	07:58 16:07	08:41 15:48
21	05:05 19:50-20:05/15 21:41	06:01 20:39	06:59 19:21	07:57 18:06	08:00 16:05	08:41 15:49
22	05:06 19:50-20:07/17 21:40	06:02 20:37	07:01 19:18	07:59 18:03	08:02 16:04	08:42 15:49
23	05:08 19:49-20:07/18 21:38	06:04 20:34	07:03 19:16	08:01 18:01	08:04 16:02	08:42 15:50
24	05:10 19:48-20:08/20 21:37	06:06 20:32	07:05 19:13	08:03 17:59	08:06 16:01	08:43 15:50
25	05:11 19:47-20:08/21 21:35	06:08 20:30	07:07 19:11	07:05 16:56	08:08 16:00	08:43 15:51
26	05:13 19:47-20:09/22 21:33	06:10 20:27	07:08 19:08	07:07 16:54	08:09 15:59	08:43 15:52
27	05:15 19:46-20:09/23 21:32	06:12 20:25	07:10 19:05	07:10 16:52	08:11 15:58	08:44 15:52
28	05:16 19:46-20:10/24 21:30	06:14 20:22	07:12 19:03	07:12 16:50	08:13 15:56	08:44 15:53
29	05:18 19:45-20:10/25 21:28	06:16 20:20	07:14 19:00	07:14 16:48	08:15 15:55	08:44 15:54
30	05:20 19:45-20:10/25 21:26	06:18 20:17	07:16 18:58	07:16 16:45	08:16 15:54	08:44 15:55
31	05:22 19:45-20:11/26 21:24	06:19 07:35-07:46/11 20:15		07:18 16:43		08:44 15:56
Potential sun hours	521	464	383	326	253	225
Sum of minutes with flicker	257	244	223	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

GB-EDINBURGH EH8 8PJ

0044 330 088 6631

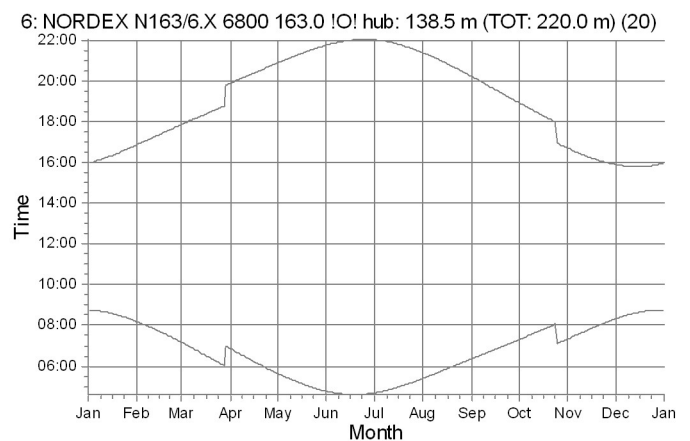
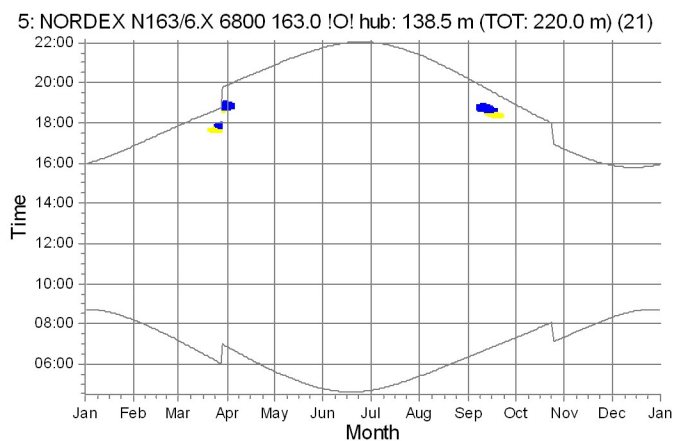
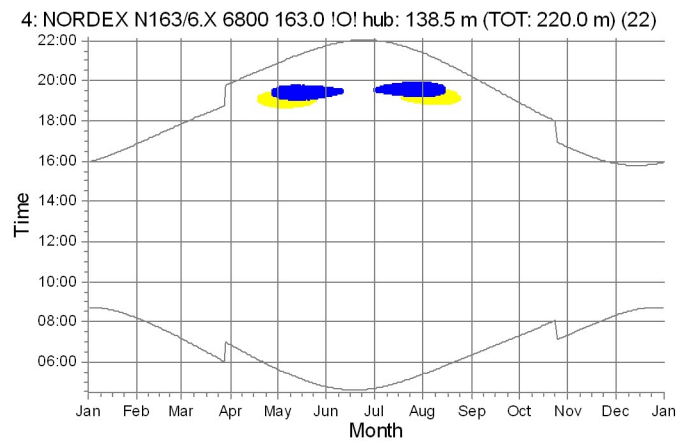
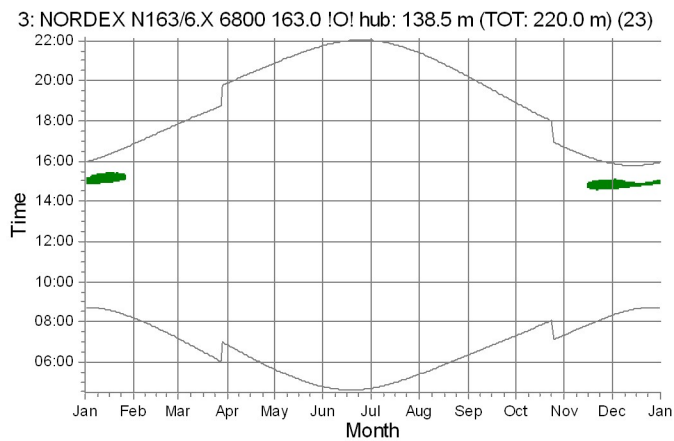
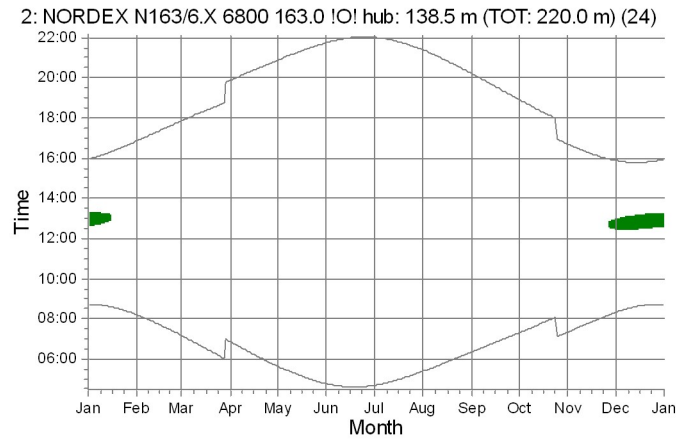
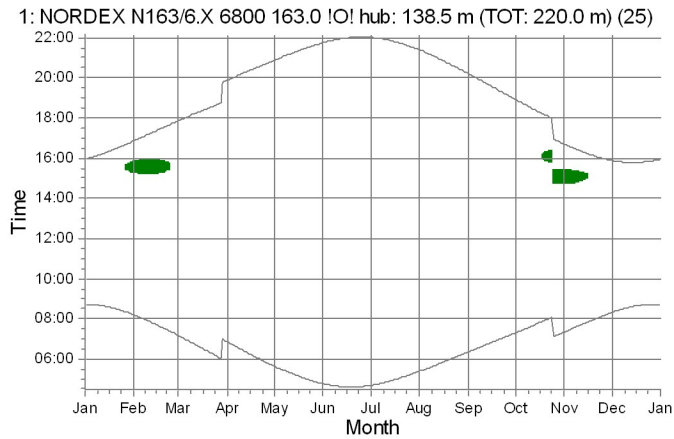
Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG, graphical

Calculation: Shep Rig Real Case 260310



Shadow receptors



A: Shadow Receptor: 1.0 × 1.0 Azimuth: 19.6° Slope: 90.0° (1)

B: Shadow Receptor: 1.0 × 1.0 Azimuth: 77.2° Slope: 90.0° (2)

C: Shadow Receptor: 1.0 × 1.0 Azimuth: 98.3° Slope: 90.0° (3)

Project:

7190_Shepherds Rig_Shadow Flicker

Licensed user:

SLR Consulting Limited

The Tun, 4 Jackson's Entry

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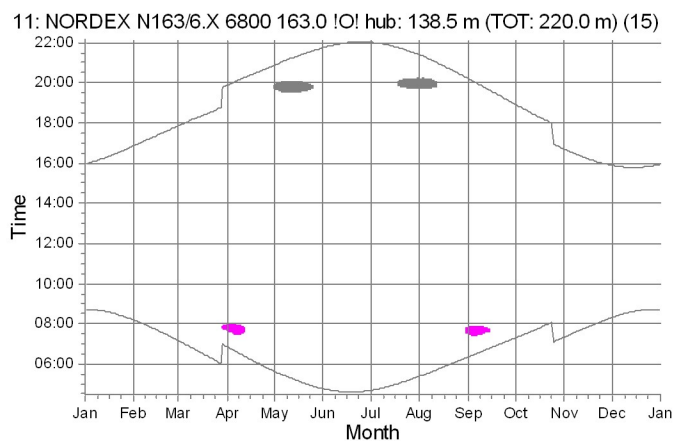
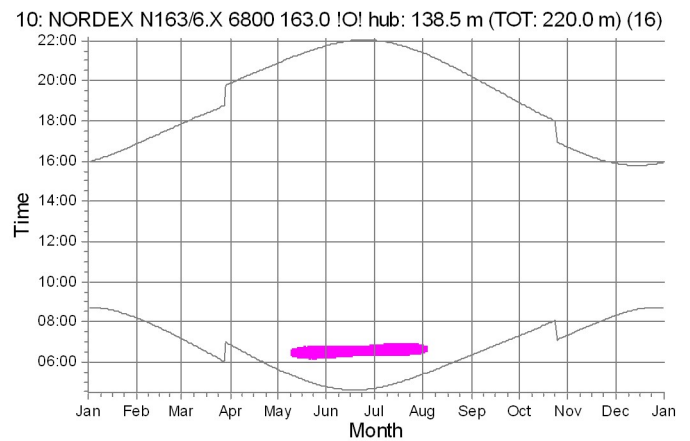
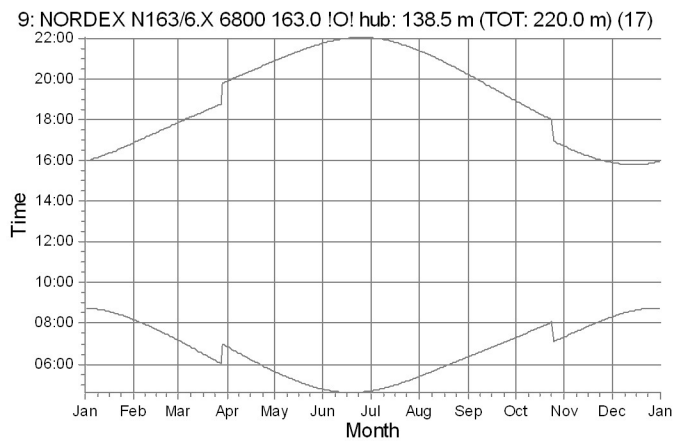
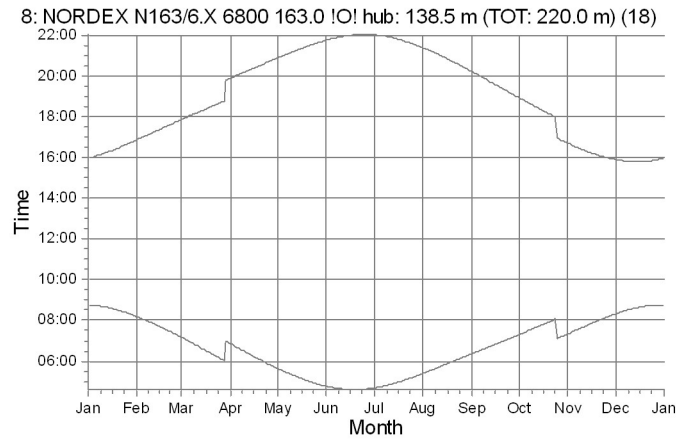
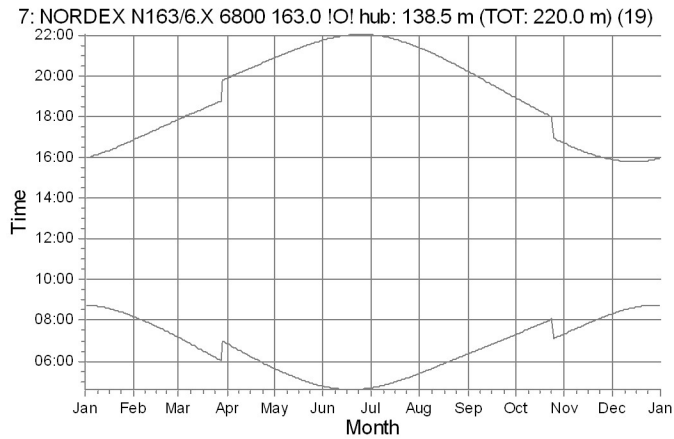
Andrew Robertson / andrew.robertson@slrconsulting.com

Calculated:

10/03/2026 10:24/4.1.273

SHADOW - Calendar per WTG, graphical

Calculation: Shep Rig Real Case 260310



Shadow receptors

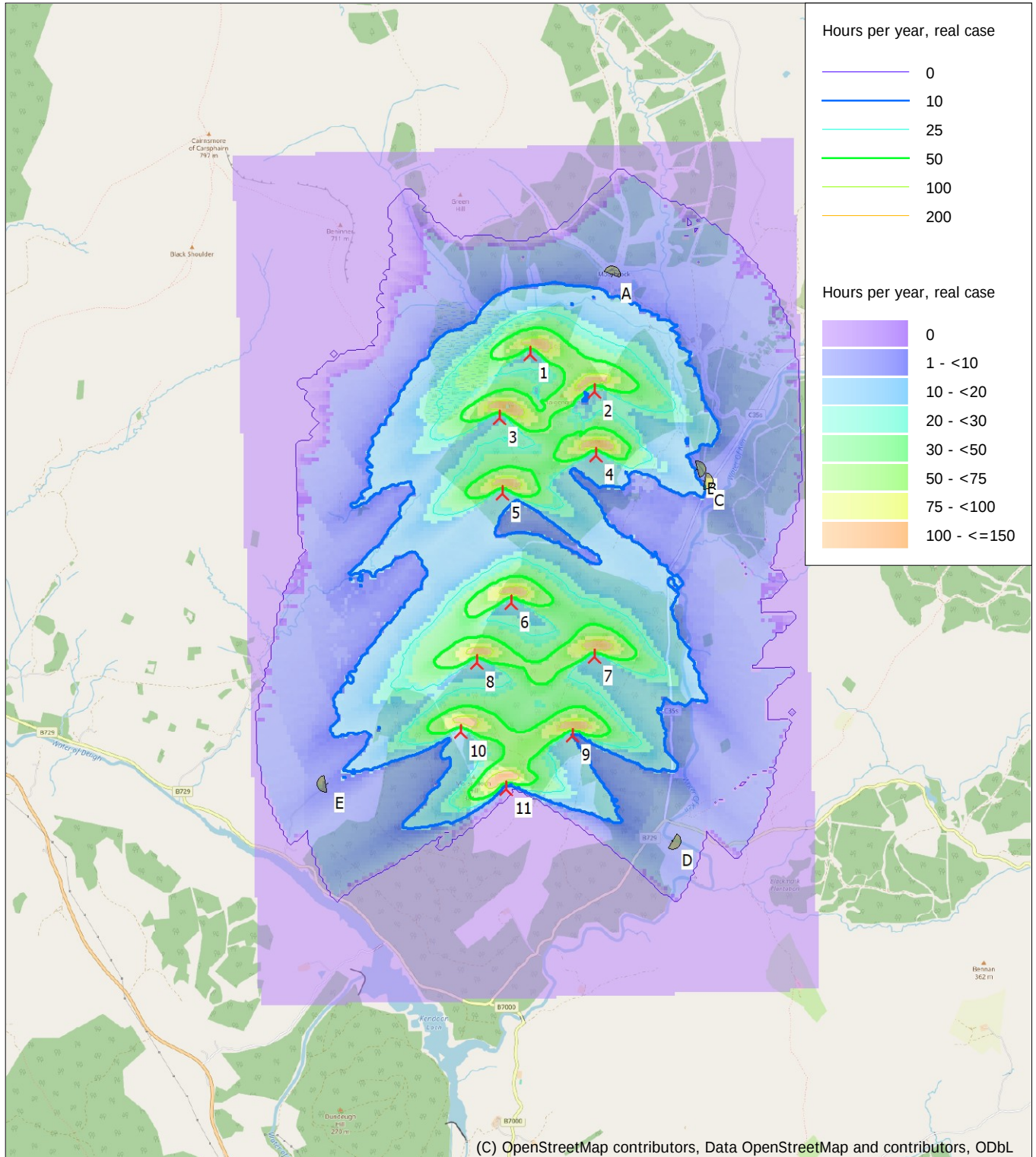


D: Shadow Receptor: 1.0 × 1.0 Azimuth: 119.9° Slope: 90.0° (4)

E: Shadow Receptor: 1.0 × 1.0 Azimuth: -99.1° Slope: 90.0° (5)

SHADOW - Map

Calculation: Shep Rig Real Case 260310



Map: EMD OpenStreetMap, Print scale 1:50,000, Map center British TM-OSGB36/Airy (GB/IE) East: 262,110 North: 594,090
 New WTG Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (UK - Scotland Elevation Model (LIDAR) - 2020 - 5m grid)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m