PAGERPOWER
Urban & Renewables

Addendum – Road Receptors

Lewdown Holdings Limited

Heathrow Garden Centre

April 2024





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ADMINISTRATION PAGE

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Issue	Date	Detail of Changes
1	April 2024	Initial issue
2	April 2024	Minor updates

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EXECUTIVE SUMMARY

Purpose of this Addendum

Pager Power has been retained to assess the possible effects of glint and glare from a rooftop solar development located in Sipson, London, UK. This document forms an addendum to the previously completed Glint and Glare Assessment (12998A) in which additional modelling has been undertaken to include assessment of the nearby M4.

Background

In the initial glint and glare assessment only existing aviation receptors were assessed. This addendum adds road receptors along the nearby section of the M4.

Conclusions

Solar reflections are geometrically possible towards 20 of the 46 assessed road receptors.

For a short section of the M4, solar reflections are geometrically possible outside a road user's primary field-of-view (50° either side of the direction of travel) and no significant relevant screening has been identified. A low impact is predicted and no mitigation is recommended.

For the remaining sections of road, screening in the form of existing and proposed vegetation has been identified which is predicted to significantly obstruct views of reflecting panels. No impact is predicted, and no mitigation is required.

IDENTIFICATION OF RECEPTORS

Road Receptors

Road Receptors Overview

Road types can generally be categorised as:

- Major National – Typically a road with a minimum of two carriageways with a maximum speed limit of up to 70mph. These roads typically have fast moving vehicles with busy traffic;
- National – Typically a road with one or more carriageways with a maximum speed limit 60mph or 70mph. These roads typically have fast moving vehicles with moderate to busy traffic density;
- Regional – Typically a single carriageway with a maximum speed limit of up to 60mph. The speed of vehicles will vary with a typical traffic density of low to moderate;
- Local – Typically roads and lanes with the lowest traffic densities. Speed limits vary.

Technical modelling is not recommended for local roads, where traffic densities are likely to be relatively low. Any solar reflections from the proposed development that are experienced by a road user along a local road would be considered low impact in the worst case in accordance with the guidance presented in Appendix D. The analysis has therefore considered major national, national, and regional roads that:

- Are within the one-kilometre assessment area;
- Have a potential view of the panels.

Identified Road Receptors

A section of the M4 has been identified within the 1km assessment area. Receptors 1 to 46 are placed circa 100m apart along this section of road. A height of 1.5 metres above ground level has been taken as the typical eye level of a road user[1]. Figure 1, on the following page, shows the assessed road receptors.

[1] This fixed height for the road receptors is for modelling purposes. Changes to the modelling height by a few metres is not expected to significantly change the modelling results. Views for elevated drivers are also considered in the results discussion, where appropriate.

Figure 1 *Road receptors 1 to 46*

GEOMETRIC ASSESSMENT RESULTS

Dwelling Receptor Results

Results Discussion

The modelling has shown that solar reflections are geometrically possible towards 20 of the 46 assessed proposed dwellings. Table 1 below summarises the predicted impact at these receptors.

Road Receptor	Geometric Modelling Results (screening not considered)	Identified Screening and Predicted Visibility (desk-based review)	Whether reflections occur inside a road user's primary FOV (with consideration of screening)[2]	Mitigating Factors	Predicted Impact Classification	Mitigation Recommended/Required?
1 – 10, 14 – 15, 23 – 27, 38 – 46	Solar reflections are **not geometrically possible**	N/A	N/A	N/A	No impact	No

[2] Assessment scenario may include an initial conservative qualitative consideration of screening. The reflecting area of the solar development may be partially screened such that it does not meet the key criteria i.e. whether the solar reflection occurs within a road users' main field of view.

Road Receptor	Geometric Modelling Results (screening not considered)	Identified Screening and Predicted Visibility (desk-based review)	Whether reflections occur inside a road user's primary FOV (with consideration of screening)[2]	Mitigating Factors	Predicted Impact Classification	Mitigation Recommended/Required?
11, 37	Solar reflections are **geometrically possible** Solar reflections occur **outside** a road user's primary FOV	None identified	Solar reflections occur **outside** a road user's primary FOV	N/A	Low impact	No
12 – 13, 16 – 22, 36	Solar reflections are **geometrically possible** Solar reflections occur **outside** a road user's primary FOV	Existing and proposed vegetation Predicted to significantly obstruct views of reflecting panels such that view are **not possible** in practice.	N/A	N/A	No impact	No
28 – 35	Solar reflections are **geometrically possible** Solar reflections occur **inside** a road user's primary FOV	Existing vegetation Predicted to significantly obstruct views of reflecting panels such that view are **not possible** in practice.	N/A	N/A	No impact	No

Table 1 *Impact classification – dwelling receptors*

Desk-Based Review of Imagery

The screening identified is shown in Figures 2 to 4 on the following pages. The reflective panel area is shaded in yellow. Screening in the form of existing vegetation is outlined in green.

Figure 2 *Reflective panel area and screening for road receptors 12 to 13 and 34 to 36*

Figure 3 *Reflective panel area and screening for road receptors 16 to 22*

Figure 4 *Reflective panel area and screening for road receptors 28 to 33*

In addition to the identified existing vegetation, there is also some further vegetation proposed within the site boundary, which will further screen views from the M4. Figure 5 below shows a section of the planting plan.

Figure 5 *Proposed vegetation screening within the site boundary*

APPENDIX A – RECEPTOR DETAILS

Road Receptor Data

The road receptor data is presented in the table below. An additional 1.5m height has been added to the elevation to account for the eye-level of a road user.

No.	Longitude (°)	Latitude (°)	Assessed Height (m amsl)	No.	Longitude (°)	Latitude (°)	Assessed Height (m amsl)
1	-0.45275	51.48405	28.50	24	-0.46887	51.49486	30.65
2	-0.45270	51.48496	28.50	25	-0.47020	51.49473	29.50
3	-0.45275	51.48586	28.50	26	-0.44147	51.49455	29.50
4	-0.45291	51.48676	28.50	27	-0.44291	51.49470	29.50
5	-0.45316	51.48761	28.50	28	-0.44433	51.49485	29.50
6	-0.45347	51.48849	29.50	29	-0.44574	51.49497	29.50
7	-0.45372	51.48938	29.50	30	-0.44720	51.49507	30.50
8	-0.45387	51.49031	29.50	31	-0.44862	51.49514	30.50
9	-0.45389	51.49119	29.50	32	-0.45005	51.49520	30.50
10	-0.45382	51.49207	29.50	33	-0.45148	51.49524	30.50
11	-0.45374	51.49297	29.50	34	-0.45282	51.49500	30.50
12	-0.45365	51.49388	29.58	35	-0.45332	51.49419	30.22
13	-0.45365	51.49478	30.50	36	-0.45342	51.49333	29.50
14	-0.45463	51.49538	30.50	37	-0.45351	51.49244	29.50
15	-0.45607	51.49551	30.50	38	-0.45360	51.49153	29.50
16	-0.45747	51.49563	30.50	39	-0.45362	51.49064	29.50
17	-0.45891	51.49570	30.62	40	-0.45352	51.48973	29.50

No.	Longitude (°)	Latitude (°)	Assessed Height (m amsl)	No.	Longitude (°)	Latitude (°)	Assessed Height (m amsl)
18	-0.46036	51.49572	30.75	41	-0.45331	51.48886	29.50
19	-0.46181	51.49567	31.50	42	-0.45302	51.48797	28.54
20	-0.46325	51.49557	31.50	43	-0.45273	51.48709	28.50
21	-0.46464	51.49541	31.50	44	-0.45254	51.48621	28.50
22	-0.46606	51.49522	31.50	45	-0.45244	51.48530	28.50
23	-0.46744	51.49503	31.50	46	-0.45245	51.48441	28.50

Road receptor data

APPENDIX B – DETAILLED MODELLING RESULTS

Overview

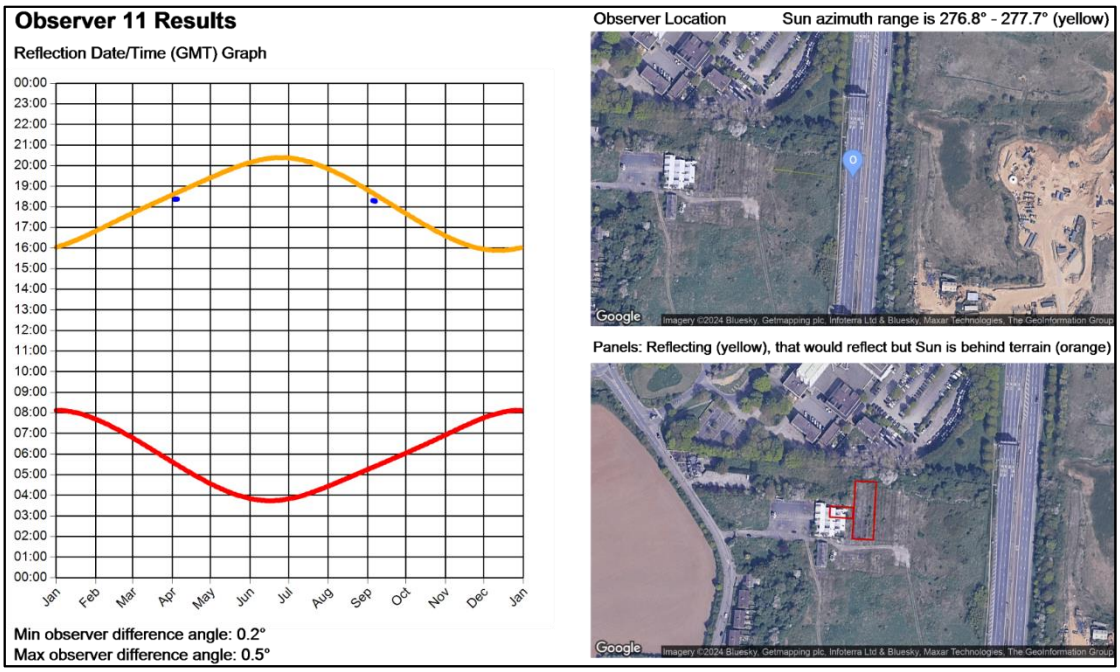
The Pager Power charts for relevant receptors are shown on the following pages. Further modelling charts can be provided upon request. Each chart shows:

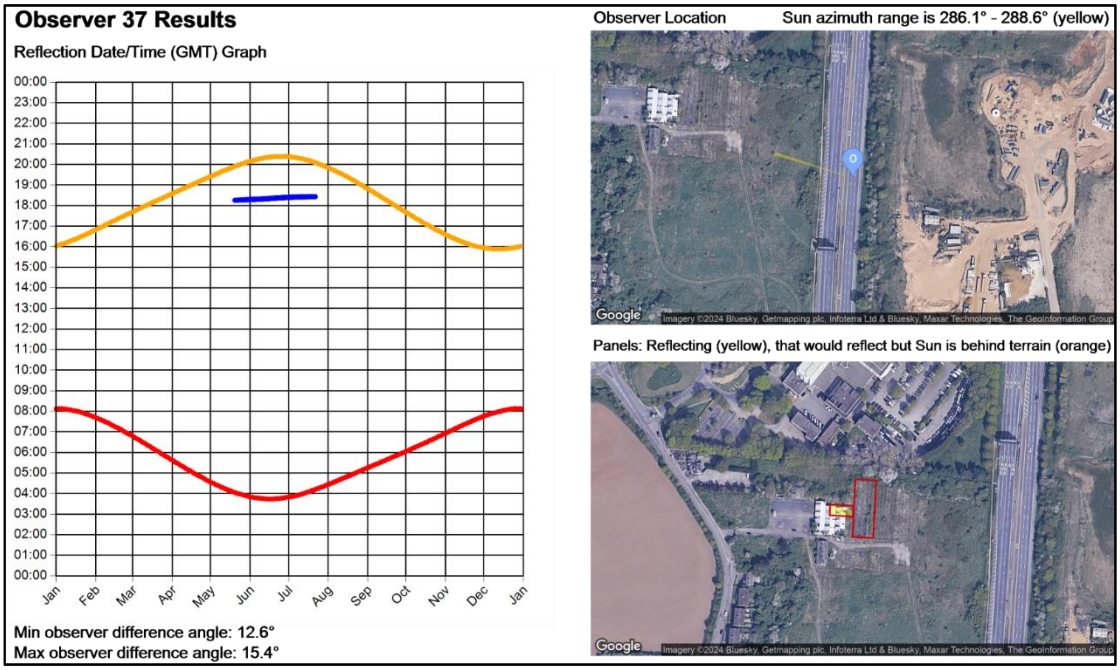
- The receptor (observer) location – top right image. This also shows the azimuth range of the Sun itself at times when reflections are possible. If sunlight is experienced from the same direction as the reflecting panels, the overall impact of the reflection is reduced as discussed within the body of the report;
- The reflecting panels – bottom right image. The reflecting area is shown in yellow. If the yellow panels are not visible from the observer location, no issues will occur in practice. Additional obstructions which may obscure the panels from view are considered separately within the analysis;
- The reflection date/time graph – left hand side of image. The blue line indicates the dates and times at which geometric reflections are possible. This relates to reflections from the yellow areas;
- The sunrise and sunset curves throughout the year (red and yellow lines).

Full modelling results can be provided upon request.

Road Receptors

Results have been included for all receptors where a low impact is predicted.




Observer 37 Results
Reflection Date/Time (GMT) Graph
00:00
23:00
22:00
21:00
20:00
19:00
18:00
17:00
16:00
15:00
14:00
13:00
12:00
11:00
10:00
09:00
08:00
07:00
06:00
05:00
04:00
03:00
02:00
01:00
00:00
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Min observer difference angle: 12.6°
Max observer difference angle: 15.4°
Observer Location
Sun azimuth range is 286.1° - 288.6° (yellow)
Google
Imagery ©2024 Bluesky, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The GeoInformation Group
Panels: Reflecting (yellow), that would reflect but Sun is behind terrain (orange)
Google
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