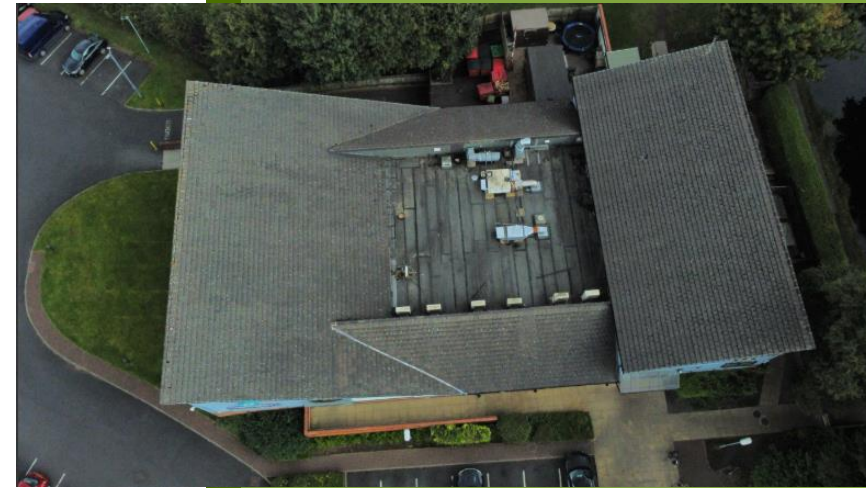


Glint and Glare Statement



Agent Address:

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Park, Loughborough Road, Bunny, NG11
6QA

Site Address:

The Sandbrook, Sandbrook Way,
Rochdale, OL11 1RY

Date: 20/03/25

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Proposal: Prior approval for installation of 61.88kW roof mounted solar PV system

Site: The Sandbrook, Sandbrook Way, Rochdale, OL11 1RY

The purpose of this statement is to investigate the potential ocular hazard to the surrounding area posed by the development.

1. Relevant Guidance:

The most comprehensive guidelines available for the assessment of solar PV developments near aerodromes have been produced by the Federal Aviation Administration (FAA), The UK Civil Aviation Authority (CAA) and the Combined Aerodrome Safeguarding Team (CAST) who are supported by the CAA. Guidance includes:

- FAA 'Technical Guidance for Evaluating Selected Solar Technologies on Airports' (November 2010)
- FAA 'Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports'. (2013)
- FAA 'Technical Guidance for Evaluating Selected Solar Technologies on Airports' version 1.1 (April 2018)
- FAA 'Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports (2021)
- CAA 'Interim CAA Guidance on Solar Photovoltaic Systems' (December 2010; withdrawn September 2012)
- Combined Aerodrome Safeguarding Team (CAST) Advice Note 1-Safeguarding an Overview (April 2024)
- Combined Aerodrome Safeguarding Team (CAST) CAST Advice Note 5-Renewable Energy Developments (Feb 2024)

2. Site:

The proposed site is 'The Sandbrook' a public house surrounded and screened by non-domestic warehouses and properties.

Figure 1: Site and surrounding area (reference: 'Google Maps')

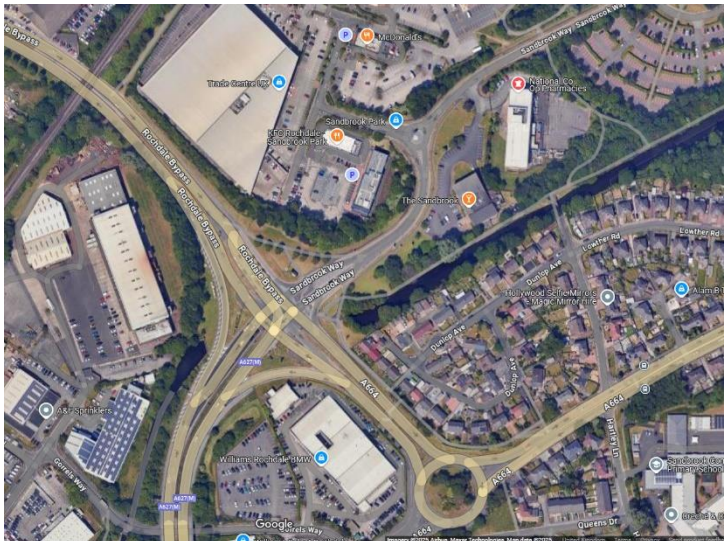


Figure 1b: Site (reference: 'Google Maps')



3. Proposal:

Geo Green Power propose to install a roof mounted 61.88W solar PV system comprising of 136 x Canadian Solar 455W modules. This would be located on the existing building 'The Sandbrook, Sandbrook Way, Rochdale, OL11 1RY'. The solar panels would be arranged across multiple roofs; 26 panels would be located on the flat roof and 110 panels would be located across the pitched roofs. The proposed solar PV location is indicated on Figure 2 below

Figure 2: Proposed solar PV layout

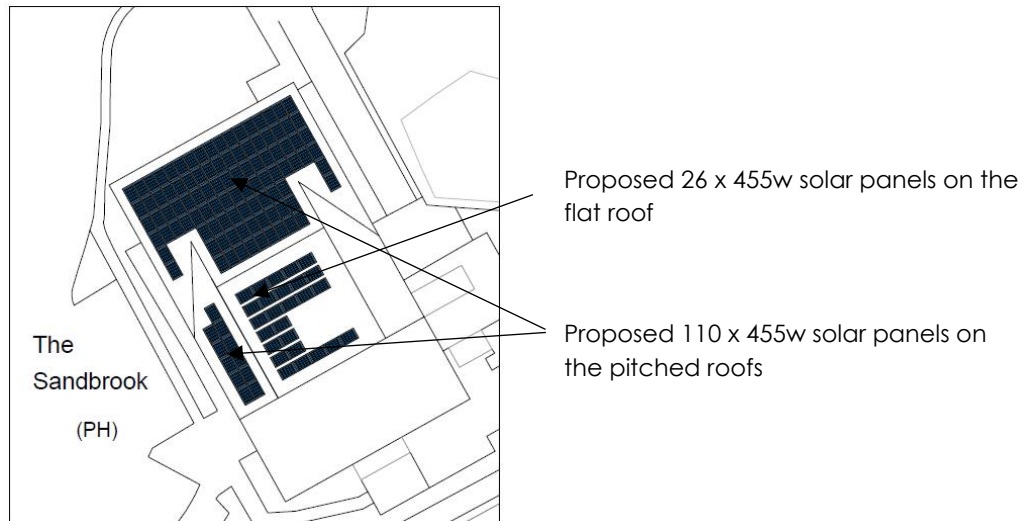


Figure 2b: Proposed solar PV layout (utilising PV*SOL software)



4. Assessment

The CAST guidance notes refer to whether solar energy generation is compatible with aviation due specifically to issues surrounding:

- Glare
- Radar interference
- Physical penetration of airspace.

4a. Glint and Glare

Reflectivity refers to light that is reflected off surfaces. The potential effects of reflectivity are glint and glare. The 'CAST Advice Note 5-Renewable Energy Developments' provides the following glint and glare definitions:

- Glint – “A momentary flash of bright light typically received by moving receptors or from moving reflectors”
- Glare-“A continuous source of bright light typically received by static receptor or from large reflective surfaces.”

These can present an ocular hazard to light sensitive receptors such as road users, train drivers, occupants of nearby dwellings, pilots, and air-traffic control personnel, as they can cause a brief loss of vision, also known as flash blindness.

4ai. Roads

The site is situated near several roads such as Rochdale Bypass (A664), A627(M), Sandbrook Way, Harlet Lane and Dunlop Avenue.

Figure 3: Nearby Roads (reference 'Google Maps')

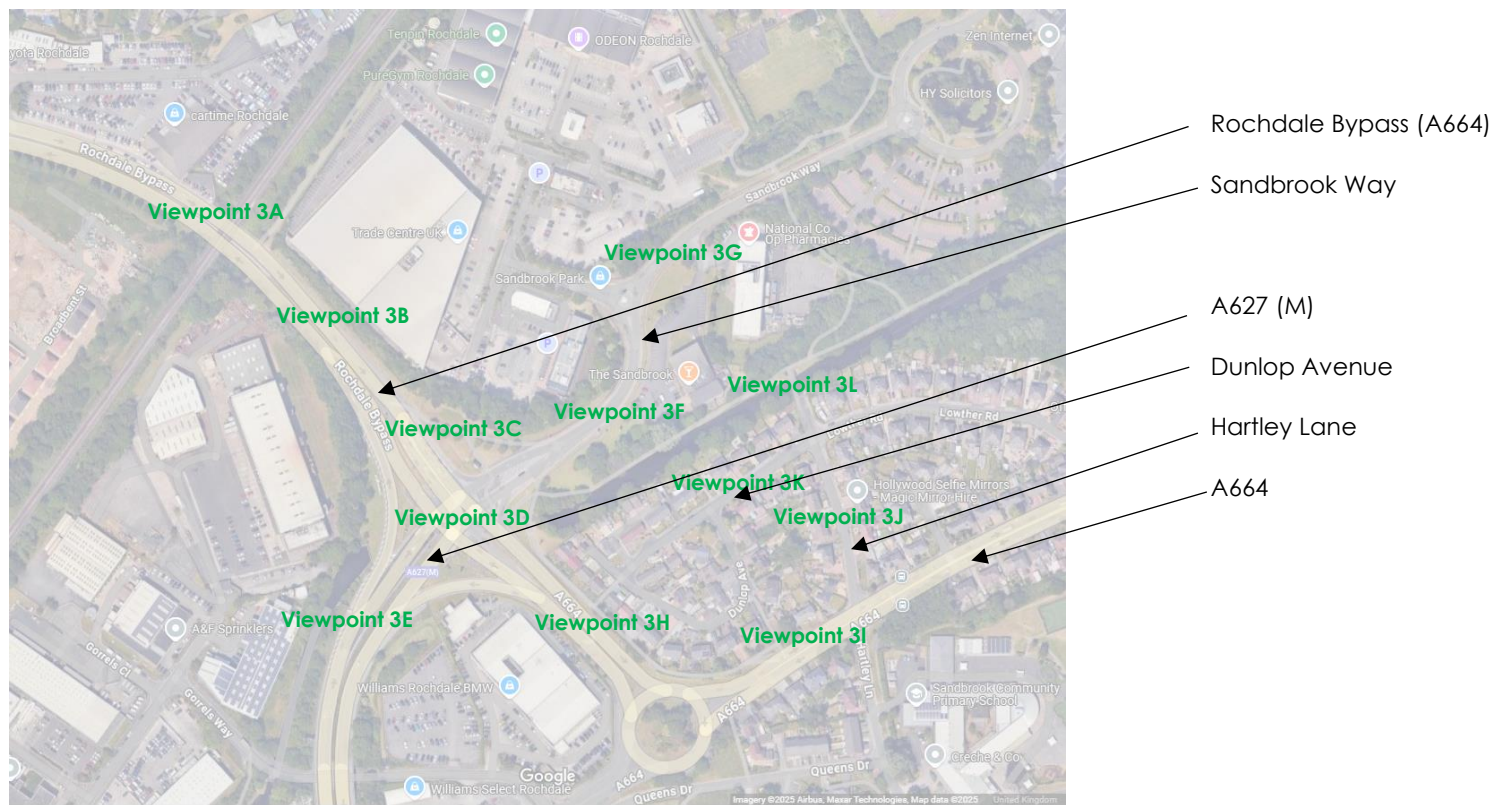


Figure 3A: Rochdale Bypass (A664)



Figure 3B: Rochdale Bypass (A664)



Figure 3C: Rochdale Bypass (A664)



Figure 3D: A627(M)



Figure 3E: A627(M)



Figure 3F: Sandbrook Way



Figure 3G: Sandbrook Way



Figure 3H: A664



Figure 3I: A664



Figure 3J: Hartley Close



Figure 3K: Dunlop Avenue



Figure 3L:



Figure 4: Existing screening examples (reference 'Google Maps')



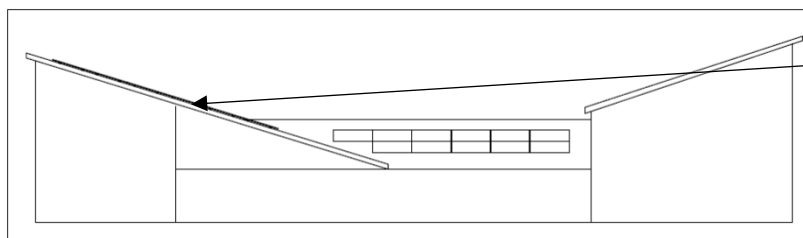
Multiple commercial properties

Mature shrubbery and trees

Dwellings

The site has substantial screening provided by multiple commercial properties and dwellings as well as extensive trees and shrubbery which would help reduce glare to the surrounding roads and properties, as can be seen in the above viewpoints. The solar panels would be located on the roof of the existing property so would not be in the line of vision of drivers utilising the nearby roads, such as the Rochdale Bypass (A664) and A627 (M). Only the side of the solar panels would be visible to Rochdale Bypass (A664) and A627 (M), not the face of the solar panel. As the solar panels are only 30mm thick, the panels would have minimal visual effect on the surrounding area.

Figure 5a: Side view



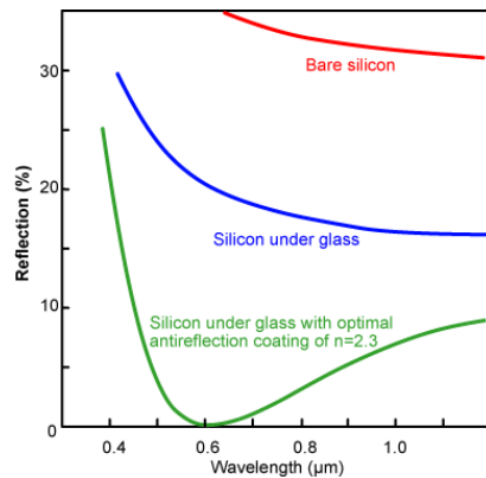
30mm thick side of panel is visible to A627 (M) due to existing screening

Figure 5b: Side view (reference: 'Google Maps')



Additionally, the specific solar panels to be utilised are Canadian Solar CS6.2-48-TD panels. These panels have a 2mm heat strengthened glass cover with anti-reflective coating which would further reduce glare. Canadian Solar uses “high-transmission low-iron” glass in their solar modules, and narrow down the accepted range of glass surface roughness. This type of glass transmits more light, producing less glare and reflectance than normal glass. This high-transmission glass meets the military’s reflectance requirement, where this value has to be less than 10%. CSI Solar declares that Modules produced using antireflection coated solar glass have a reflectance value below 4% when with up to 60°angle of incidence.

Figure 6: Comparison of surface reflection from a silicon solar cell, with and without a typical anti-reflection coating



Due to the above, it is considered that the proposed solar would have minimal effect on the the nearby roads.

4aⁱⁱ Dwellings

The closest dwellings are located 35m away from the proposed solar installation. The solar panels would be visually screened by the existing extensive shrubbery which surrounds the proposed site. Additionally, the solar panels have a 2mm heat strengthened glass cover with anti-reflective coating meaning that glare would have minimal effect on nearby dwellings and properties.

4aⁱⁱⁱ Trains

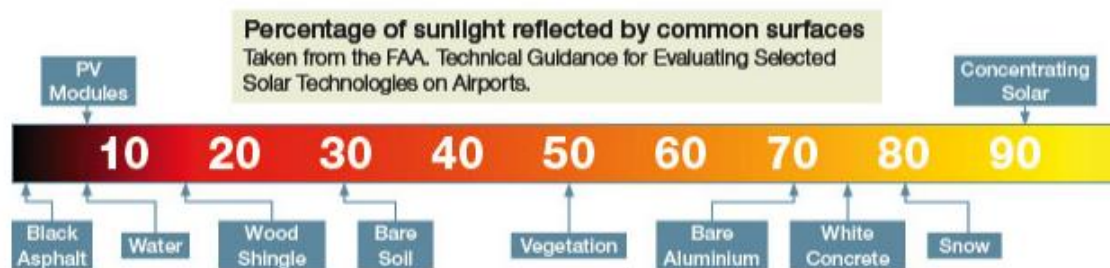
The closest railway is over 300m away from the proposal. There is substantial screening surrounding the proposed site so effects of glare on train stations can be disregarded.

4aiiii Airports

The Combined Aerodrome Safeguarding Team (CAST) Advice Note 1-Safeguarding an Overview (April 2024) indicates that it is only essential to conduct an aviation perspective glint and glare assessment when a reflective surface is to be located on or immediately adjacent to an aerodrome. In most cases, an assessment should be undertaken for a solar energy development which is being proposed within a specific distance from an aerodrome...For many aerodromes, 5km is the distance of choice but it could be considered out to 10km. The closest airport is Manchester airport located over 27km away so an in depth assessment is not required.

It is interesting to note that the FAA (Federal Aviation Authority) guidance acknowledges that “solar PV is more compatible with airport land use because it is designed to absorb sunlight (rather than reflect it), minimizing potential impacts of glare”. The guidance continues that “solar PV employs glass panels that are designed to maximize absorption and minimize reflection to increase electricity production efficiency. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials and covered with an anti-reflective coating. Today’s panels reflect as little as 2% of the incoming sunlight.” Evidence produced in the guidance shows that this is slightly more than black asphalt, about level with bodies of water, and much below bare soil, vegetation, rooftops, glass, snow or metal.

Figure 7: Sunlight reflection comparison



Due to the above it is the considered that the proposed solar panels would provide minimal glare on the surrounding area.

4b. Radar Interference

Due to their low profiles, solar PV systems typically represent little risk of interfering with radar transmissions. In addition, solar panels do not emit electromagnetic waves over distances that could interfere with radar signal transmissions, and any electrical facilities that do carry concentrated current are buried beneath the

ground and away from any signal transmission. After research and expert opinion, it has been found that there are no examples of issues or complaints arising on these grounds. It is thought that complaints in this area are a consequence of disputes over wind energy.

4c. Physical Penetration

The clearest trigger for FAA review is a physical penetration of airspace. It is well-established that structures rising 200 feet (60m) or greater above the land surface must be reviewed by the FAA. Tall structures, such as wind turbines, cell towers, and communication antennae customarily rise above 200 feet and proponents know that an airspace review is required.

As the proposed solar PV system is to be located on an existing building that is under 60m tall, this and associated hazards does not apply to this proposal.

5. Conclusions

From this evidence we do not believe that there is cause for concern in relation to the impact of glint and glare from this solar PV system on the nearby roads, railways or dwelling due to the substantial existing screening, combined with the anti-reflective coating on the solar panels and the siting of the panels. Additionally, there would be minimal effect on aviation and airports especially as solar PV panels are designed to absorb not reflect light, and their level of reflectivity is lower than that of other objects commonly visible on and around aerodromes, e.g. metal roofs, glass windows, cars, and bodies of water.