

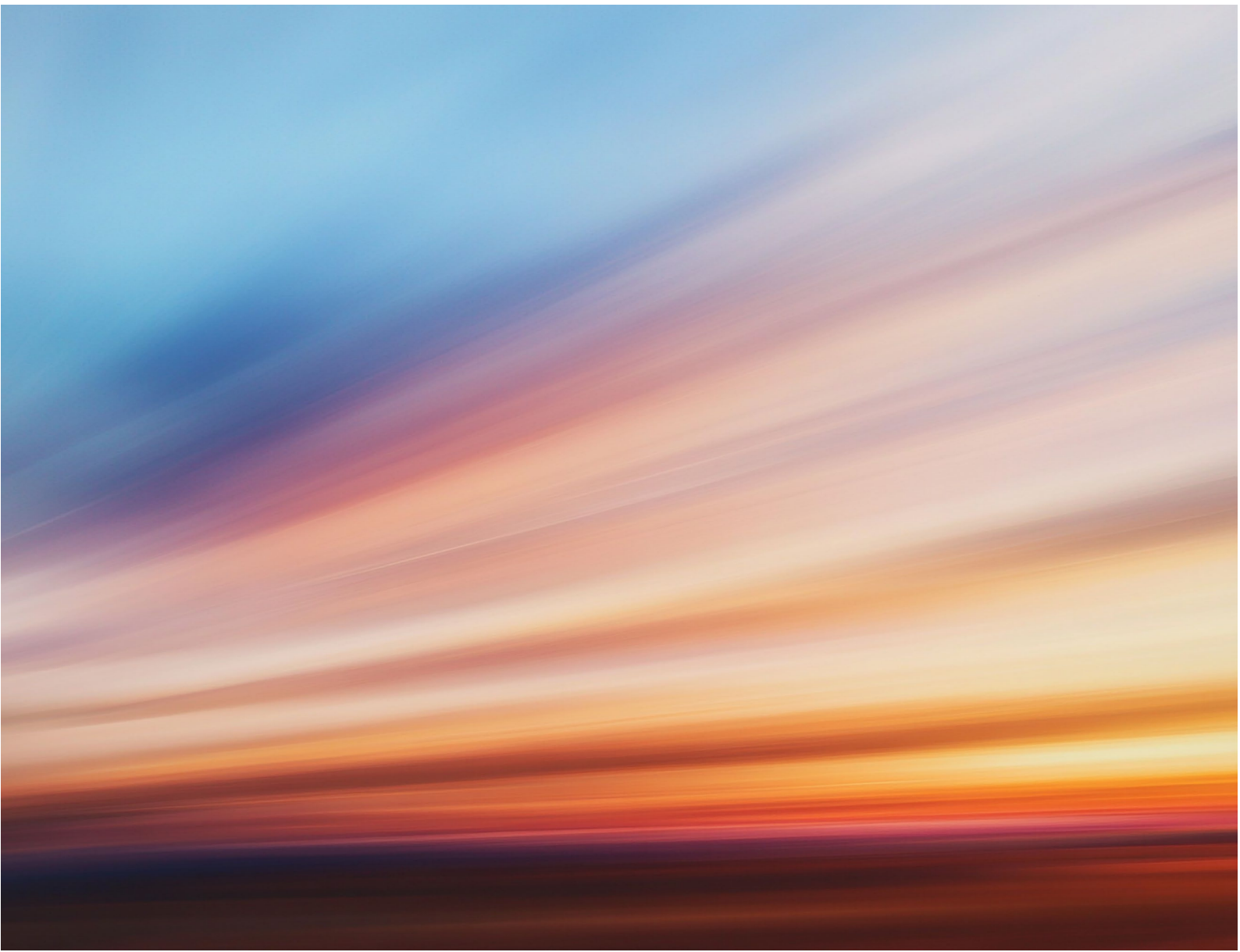
Mysten Leah Solar Farm

Preliminary Environmental Information Report (PEIR)

Volume 1

Chapter 16: Glint and Glare

April 2026



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16. Glint and Glare

16.1 Introduction

- 16.1.1 This chapter presents a preliminary assessment of the likely significant effects arising on glint and glare during the operation of Mylen Leah Solar Farm. The construction and decommissioning phases are not considered because operational impacts are the worst-case scenario.
- 16.1.2 According to the National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3) (December 2025, published January 2026)¹, “*Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel*” and “*glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel*”. The term ‘solar reflection’ is used in this preliminary assessment to refer to both reflection types: glint and glare.
- 16.1.3 This chapter should be read in conjunction with the following figures in **Volume 2** and with the following appendices in **Volume 3**:
- **Figure 16.1: Glint and Glare 20km and 10km Study Areas and Receptors;**
 - **Figure 16.2: Glint and Glare 1km Study Area and Receptors;**
 - **Figure 16.3: Glint and Glare Existing Screening;**
 - **Figure 16.4: Glint and Glare Proposed Elements;**
 - **Appendix 16.1: Glint and Glare Analysis Elements;** and
 - **Appendix 16.2: Glint and Glare Assessment Results.**
- 16.1.4 The effects of glint and glare on helicopters, bridleways, byways, public rights of way (PRoW), boat users or fields with grazing animals have not been considered within this preliminary assessment. This is because no guidance currently exists to assess glint and glare effects on these receptors. It is also generally considered that significant effects upon pedestrians on a PRoW or riders on bridleways are not possible for the following reasons:
- The typical density of pedestrians on a PRoW is low in a rural environment;
 - Glint and glare effects towards receptors on a PRoW or bridleway are transient and time and location sensitive, where a pedestrian or horse could move beyond the solar reflection zone with ease and little impact upon safety or amenity; and
 - There is little safety hazard associated with reflections towards an observer on a footpath or a bridleway, and any resultant effect is much less serious than, for example, on the road network.

16.2 How have we engaged with others about glint and glare so far?

- 16.2.1 The Applicant will seek to agree the proposed study area and receptors that will inform the glint and glare assessment to be undertaken in support of the

Development Consent Order (DCO) application with East Riding of Yorkshire Council.

16.2.2 The Applicant has consulted with the landowners of Melbourne Raceway, which has confirmed that gyrocopters will no longer operate on the premises. This confirms that this is not an operational aerodrome.

16.2.3 Wolds Gliding Club, based on Pocklington Airfield, will be consulted in advance of the ES with regards to flying paths and other operational requirements for gliders that could be affected by reflected sunlight from the proposed solar PV modules.

16.3 What legislation, planning policy and guidance is relevant to glint and glare?

16.3.1 The general legislation and planning policy context for Mylen Leah Solar Farm is provided in **Section 1.4 of Chapter 1: Introducing Mylen Leah Solar Farm in Volume 1**. There is no legislation relevant to glint and glare assessments. Planning policy and guidance relevant to this preliminary glint and glare assessment is detailed below:

National planning policy

- National Policy Statement for Renewable Energy Infrastructure (EN-3) (December 2025, published January 2026) sets out the primary policy for decisions by the Secretary of State for nationally significant renewable energy infrastructure. Sections 2.10.102 to 2.10.106 set out general considerations for the assessment of impacts of glint and glare in relation to solar panels. Where receptors are likely to have potential glint and glare issues, the applicants are expected to estimate the potential impact based on the angle and duration of incidence and the intensity of the reflections. Sections 2.10.134 to 2.10.136 give advice on possible mitigation measures to address the impacts of glint and glare. Sections 2.10.102 to 1.10.106 and 2.10.134 to 2.10.136 state the need to consider the potential impact on receptors such as nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths).

Local planning policy

- The East Riding Local Plan Update 2020-2039 (April 2025) was adopted by East Riding of Yorkshire Council on 2 April 2025. There are no policies contained within the Local Plan which are of relevance to glint and glare from solar farms.²

Guidance

- Civil Aviation Authority interim 'Guidance on Solar Photovoltaic Systems' identifies the key safety issues with regards to aviation, as solar photovoltaic installations may cause glare, dazzle pilots, or lead them to confuse reflections with aeronautical lights. This interim guidance was published in 2010 but withdrawn in 2012. According to the guidance, it is best practice to consult with Aerodrome License

Holders, the Civil Aviation Authority, the Air Navigation Service Provider and/or National Air Traffic Services and the Ministry of Defence, especially for major airports nearby, aerodromes within 5km from the proposed development or at distances that could affect the aircraft operating visual circuit. It is recommended that solar photovoltaic installations developers include a risk assessment on planning applications. This guidance did not prescribe a formal methodology of assessment, but data on the reflectivity of solar panel material should be included for on-aerodrome solar photovoltaic installations.

- Combined Aerodrome Safeguarding Team Guidance Note GA1 'Safeguarding Guidance to General Aviation Aerodrome Managers & Operators' recommends considering glint and glare over a wide area, covering Visual Reference Points and other important points like the circuit. It also states that solar reflections with potential to cause after-image ("yellow glare" in the Solar Glare Ocular Hazard Plot) are of considerable concern, especially for a pilot on approach.³
- Combined Aerodrome Safeguarding Team 'Aerodrome Safeguarding Advice Note 5' (February 2024) provides high-level guidance regarding safety considerations (Air Traffic Service personnel and pilots) and study areas, but it does not prescribe a specific methodology for assessing glint and glare effects. It recommends early consultation with the aerodrome authority. A glint and glare assessment should be conducted for solar energy developments within 5km from an aerodrome, but it could be considered out 10km and beyond in exceptional circumstances. Safety should be considered for the Air Traffic Services personnel at the control tower, especially within the Visual Control Room, pilots (on approach, in a visual circuit or on the ground, departing and taxiing aircraft), and Communication, Navigation, and Surveillance equipment. Panels close to the ends of a runway should accommodate an Engine Failure After Take-off area, which extends 45 degrees either side from the extended runway centreline. It informs that neither UK Civil Aviation Authority nor US Federal Aviation Administration mandate a specific methodology for assessing glint and glare.⁴
- US Federal Aviation Administration 'Interim Policy, Federal Aviation Administration Review of Solar Energy System Projects on Federally Obligated Airports' (2013) recommends undertaking technical assessments using the Solar Glare Hazard Analysis Tool, developed by Sandia National Laboratories, although alternative tools could be proposed and validated, provided they use the Solar Glare Ocular Hazard Plot.
- US 'Federal Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports' (2021)⁵ superseded the 2013 US Federal Aviation Administration 'Interim Policy, Federal Aviation Administration Review of Solar Energy System Projects on Federally Obligated Airports'⁶. This final policy encourages airports to request an ocular analysis demonstrating no impacts to Air Traffic Control

Tower cabs. Requirements for pilots on final approach are withdrawn as glint and glare impacts from solar systems are assumed similar to those routinely experienced from water bodies, glass-façade buildings, parking lots, and similar features. US Federal Aviation Administration withdraws the recommended tool for ocular impact (Solar Glare Hazard Analysis Tool), and it does not endorse a specific analysis tool, which may not even be necessary in some cases (i.e. solar reflections are not visible from the Air Traffic Control Tower cab). However, most aviation stakeholders refer to 2013 US Federal Aviation Administration 'Interim Policy, Federal Aviation Administration Review of Solar Energy System Projects on Federally Obligated Airports' as it is the only one that provides a method of assessment for glint and glare.

- Pager Power 'Solar Photovoltaic and Building Development Glint and Glare Guidance' (fourth edition, 2022) includes guidance for aviation and railway operations, road users, and dwellings, based on the other guidance and professional experience.⁷
- The British Horse Society 'Advice on Solar Farms near routes used by equestrians' (2025) states that *'any reflection is unlikely to be a direct problem to horses or equestrians because of the angles and distances involved and because the surface has a dull sheen rather than glare even on a bright day.'* It also states that the British Horse Society *'has no evidence of glint and glare from solar panels and no evidence of horses reacting to it or of it being detrimental to the health and wellbeing of horses.'*⁸

16.4 What study area has been used for glint and glare?

16.4.1 There is little formal guidance with regard to the maximum distance at which glint and glare should be assessed. However, based on industry best practice and past assessment experience, the following study areas are considered appropriate, with distances used from the proposed solar photovoltaic (PV) modules as presented in **Figure 16.1: Glint and Glare 20km and 10km Study Areas and Receptors** and **Figure 16.2: Glint and Glare 1km Study Area and Receptors in Volume 2**):

- 20km from the proposed solar PV module areas for midsized aviation receptors, including licensed airports and their air traffic control towers;
- 10km from the proposed solar PV module areas for small aviation receptors, including unlicensed airports and aerodromes, airfields and airstrips; and
- 1km from the proposed solar PV module areas for ground-based receptors, including roads and buildings. This study area is smaller than the above due to the reduced visibility on the ground (solar reflections shielding by obstructions).

16.5 How have existing glint and glare conditions been understood?

16.5.1 Based on desk-based study findings, there is no material existing glint and glare arising from the Site.

Data sources to inform the EIA baseline characterisation

16.5.2 The following data sources have been used to understand the existing glint and glare baseline conditions:

- Maps, aerial views and views from the ground from Environmental Systems Research Institute (ESRI) World Imagery
- Google Maps;
- Bing Maps,
- Ordnance Survey maps; and
- Footpath Map.

16.6 What are the glint and glare conditions within the study area?

Existing baseline

16.6.1 Existing receptors/elements that are relevant for the glint and glare analysis are presented in **Figure 16.1: Glint and Glare 20km and 10km Study Areas and Receptors** and **Figure 16.2: Glint and Glare 1km Study Area and Receptors** in **Volume 2**.

16.6.2 One mid-sized aviation receptor has been identified within the 20km study area (**Table 1.1 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**), this being Leeds East Airport (AR09).

16.6.3 Seven minor aviation receptors with approaching paths to their runways having potential views of the proposed solar PV modules have been identified within the 10km study area (**Table 1.1 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**):

- Elvington Airfield (AR02);
- Pocklington Aerodrome (AR03);
- Brighton Airfield (AR04);
- Cliffe Airstrip (AR05);
- Birchwood Lodge Airstrip (AR06);
- Redmoor Farm Airstrip (AR07); and
- Gilrudding Grange Airstrip (AR08).

16.6.4 Flying approach paths to runways of aviation receptors have been considered for glint and glare (**Table 1.2 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**). Departing aircraft will have the nose pointing upwards and the visibility of objects (i.e. proposed solar PV modules) located on the ground will be reduced and therefore these are not included in this preliminary assessment.

- 16.6.5 One road of regional significance (B1228) runs north-south within the 1km study area (**Table 2.1 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**). All roads within this study area have been reviewed. However, further technical modelling has not been undertaken to consider local roads as it is not recommended where traffic densities are likely to be relatively low. Any solar reflections from Mylen Leah Solar Farm that are experienced by a road user along a local road would be considered low impact in the worst case, in accordance with the Solar Photovoltaic and Building Development Glint and Glare Guidance (2022).
- 16.6.6 The 1km study area includes building receptors such as villages (Ellerton, North Ross, Laytham and Seaton Ross), clusters of buildings and isolated farms. 100 building receptors within the study area have been selected for the technical analyses (**Table 2.3 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**).
- 16.6.7 Large elements in the landscape can act as barriers and block solar reflections from view. As a worst-case, only elements of significant size have been included in the detailed technical analyses where these could have a significant shielding effect on the solar reflections for particular receptors. These comprise woodland and structures (**Figure 16.1: Glint and Glare 20km and 10km Study Areas and Receptors in Volume 2**), such as barns. In the absence of detailed information, woodland has been assumed of 8m high and structures of 4m to 6m high, depending on their size. These obstructions are assumed to effectively block sunlight. Woodland includes the following: Breckstreet Plantation, Newdrive Plantation, Jack Plantation, Coachroad Plantation, Clay's Plantation, Eastroad Plantation, Stackyard Plantation, Little and Great West Wood, Fox Covert, New Covert, Fosses Covert, Ruddings Wood, Bracepits Wood, Guy's Wood, South Wood, The Whin and The Rush.
- 16.6.8 Small elements in the landscape (sheds, fences, lines of trees, isolated trees, hedges, etc.) have not been considered in the technical analyses (**Figure 16.1: Glint and Glare 20km and 10km Study Areas and Receptors in Volume 2**). However, where the technical analysis has identified potential glint and glare impacts on a specific receptor, the potential of these small elements to block solar reflections has been considered in the overall impact.
- 16.6.9 Two small existing solar PV developments are located to the north-east of the Site and within the 1km study area (**Table 3.1 in Appendix 16.1: Glint and Glare Analysis Elements in Volume 3**), Ryedale Farm in Melbourne and The Airfield in Seaton Ross. These two solar farms are very small, and therefore they have been excluded from the technical analysis as any cumulative effects would be negligible.
- 16.6.10 Some common examples of potential glare sources commonly present in rural environments include:
- Rainwater collected on roofs, fields, roads;
 - Bodies of water (e.g. ponds, lakes and rivers); and
 - Building/greenhouse windows.

Future baseline

16.6.11 No future sources of glint and glare are predicted for the Site, so no future baseline assessments have been conducted.

16.7 How have the likely effects been assessed for glint and glare?

Assessment methodology

16.7.1 The methodology for the glint and glare assessment has been developed based on industry best practice, available guidance (refer to **Section 16.3** above) and professional experience. It comprises the following stages:

- Identification of key sensitive receptors in the area surrounding Mylen Leah Solar Farm;
- Geometric analysis to determine if solar reflections will be visible from each receptor. Where the proposed solar PV modules are not visible, no impact is possible upon the receptor;
- Where solar reflections are visible, a Solar Glare Hazard Analysis Tool is used to estimate relevant glare metrics, including ocular hazard (using the Solar Glare Ocular Hazard Plot), glare frequency (both daily and annual) glare angles, direct luminance values and/or veiling luminance;
- Determination of the significance of the potential effects upon each receptor, following the specific criteria for each type of receptor with respect to published studies and guidance, and considering the calculated metrics and any relevant mitigating factors; and
- Establish whether these impacts will cause significant effects which may require additional mitigation.

16.7.2 The Solar Glare Ocular Hazard Plot is used to measure the ocular impact of any proposed solar energy system. It includes two metrics: Potential for After-image and Potential for Permanent Eye Damage. The visual impact is a function of the retinal irradiance (intensity) and the subtended angle (size) of a glare source, and it quantifies the potential to cause an after-image in the retina, which would reduce the visual performance. The ocular hazard is classified as (**Plate 16.1**):

- Green glare: Low potential to cause after-image;
- Yellow glare: Potential to cause an after-image; and
- Red glare: Potential for permanent eye damage.

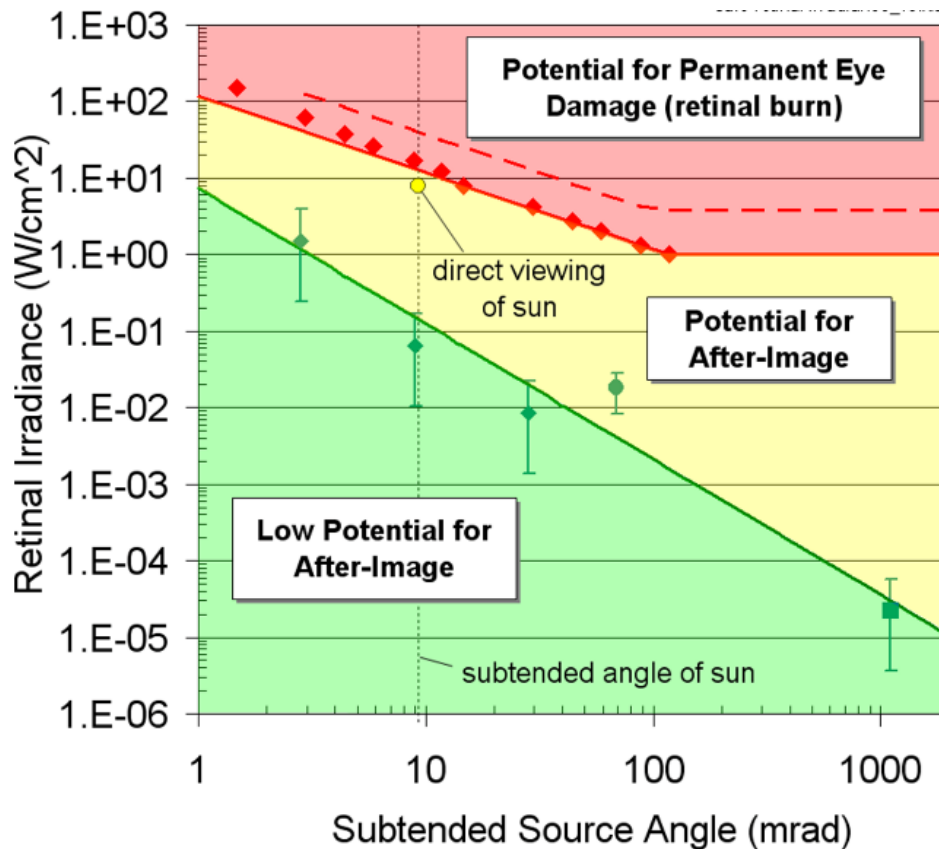


Plate 16.1: Solar Glare Ocular Hazard Plot

16.7.3 Solar Glare Ocular Hazard Plot assumes that the observer is looking directly into the light source with a quick blink eye response (0.15 seconds) and the possibility to avert their gaze. In those cases, retinal burn is only possible with solar concentration systems.

16.7.4 The glare angle is the angle between the line of sight and a light source (i.e. a solar reflection). This is a key parameter in most disability glare metrics. Disability glare is more likely the closer the light source is to the line of sight. As a reference, reflections outside 30 degrees are considered of little relevance, reflections within 10 degrees can usually cause glare, and reflections within 2.5 degrees are very likely to cause disability glare. The glare angle is also considered in veiling luminance calculations, but it is not taken into account for direct luminance or ocular hazard, as these assume that the observer is looking directly at the source of light.

2Assessment criteria

16.7.5 The assessment criteria follow the Solar Photovoltaic and Building Development Glint and Glare Guidance (2022), which considers a combination of reflection times (frequency, instances and duration), proximity to the line of sight (glare angle) and potential ocular hazard (Solar Glare Ocular Hazard Plot). Professional experience is applied where guidance is not specific.

Magnitude of impact

Impact levels for approaching aircrafts

- 16.7.6 The location of the solar reflection is more important than the duration of reflection on the receptors fast-moving receptor. The time of visible reflections may also be relevant in relation to operational schedules at the receptor. Solar reflections have no impact when receptors are not in use.
- Green glare or yellow glare with significant mitigating factors: Low impact;
 - Yellow glare without significant mitigating factors: Moderate impact; and
 - Red glare: High impact.

Impact levels for Air Traffic Control Towers

- 16.7.7 An Air Traffic Control Tower is the most sensitive aviation receptor, and US 'Federal Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports' (2021) recommends avoiding ocular impacts to the Air Traffic Control Tower cab. However, a more pragmatic approach is included in the Solar Photovoltaic and Building Development Glint and Glare Guidance (2022):
- Green glare with significant mitigating factors: Low impact;
 - Green glare without significant mitigating factors or yellow glare: Moderate impact; and
 - Red glare: High impact.

Impact levels for road receptors

- 16.7.8 The glare angle (between a solar reflection and the line of sight) has more of an impact on road users than the ocular hazard or the duration of glare, as the receptor is moving.
- 16.7.9 Impacts on local roads are always considered of low impact. Impacts on major national, national and regional roads are considered as follows:
- Reflections significantly mitigated: Low impact;
 - Reflections partially mitigated: Moderate impact; and
 - Reflections not mitigated:
 - Reflections not in front of view¹: Moderate impact; and
 - Reflections in front of view: High impact.

Impact levels for railway receptors

- 16.7.10 Similar to roads, the glare angle is more relevant for train drivers than other metrics. Impacts on railway lines are classified as:

¹ In front of view is considered 10 degrees from the line of sight. Light sources outside 30 degrees from the line of sight are considered not material for glint and glare.

- Reflections significantly mitigated: Low impact;
- Reflections partially mitigated: Moderate impact; and
- Reflections not mitigated:
 - Reflections not in front of view: Moderate impact; and
 - Reflections in front of view: High impact.

Impact levels for building receptors

16.7.11 For buildings, the main factor is the frequency of glare, both daily and annually, more than the ocular hazard:

- Reflections significantly mitigated: Low impact;
- Reflections not mitigated:
- Frequency less than 90 days per year and less than 60 minutes per day: Low impact;
- Frequency less than 90 days per year or less than 60 minutes per day: Moderate impact; and
- Frequency more than 90 days per year and more than 60 minutes per day: High impact.

Mitigating factors

16.7.12 Mitigating factors include, but are not limited to, the following:

- Solar reflections are visible in the same direction to direct sunlight. In these cases, the user is likely to be prepared and adapted for glare;
- Significant screening (i.e. trees or hedgerows, deciduous or with gaps). This increases the likelihood of reflections being less intense and smaller;
- Times of the day/year when reflections are visible. If the reflections do not overlap with the operational times of the receptor (i.e. use of a room or rush hour on a road), there is usually no impact;
- Type of road (major national, national, regional or local). The denser the traffic, the higher the risk of an accident;
- Length of the path (i.e. road/railway) affected by glare. The longer the path, the higher the risk of an accident;
- Duration of exposure. Continuous exposure may be more severe than one spread over time;
- Glare angle between the reflection and the line of sight. Glare is more intense close to the line of sight; and
- For buildings, oblique reflections impacting a window are less likely to be seen from inside.

Significance of effect

16.7.13 The significance and the need for mitigation depends on the level of impact:

- No impact: Reflection not visible. No mitigation needed;

- Low impact: Reflection visible but of limited relevance (i.e. significantly screened). No mitigation needed;
- Moderate impact: Reflection visible but not under worst-case conditions, which implies a significant effect. Mitigation recommended; and
- Major impact: Reflections visible under worst-case conditions, which implies a significant effect. Mitigation and consultation required.

16.7.14 The reflective capacity of the proposed solar PV modules, especially those designed with anti-reflective glass or produced with anti-reflective coating, have a reflective capacity equal or less hazardous than elements already in the environment such as bodies of water, glazed element in buildings (i.e. windows or curtain walls), car parks, metal structures, wet roads or even snow on the ground. This is recognised in NPS EN-3 (December 2025, published January 2026) and in the US ‘Federal Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports’ (2021).

Approach to design flexibility

16.7.15 The analysis has considered the maximum extent of the proposed solar PV modules within the fields in Land Parcels B, C and D, as presented in **Figure 3.2: Indicative Operational Layout Plan** in **Volume 2**. Parcels A and E do not feature solar PV modules.

16.7.16 The design includes three possible orientations for fixed tilt and one option with a sun tracking system, as presented in **Table 3-4** in **Chapter 3: What will Mylen Leah Solar Farm Comprise?** in **Volume 1**. For the proposed fixed solar PV modules, there is an optionality of tilt angles (elevation above ground), and the minimum and maximum angles have been considered for the glint and glare analysis. This results in seven scenarios (**Table 16.1**). The description for each scenario includes the orientation (azimuth), slope above the horizontal plane (tilt) and supporting structure (fixed or tracking system to follow the movement of the sun).

Table 16.1: Analysis scenarios for glint and glare

Code	Description
S10	South oriented fixed tilt (azimuth 180 degrees from True North) with 10 degrees tilt.
S20	South oriented fixed tilt (azimuth 180 degrees from True North) with 20 degrees tilt
E10	East oriented fixed tilt (azimuth 90 degrees from True North) with 10 degrees tilt
E20	East oriented fixed tilt (azimuth 90 degrees from True North) with 20 degrees tilt
W10	West oriented fixed tilt (azimuth 270 degrees from True North) with 10 degrees tilt
W20	West oriented fixed tilt (azimuth 270 degrees from True North) with 20 degrees tilt
T60	East-West sun tracking with north-south row alignment and +/- 60° tilt angle range

16.7.17 The rows of solar PV modules will have a minimum height above ground level of 0.5m and a maximum of 3.5m, as presented in in **Table 3.4** in **Chapter 3: What will Mylen Leah Solar Farm Comprise?** in **Volume 1**. For the purpose of this preliminary assessment, and as a worst-case scenario, the minimum height has been used (0.5m above ground level), as this renders the modules more visible from above.

16.7.18 Smooth glass with anti-reflective coating has been considered for the proposed solar PV modules, with a slope error (irregularity of the surface) of 8.43 milliradians, which describes the angular deviation of the surface. The reflectivity at different angles of incidence can be seen in **Plate 16.2**.

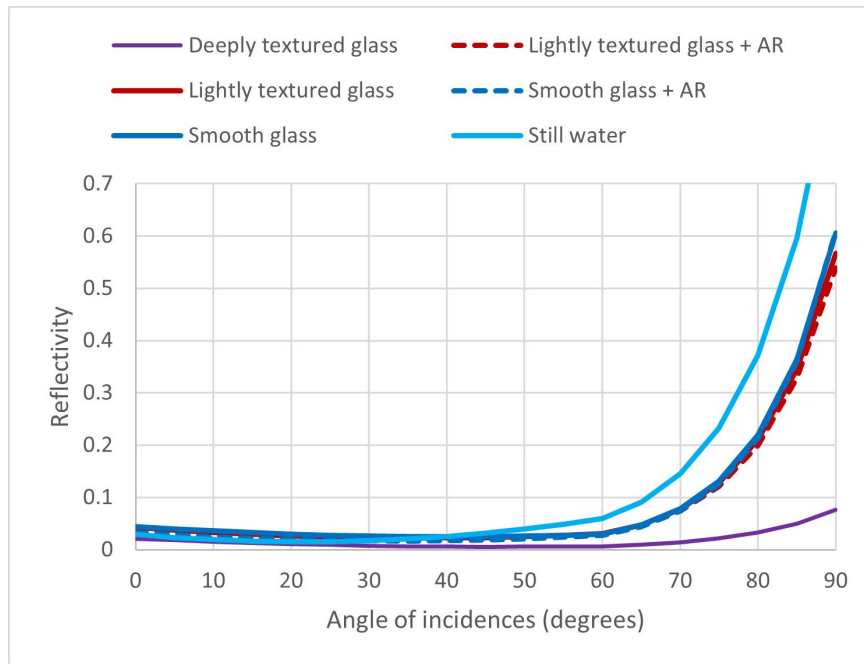


Plate 16.23: Reflectivity of typical solar PV module materials

Assessment assumptions

16.7.19 Whilst glint and glare could be triggered as the proposed solar PV modules are installed during construction and dismantled during decommissioning, the likely worst case of any glint and glare impacts would be once the whole solar farm is constructed (i.e. operational). For this reason, this preliminary assessment focuses on the operation of Mylen Leah Solar Farm.

16.7.20 This preliminary assessment has considered both fixed and solar PV modules and a sun tracking system (refer to **Table 16.1**).

16.7.21 Specific elements (e.g. permanent welfare facilities and substations) are not included in this preliminary assessment as their position and size is not fixed. This is a worst case scenario; therefore, they are not considered as potential obstructions to solar reflections in this preliminary assessment. Cable routes (including the underground grid connection corridor) are not assessed as they have no glint and glare effects.

16.7.22 Flying paths in this preliminary assessment represent planes approaching a runway for landing. The standard flying path, as defined in US Federal Aviation Administration 'Interim Policy, Federal Aviation Administration Review of Solar Energy System Projects on Federally Obligated Airports'

(2013), is a two-mile approach in line with the runway with a three degrees gliding slope and a 15.4m (50ft) threshold height on landing. Pilots are assumed to have a field of view of 30 degrees vertically and 50 degrees horizontally from the direction of travel.

16.7.23 Route receptors (aviation and roads) have been assessed at 50m intervals.

16.7.24 Both directions of travel have been considered for road receptors, with 50 degrees field of view from the direction of travel and a driver eye height of 1.5m above ground.

16.7.25 It should be noted that this preliminary assessment assumes worst-case conditions (full sunny weather throughout the year and no cloud coverage). The risk of glare in reality will be significantly lower than predicted. For ground-based receptors, reflections will typically occur very close to direct sunlight from a viewer's point of view due to the timings (dawn and sunset) and the low tilt (10-20 degrees). This means that solar reflections will not catch the viewer unprepared, and any potential impact will be less intense.

16.7.26 The following values have been assumed when calculating the ocular hazard metric (Solar Glare Ocular Hazard Plot):

- Ocular transmission coefficient 0.5;
- Pupil diameter 0.002m; and
- Eye focal length 0.017m.

16.7.27 The following general assumptions have been applied to this preliminary assessment:

- The proposed solar PV development is assimilated to surfaces following the terrain topography at a representative height, usually the average height above ground level;
- There is no consideration for solar PV overshadowing between rows of panels, gaps between them or supporting structures, unless otherwise specified;
- Solar PV modules are evenly distributed across the proposed Solar PV development;
- Only the front part of the proposed solar PV modules is assumed to reflect the solar rays. The rear face of the proposed solar PV modules and other parts of the solar system (i.e. frames or supports) will have a matt finish and they will not cause solar reflections;
- Only relevant screening elements around the Site that may obstruct the sun from view of the proposed solar PV modules are included in the model;
- Terrain elevation heights are interpolated based on Ordnance Survey Terrain 50m Digital Terrain Model data, unless more detailed topographic data for the Site is available;
- Clear and sunny skies for the entire year, as a highly conservative worst-case scenario;

- The direct normal irradiance and the luminous efficacy (K) of the Sun at each time step is based on the solar altitude and air mass for the Site latitude (**Plate 16.3**);
- Fixed intensity within the cone of reflection, which is defined by the slope error of the proposed solar PV modules surface material;
- The combined effects of several solar PV areas are estimated cumulatively, but the effects of simultaneous solar reflections from solar PV areas with different characteristics (azimuth, tilt or reflectivity) are estimated qualitatively;
- The calculation is undertaken at regular time steps throughout the year, typically at one-minute intervals. Times are denoted in standard time with no daylight savings; and
- The line of sight for route receptors (aviation, roads and railway lines) is calculated assuming the pilots/drivers are looking ahead.

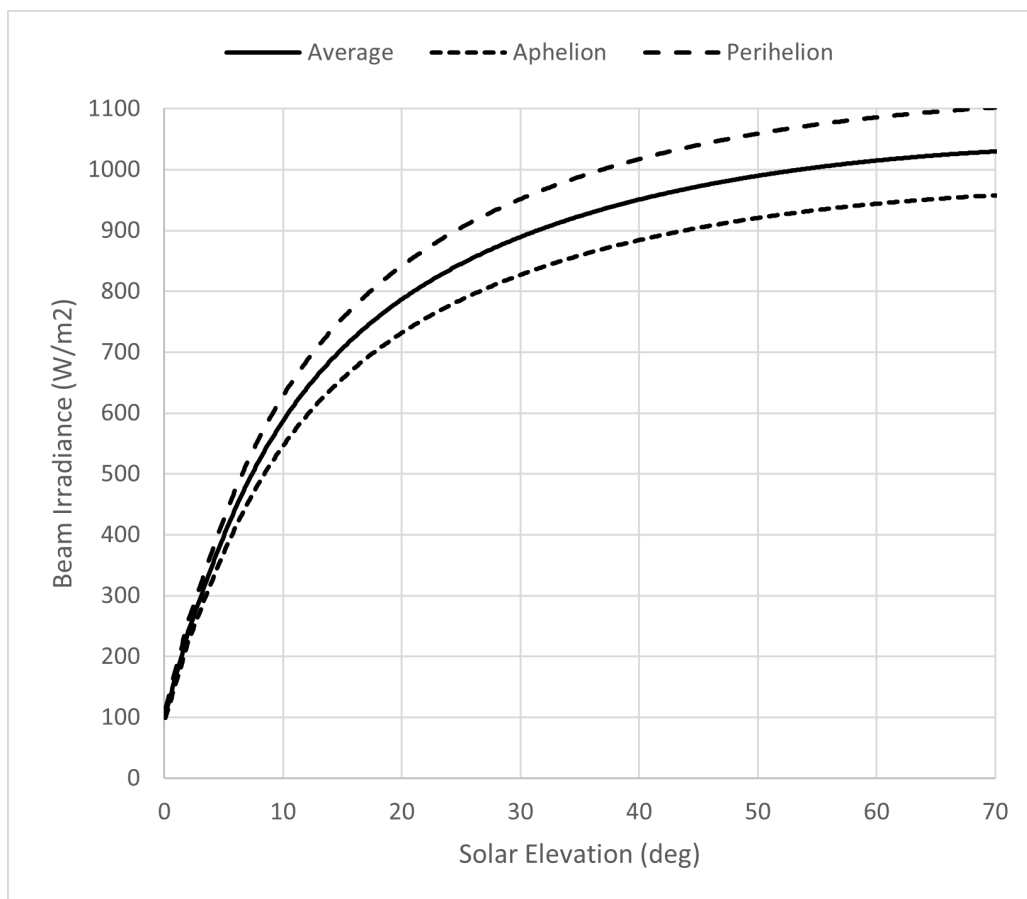


Plate 16.3: Solar Direct Normal Irradiance

16.8 How has glint and glare informed the design so far?

16.8.1 This preliminary assessment has been based on the principle that certain mitigation measures have been 'embedded' into the design of Mylen Leah Solar Farm to minimise likely significant effects as far as reasonably practicable at this stage of the design process, for example by the considered placement of infrastructure. Embedded (primary) environmental mitigation

measures relevant to this preliminary glint and glare assessment are presented in **Table 16.2**:

Table 16.2: Embedded mitigation measures relevant to glint and glare

Embedded mitigation measures relevant to glint and glare	Function
Minimum 100m offset from solar PV development to residential properties	To minimise glint and glare effects to nearby residential properties.

16.8.2 In addition to the above, screening in the form of vegetation (to be maintained at minimum height of 2.5m) has been proposed to provide a barrier against glare and to ensure potential impacts are within recommendation for receptors on the ground. Vegetation may provide varying levels of cover, depending on the species, during winter due to foliage type (deciduous/evergreen), immediately after planting, and after maintenance (i.e. pruning). Each proposed screen is necessary only for specific scenarios, as outlined in **Table 16.3**.

Table 16.3: Proposed vegetation screening

Code	Scenarios	Required species	Length (m)
SC01	S10, S20, W10 and W20.	Any	45
SC02	W10, W20 and T60	Evergreen	55
SC03	T60	Evergreen	150
SC04	W10, W20 and T60	Evergreen	325
SC05	E10, E20 and T60	Evergreen	570
SC06	E20, W10 and T60	Evergreen	270
SC07	W10, W20 and T60	Evergreen	800
SC08	E10, W10 and W20	Evergreen	115
SC09	W10 and W20	Any	45
SC10	E10 and E20	Evergreen	200
SC11	E20	Evergreen	200

16.9 What are the likely effects of Mylen Leah Solar Farm on glint and glare?

16.9.1 The results of the technical assessment are presented in **Appendix 16.2: Glint and Glare Assessment Results** in **Volume 3**. The output of this analysis is limited to receptors receiving solar reflections within the field of view. Receptors omitted in the output will receive no glare impacts.

16.9.2 The ocular hazard and glare angle graphs show when solar reflections are visible throughout the year (days/months and times of the day) and their level of glare as perceived from the receptor. For route receptors (i.e. flying paths or roads), every instance in time represents the highest level of glare along the entire length of the receptor analysed. Two metrics have been used:

- Ocular hazard (referring to Solar Glare Ocular Hazard Plot or showing green or yellow glare; and

- Glare angle showing:
 - Green values: Angles larger than 30 degrees;
 - Yellow values: Angles between 10 and 30 degrees;
 - Orange values: Angles between 10 and 2.5 degrees; and
 - Red values: Angles lower than 2.5 degrees.

16.9.3 In scenarios with south-facing solar PV modules (S10 and S20) ground-based receptors may receive solar reflections after sunrise (from east of north-east) or just before sunset (from west or north-west) from March to October. During these months, deciduous trees and hedges will be mostly in leaf, providing maximum screening and blocking solar reflections.

16.9.4 In scenarios with solar PV modules facing east or west (E10, E20, W10, W20 and T60) it is possible for ground-based receptors to receive solar reflections from south-east or south-west from October to March. During these months, deciduous trees and hedges will be mostly bare, and only evergreen species can provide full screening.

Aviation receptors

16.9.5 For flying approaches, the key parameter is the ocular hazard (Solar Glare Ocular Hazard Plot), although the glare angle is also important. The technical analysis shows that solar reflections from Mylen Leah Solar Farm will be visible from seven approaching flying paths (**Sections 1.1 to 1.7 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) in at least one scenario.

16.9.6 The ocular hazard graphs (**Figures 1.1 to 1.34 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) show that solar reflections from Mylen Leah Solar Farm will cause a maximum of green glare on flying approaches in all scenarios.

Road receptor R1 (northbound)

16.9.7 This section describes the effects on drivers travelling north along road B1228. For road receptors, the key parameter is the glare angle, although other circumstances such as the predicted ocular hazard and frequency of glare should also be considered.

16.9.8 In scenario S10, drivers may receive solar reflections from the north-east between 5am and 7am from March to early October for up to 15 minutes per day (**Figures 1.35 and 1.36 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). These reflections would be visible from the section of road from Long Rampart Road to Main Lane, and from Hankins Lane (**Figures 1.45 and 1.46 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). All solar reflections within 30 degrees from the line of sight will be screened by existing hedges in leaf along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**).

16.9.9 In scenario S20, drivers may receive solar reflections from the north-east between 5:45am and 6:30am from March to early October for up to 15 minutes per day (**Figures 1.37 and 1.38 in Appendix 16.2: Glint and Glare**

Assessment Results in Volume 3). These reflections would be visible from the section or road from Long Rampart Road to Main Lane, and from Hankins Lane (**Figures 1.47 and 1.48 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). All solar reflections within 30 degrees from the line of sight will be screened by existing hedges in leave along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**).

16.9.10 In scenarios E10 and E20, drivers will receive no solar reflections.

16.9.11 In scenario W10, drivers may receive solar reflections from the east between 6am and 8am from mid-April to late August for up to 20 minutes per day (**Figures 1.39 and 1.40 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). These reflections would be visible from the section or road from Long Rampart Road to Main Lane (**Figures 1.49 and 1.50 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). All solar reflections within 30 degrees from the line of sight will be screened by existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**).

16.9.12 In scenario W20, drivers may receive solar reflections from the east between 8:15am and 8:45am in June for up to 10 minutes per day (**Figures 1.41 and 1.42 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). These reflections would be visible from the section or road from Long Rampart Road to Bridges Lane (**Figures 1.51 and 1.52 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). All solar reflections will be outside 30 degrees from the line of sight, and they will be screened by existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**).

16.9.13 In scenario T60, drivers will receive marginal solar reflections around at 2pm (**Figures 1.43 and 1.44 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**).

Road receptor R1 (southbound)

16.9.14 This section describes the effects on drivers travelling south along road B1228. For road receptors the key parameter is the glare angle, although other circumstances such as the predicted ocular hazard and frequency of glare should also be considered.

16.9.15 In scenario S10, drivers may receive solar reflections from the north-east between 6am and 7am in early March and early October for up to 10 minutes per day (**Figures 1.55 and 1.56 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). These reflections would be visible from Long Rampart Road (**Figures 1.69 and 1.70 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). All solar reflections will be outside 30 degrees from the line of sight and screened by existing hedges in leave along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**).

16.9.16 In scenario S20, drivers will receive negligible solar reflections around 5:30am in summer (**Figures 1.57 and 1.58 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**).

16.9.17 In scenario E10, drivers will receive solar reflections from the south-west between 1:30pm and 4pm from early October to late February for up to 15 minutes per day (**Figures 1.59 and 1.60 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). By road section, the impacts are (**Figures 1.73 and 1.74 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**):

- The section along General Lane and before Main Lane will receive green glare far from the south-west, which will be screened by trees and hedges;
- The section along Fog Lane and before Blackberry Farm will receive green glare far from the south-west, which will be screened by trees and hedges; and
- The section along Fog Lane and after Blackberry Farm will receive yellow glare from the south-west, which will have limited screening from existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), but will be blocked by vegetation screening SC05 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).

16.9.18 In scenario E20, drivers may receive solar reflections from the south-west between 12:30pm and 2:30pm from mid-September to late March for up to 15 minutes per day (**Figures 1.61 and 1.62 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). By road section, the impacts are (**Figures 1.75 and 1.76 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**):

- The section along General Lane and before Main Lane will receive green glare far from the south-west, which will be screened by trees and hedges;
- The section along Fog Lane and before Blackberry Farm will receive green glare far from the south-west, which will be screened by trees and hedges; and
- The section along Fog Lane and after Blackberry Farm will receive yellow glare from the south-west, which will have limited screening from existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), but will be blocked by vegetation screening SC05 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).

16.9.19 In scenario W10, drivers may receive solar reflections from the south-east between 7am and 11am from mid-August to early May for up to 30 minutes per day (**Figures 1.63 and 1.64 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). By road section, the impacts are (**Figures 1.77 and 1.78 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**):

- The section along General Lane and before Main Lane will receive green glare far from the south-east, which will be screened by trees and hedges;

- The section along Fog Lane just before Long Rampart Road will receive yellow glare far from the south-east and outside 30 degrees from the line of sight, which will have limited screening from existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), but will be blocked by vegetation screening SC06 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**); and
- The section along Long Rampart Road will receive yellow glare from the south-west very close to the line of sight, which will have limited screening from existing hedges, but will be blocked by vegetation screening SC07 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).

16.9.20 In scenario W20, drivers may receive solar reflections from the south-east between 8:30am and 11:30am during all months for up to 30 minutes per day (**Figures 1.65 and 1.66 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). By road section, the impacts are (**Figures 1.79 and 1.80 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**):

- The section along General Lane and before Main Lane will receive green glare far from the south-east, which will be screened by trees and hedges;
- The section along Fog Lane just before Long Rampart Road will receive yellow glare far from the south-east and outside 30 degrees from the line of sight, which will have limited screening from existing hedges, but will be blocked by vegetation screening SC06 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**); and
- The section along Long Rampart Road will receive yellow glare from the south-west very close to the line of sight, which will have limited screening from existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), but will be blocked by vegetation screening SC07 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).

16.9.21 In scenario T60, drivers may receive solar reflections from the south-east or the south-west between 10:30am and 11:30am from early September to late April and between 12:30pm and 2:15pm during all months for up to 20 minutes per day (**Figures 1.67 and 1.68 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**). By road section, the impacts are (**Figures 1.81 and 1.82 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**):

- The section along General Lane and before Main Lane will receive green glare close to the line of sight, although solar reflections will be screened by trees and hedges;
- The section along Fog Lane before Blackberry Farm will receive green glare close to the line of sight, which will be screened by trees and hedges;

- The section along Fog Lane after Blackberry Farm will receive yellow glare within 10 degrees, which will be partially screened by existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), although they will be blocked by vegetation screening SC05 and SC06 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**); and
- The section along Long Rampart Road will receive green glare very close to the line of sight, which will have limited screening from existing hedges along the east side of the road (**Figure 16.3: Glint and Glare Existing Screening in Volume 2**), but will be blocked by vegetation screening SC07 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).

Building receptors

- 16.9.22 With regards to building receptors, the frequency of solar reflections is the key parameter, and the recommendation is not to exceed 90 days per year or 60 minutes per day.
- 16.9.23 Scenarios S10 and S20 (**Tables 1.12 and 1.13 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) show 55 buildings with low impacts in S10 and 46 in S20. One building shows potentially moderate impacts (BL088), but solar reflections will be screened by vegetation screening SC01 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).
- 16.9.24 Scenario E10 (**Table 1.14 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) shows 36 buildings with low impacts. One building shows potentially moderate impacts (BL084), but solar reflections will be screened by vegetation screening SC08 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).
- 16.9.25 Scenario E20 (**Table 1.15 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) shows 35 buildings with low impacts. Two building shows potentially moderate impacts (BL083 and BL086), but solar reflections will be screened by vegetation screening SC10 and SC11 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**).
- 16.9.26 Scenarios W10 and W20 (**Tables 1.16 and 1.17 in Appendix 16.2: Glint and Glare Assessment Results in Volume 3**) shows 33 buildings with low impacts in W10 and 27 in W20. Five building shows potentially moderate impacts:
- BL008: Reflections will be blocked by vegetation screening SC02 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**);
 - BL077: Reflections will be blocked by vegetation screening SC04 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**);
 - BL084: Reflections will be blocked by vegetation screening SC08 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**);

- BL085: Reflections will be blocked by vegetation screening SC09 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**); and
- BL088: Reflections will be blocked by vegetation screening SC01 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**).

16.9.27 Scenario T60 (**Table 1.18** in **Appendix 16.2: Glint and Glare Assessment Results** in **Volume 3**) shows 36 buildings with low impacts. Three building shows potentially moderate impacts:

- BL008: Reflections will be blocked by vegetation screening SC02 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**);
- BL009: Reflections will be blocked by vegetation screening SC03 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**); and
- BL077: Reflections will be blocked by vegetation screening SC04 (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**).

16.10 What additional mitigation is proposed to avoid, prevent, reduce or offset likely effects on glint and glare?

16.10.1 The analysis results show that all moderate impacts will be blocked by the proposed vegetation screening (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements** in **Volume 2**). The remaining low impacts imply visible reflections of limited relevance that would result in no significant effects, requiring no additional mitigation measures.

16.10.2 The vegetation screening proposed to mitigate glint and glare will be documented in the Outline Landscape and Ecological Management Plan (Outline LEMP), which will be submitted in support of the DCO application and secured by the DCO.

16.11 What likely effects would remain for glint and glare following additional mitigation?

Aviation receptors

16.11.1 Green glare on flying approaches can result in low adverse impacts on pilots. These impacts are **not significant** and require no additional mitigation.

Road receptor R1 (northbound)

16.11.2 Where solar reflections are predicted within 30 degrees from the line of sight (scenarios S10, S20 and W10), these will be screened by existing vegetation. This can result in low adverse impacts on drivers that are **not significant** and require no additional mitigation.

Road receptor R1 (southbound)

16.11.3 Where solar reflections are predicted within 30 degrees from the line of sight (scenarios E10, E20, W10, W20 and T60), these will be screened by existing vegetation or by the proposed vegetation screening (refer to **Table 16.3**

above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**). This can result in low adverse impacts on drivers that are **not significant** and require no additional mitigation.

Building receptors

16.11.4 Where the technical analysis shows potentially moderate impacts, these are effectively mitigated by the proposed vegetation screening (refer to **Table 16.3** above and **Figure 16.4: Glint and Glare Proposed Elements in Volume 2**). The resulting low adverse impacts on users are **not significant** and require no additional mitigation.

16.12 What opportunities are there for environmental enhancement?

16.12.1 No opportunities for environmental enhancement have been identified at this preliminary assessment stage.

16.13 What difficulties and uncertainties have been encountered in this preliminary glint and glare assessment?

16.13.1 No difficulties or uncertainties have been encountered in the undertaking of this preliminary glint and glare assessment.

16.13.2 The information provided in this PEIR is preliminary and is based on the information available at the time of writing. A full assessment of likely significant effects of Mylen Leah Solar Farm will be reported in the ES.

16.14 What further work is required to inform the full glint and glare assessment in the DCO application?

16.14.1 A full glint and glare assessment will be informed by a further iteration of Mylen Leah Solar Farm design to be submitted in support of the DCO application and will form a technical appendix to the ES.

¹ Department for Energy Security & Net Zero (December 2025, published January 2026). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online: [National Policy Statement for renewable energy infrastructure \(EN-3\), 2025 - GOV.UK](#)

² East Riding of Yorkshire Council (2025). The East Riding Local Plan Update 2020-2039. Available online: [East Riding Local Plan Update](#)

³ Combined Aerodrome Safeguarding Team, Combined Aerodrome Safeguarding Team. Guidance Note GA1 'Safeguarding Guidance to General Aviation Aerodrome Managers & Operators'. Available online: [Guidance Note 1 - Safeguarding Guidance to Aerodrome Managers and Operators](#)

⁴ Combined Aerodrome Safeguarding Team, Combined Aerodrome Safeguarding Team (2024). Aerodrome Safeguarding Advice Note 5. Available online: [BAA Normal.Dot v1.00](#)

⁵ US Federal Aviation Administration, US Federal Aviation Administration (2021). 'Federal Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports'. Available online: [2021-09862.pdf](#)

⁶ US Federal Aviation Administration, US Federal Aviation Administration (2013). 'Interim Policy, US Federal Aviation Administration Review of Solar Energy System Projects on Federally Obligated Airports'. Available online: [2013-24729.pdf](#)

⁷ Page Power (2022). 'Solar Photovoltaic and Building Development Glint and Glare Guidance' (fourth edition). Available upon request at [Glint and Glare - Pager Power](#)

⁸ The British Horse Society (2025). Advice on Solar Farms near routes used by equestrians'. Available online: [solar-0825.pdf](#)