Memorandum

To:	Mr Dom Osborne	At:	Blind Creek Solar Farm Pty Ltd
From:	Dr Peter Georgiou	At:	SLR Consulting Australia Pty Ltd
Date:	14 November 2022	Ref:	610.30347-M01-v1.0 Blind Creek SF Reflective Glare 20221114.docx
Subject:	Proposed Blind Creek Solar Farm - Reflective Glare Additional Comments Regarding Residential Receptors		

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Dear Dom

As you are aware, SLR has carried out a Reflective Glare Assessment of the proposed Blind Creek Solar Farm. The study and its outcomes were documented in:

- SLR Report 610.30347-R01-v5.0 Reflective Glare 20220329, "Blind Creek Solar Farm – Reflective Glare Assessment", (29 March 2022).

We understand that Queanbeyan Palerang Regional Council has requested consideration of the potential for glare impact covering future residential areas of Bungendore identified in the following Council document:

- Bungendore Structure Plan 2048 (version 1, 22 January 2020 / adopted by Council 26 February 2020)

This Memo addresses the above issue.

In summary, we find that the proposed solar facility will have no impact in relation to reflective glare for the future residential areas identified in Bungendore Structure Plan 2048. This is due to the distance from the proposed facility and the position of these areas south of the facility in relation to incoming solar angles and their reflections. Further details are included within this Memo.

Please do not hesitate to contact us if you require any further information.

Kind Regards

Dr Peter Georgiou
Technical Director

Checked/Authorised by: NAK

SLR Consulting Australia Pty Ltd Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street North Sydney NSW 2060 Australia
T: +61 2 9427 8100 E: sydney@slrconsulting.com
www.slrconsulting.com ABN 29 001 584 612

1 BACKGROUND

SLR has previously carried out a Reflective Glare Assessment of the proposed Blind Creek Solar Farm. The study and its outcomes were documented in:

- SLR Report 610.30347-R01-v5.0 Reflective Glare 20220329, "Blind Creek Solar Farm – Reflective Glare Assessment", (29 March 2022).

In relation to the potential for residential nuisance glare, SLR's study concluded the following:

- Reflections will not be visible by residential receivers surrounding the facility under normal ±62° tracking operations during which solar panels will track the sun.
- If panels are left parked in a horizontal or near horizontal position, panel reflections from the proposed facility may be visible to the east and west of the facility for short periods of time in the early morning or late afternoon for certain months of the year.
- However, the potential for nuisance glare is considered low to minimal when considering the following factors: local obstruction to many receivers from surrounding vegetation and trees (not included in our analysis), the distances involved for "western" side receivers, and the low angle differences between incoming (direct) solar rays and their accompanying reflections.

SLR's study also concluded that solar panel reflection visibility potential during the identified periods events can be effectively eliminated entirely by the following measures:

- During Construction and/or Maintenance Periods, avoid very low tilt angles either East or West.
- Under an Operational "Back-Tracking" mode, avoid essentially horizontal panel angles at the start and end of each day. The precise limiting angle should be established during commissioning.

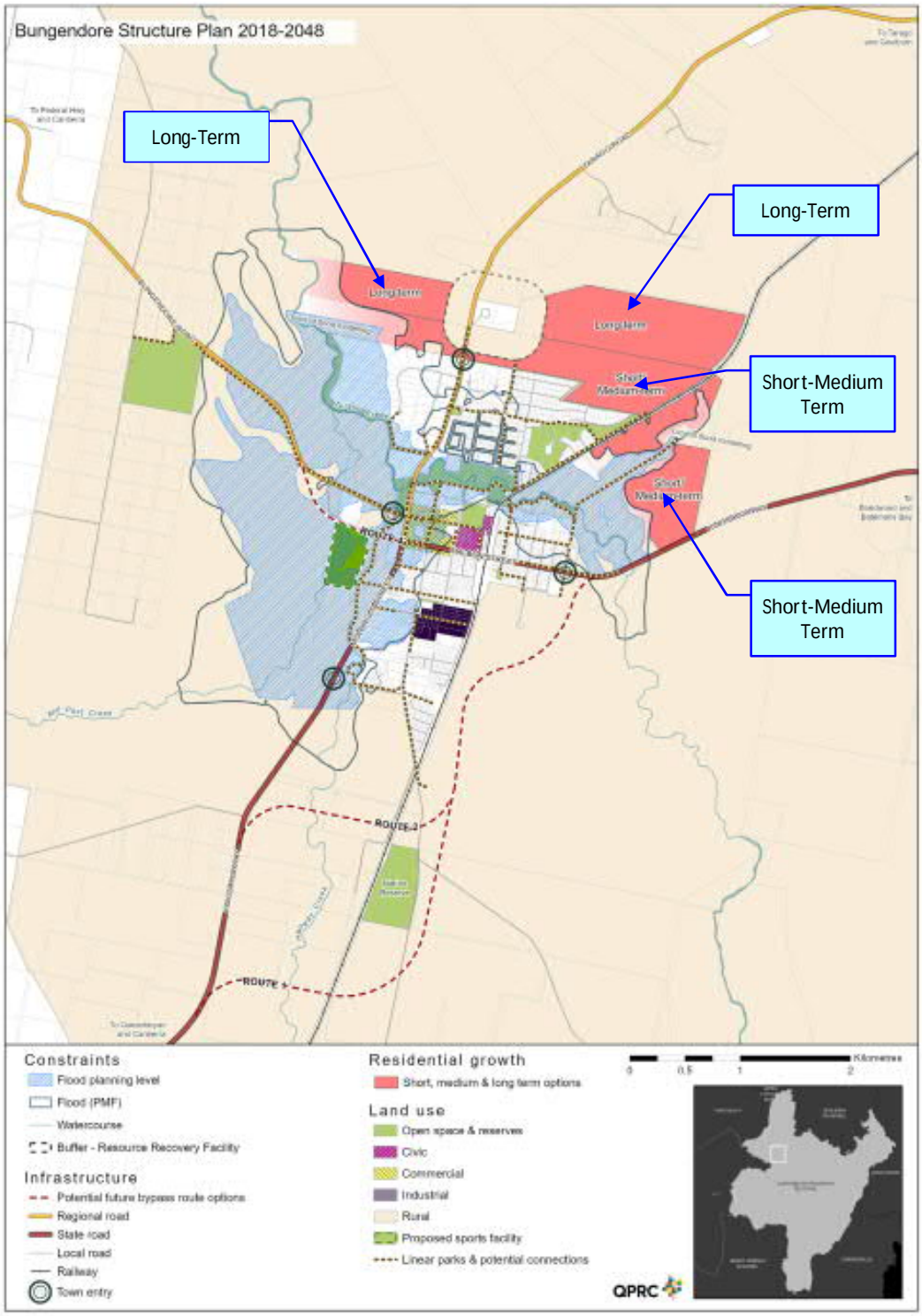
2 UPDATE QUERY FROM QUEANBEYAN PALERANG REGIONAL COUNCIL

Following a review of the EIS for the proposed facility, Queanbeyan Palerang Regional Council has requested consideration of the potential for glare impact covering the future residential areas of Bungendore identified in the following Council document:

- Bungendore Structure Plan (BSP) 2048 (ver1, 22 January 2020 / adopted by Council 26 February 2020)

The BSP2048 areas of interest, refer "Long Term" and "Short-Medium Term" shaded pink areas, are shown in Figure 1.

Figure 1 Map 1 – Bungendore Structure Plan Map 2048



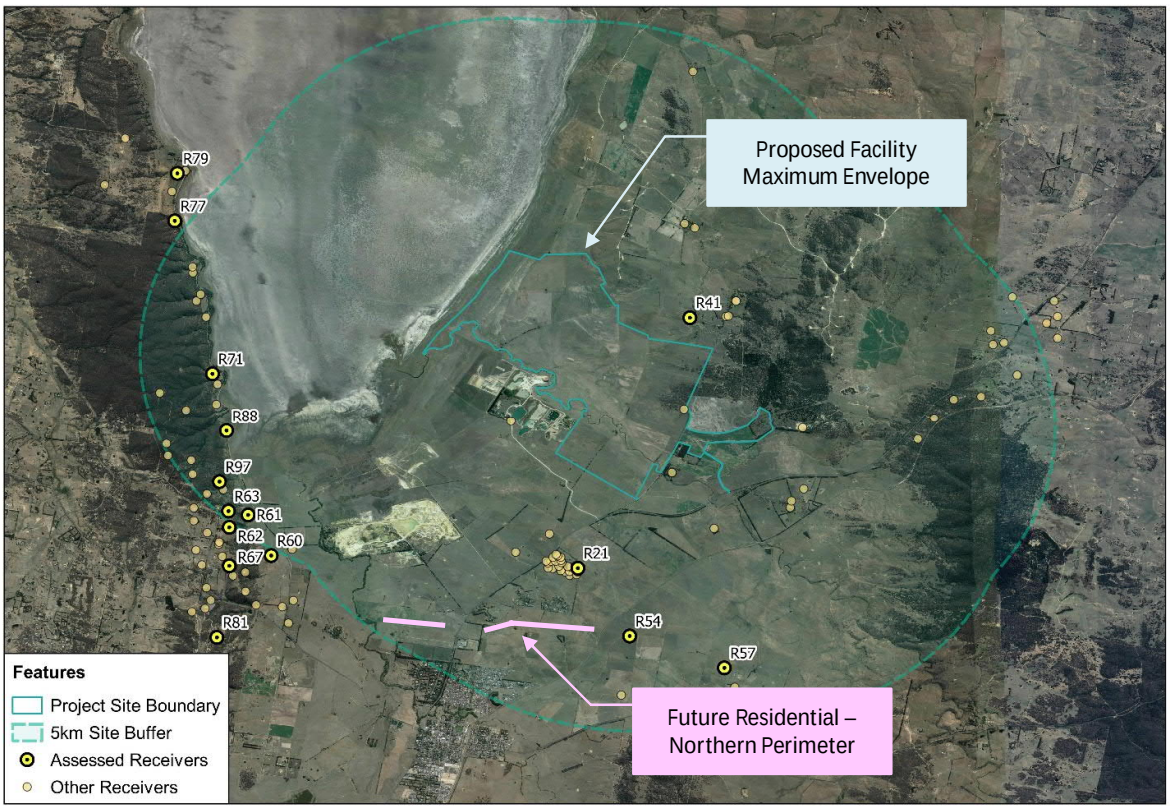
3 REVIEW OF POTENTIAL RESIDENBTIAL GLARE

The context of the residential areas of interest is shown in Figure 2, showing:

- The proposed facility's maximum envelope outline;
- The 15 "assessment" receivers selected for detailed analysis in SLR's previous glare study; and
- The northern-most perimeter line of future residential areas described in BSP2048.

The nearest future potential BSP2048 residential areas of interest are over 3 km south of the nearest boundary of the proposed facility.

Figure 2 Project "Assessment" Receiver Location Map



4 POTENTIAL GLARE CONSIDERATIONS

On the basis of the glare analysis undertaken in SLR's Glare Study for the proposed facility and the disposition of the future residential areas shown in Figure 2, the following is noted:

- Residents where reflections from the proposed facility may be visible (ie not necessarily constituting a "glare" condition) generally lie to the east or west to southwest of the facility – eg Residence 41 (refer Figure 2).
- This arises because the visibility of reflections (as shown by the all-year-round, minute-by-minute modelling) only occurs when the panels are in a horizontal or near horizontal position and able to pick up very low altitude incoming solar rays in the early morning (sunrise) or late afternoon (sunset) for certain months of the year.
- In fact, the modelling shows that, under an Operational "Back-Tracking" mode, all reflections can be avoided entirely by avoiding horizontal panel angles at the start and end of each day.
- The BSP2048 residential areas of interest lie to the south of the proposed facility and hence can only potentially be impacted by reflections that arise from incoming solar rays which arise themselves from the north.
- Such north-incoming solar rays occur close to midday when the altitude of the sun is at its highest (at any time of the year).
- Accordingly, incoming midday solar rays (from the north) will create reflections that are directed back upwards away from the ground.
- This is why residences to the south of the site in the original SLR analysis did not encounter any visible reflections conditions, let alone reflections which might constitute glare.

On the basis of the above, it can be confidently concluded that:

- The proposed solar facility will have no impact in relation to reflective glare for the future residential areas identified in Bungendore Structure Plan 2048.
- This is due to the distance of these areas from the proposed facility and the position of these areas south of the facility in relation to incoming solar angles and their reflections.