ARUP
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Tara Shore Pty Ltd ATF John Taylor Family Trust

271-273 Alfred Street, North Sydney

Reflectivity Assessment Report

Reference: 312844-ARP-REF-REP-001

01 | 29 May 2026

Job number **312844**

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Consultant Declaration

Project Name

Application number	SSD-103541730
Address of subject land	271-273 Alfred Street, North Sydney
Lot / DP	• Lot 1 DP 532504 • SP6830

Applicant Details

Applicant name	Tara Shore Pty Ltd ATF John Taylor Family Trust
Applicant address	Suite 7, 273 Alfred Street, North Sydney

Report Details

Name of report this declaration relates	Reflectivity Assessment Report
Report reference no.	312844-ARP-REF-REP-001
Report date	2 April 2026
Company name	Arup Australia Pty Ltd (ABN 76 625 912 665)
Author name	Jorg Kramer
Author qualifications	MArch
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Declaration by Consultant

Name	Jorg Kramer
Registration no.	N/A
Organisation registered with	N/A
Declaration	The undersigned declares that this Reflectivity Assessment Report: • has been prepared in accordance with the following policy, guidelines, or legislative requirements: - *Hassall, D. N. H. (1991): Reflectivity. Dealing with Rogue Solar Reflections* - *AS4282:1997* - *North Sydney DCP 2025 Section 8.1 Provision P4* • contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the Environmentally Sustainable Design Report relates; • does not contain information that is false or misleading; • identifies and addresses the relevant Planning Secretary's environmental assessment requirements (SEARs) for the project; • identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments to which the Environmentally Sustainable Design Report relates; • contains a consolidated summary of the proposed or necessary mitigation measures
Signature	Jorg Kramer
Date	29 May 2026

Document Verification

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1. Introduction

1.1 Background

This Reflectivity Assessment Report has been prepared by Arup on behalf of Tara Shore Pty Ltd ATF John Taylor Family Trust (the Applicant) in support of a State Significant Development Application (SSDA) identified as SSD-103541730 which seeks approval for a 38-storey mixed-use housing development, located at 271-273 Alfred Street, North Sydney (the site).

The site is located within the North Sydney Local Government Area (LGA). The site comprises two allotments which are legally identified as Lot 1 DP 532504 (271 Alfred Street) and SP6830 (273 Alfred Street). It is rectangular in shape and has street frontages to Alfred Street to the west and Little Alfred Street to the east (both measuring approximately 23m). The existing building on the site is a three-storey commercial building. A site aerial is provided in **Figure 1** below.

Figure 1 Site Aerial [*Source: Nearmap edited by Colliers Urban Planning]*

The proposal was declared State Significant Development (SSD) in State Significant Declaration Order (No.15) 2025 (the Order), which specified that the development detailed in EOI No.279422, including a mixed-use development located at the site be declared as SSD. The Order enables SSD-103541730 to be undertaken via the Housing Delivery Authority (HDA) pathway, including a concurrent rezoning proposal to the North Sydney Local Environmental Plan 2013 (North Sydney LEP).

The proposal involves two components: the SSDA and the concurrent rezoning of the site.

The SSDA component seeks consent for:

- Demolition of the existing building on the site;
- Construction of a 38-storey mixed use development, comprising:

  - 9 levels of basement car parking, comprising plant and bicycle storage area;
  - Commercial tenancies on Level 2;
  - Residential uses on levels 3 and above, comprising 95 apartments.
- Landscaping and public domain works; and
- Extension and augmentation of services and infrastructure as required.
- Lot amalgamation and stratum subdivision of the site.

The rezoning component seeks consent to amend the North Sydney LEP, comprising:

- Rezone the land use zone of the site from E2 Commercial Centre to MU1 Mixed Use;
- Amend the maximum building height from 13m to RL 166.5m;
- Amend the maximum floor space ratio from 3.5:1 to 13.9:1; and
- Introduce a site-specific clause requiring 15% of residential Gross Floor Area (GFA) to be used as affordable housing; and managed by a CHP for a period of at least 15 years.

For a detailed project description refer to the Environmental Impact Statement and Rezoning Report prepared by Colliers Urban Planning.

1.2 Relevant SEARs to this report

This report has been prepared in response to the Secretary's Environmental Assessment Requirements (SEARs) dated 12 February 2026 for SSD-103541730. Specifically, this report has been prepared to respond to those SEARs outlined in **Table 1** below.

Table 1: Secretary's Environmental Assessment Requirements relevant to this Report

SEARs requirement	Report section
7. Environmental Amenity	
Assess amenity impacts on the surrounding locality, including solar access, visual privacy, view loss and view sharing, as well as wind, lighting **and reflectivity impacts**. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated.	Sections 5, 6

1.3 Purpose of report

This reflectivity assessment has been prepared for submission as a response to SSDA to outline the reflectivity impact of glazing surfaces proposed for the development on key transport infrastructure surrounding the site. The study focuses specifically on calculation of veiling luminance used to assess disability glare.

1.4 Site Description

Figure 2: Context Plan. (source: Google maps)

Situated at 271–273 Alfred Street, North Sydney, the site comprises a consolidated allotment highlighted in yellow on the aerial image.

The site is located within a dense urban context and is positioned in close proximity to arterial road networks.

The site is surrounded by:

- Alfred Street, and the adjacent Bradfield Highway (M1), to the west
- Little Alfred St to the east
- Adjacent buildings to the north and south (note: a building of similar height is currently proposed on adjacent site to the north at 275 Alfred St).

The broader surrounding road network includes Mount St, Pacific Highway, Neutral Street, and Whaling Road.

The site is adjacent to the North Sydney CBD, separated by Bradfield Highway. It thus sits at the edge of predominantly mid- to high-rise context in the CBD (and proposed on the northern adjacent site), with low- to medium-rise buildings of predominantly residential nature extending to the eastern side. Due to its height, the proposed building will be visible from significant distance from the south, east and north.

2. Methodology

2.1 Criteria for Assessment

The method for this study follows that of David N. H. Hassall of the University of New South Wales[1], which has been widely used to assess reflections off building projects in Sydney. It has been specifically developed for the purpose of reviewing the potential glare impact of solar reflections from facades on traffic in detail, beyond a nominal facade material reflectivity limit.

The term "glare" describes adverse visual effects caused by large ratios of luminance in the visual field. Glare can generally be defined in two ways by its impact on observers (these may coincide):

- Discomfort glare – resulting in psychological annoyance, desire to avert view
- Disability glare –impacting the ability to recognise objects in the visual field and thus ability to carry out visual tasks (such as reading or driving)

It is critical that a driver's view is unaffected by disability glare as this has the potential to cause road accidents, thus the Hassall methodology focuses on prediction of this aspect of glare.

It further singles out veiling glare as the predominant mode of glare that can occur from facade reflections towards traffic. Veiling glare is defined in this context as glare caused by multiple reflections and scattering within the eye of direct light from a bright source. This produces a perception similar to a thin veil being overlaid on the visual scene, and reduces the contrast in the scene, potentially impairing visual tasks. A prerequisite for veiling glare is thus that reflections of the sun are visible relatively close to the direction of view of an observer.

Veiling glare is a form of perceptive effect of glare; whether it leads to discomfort or disability glare depends on the intensity of the effect.

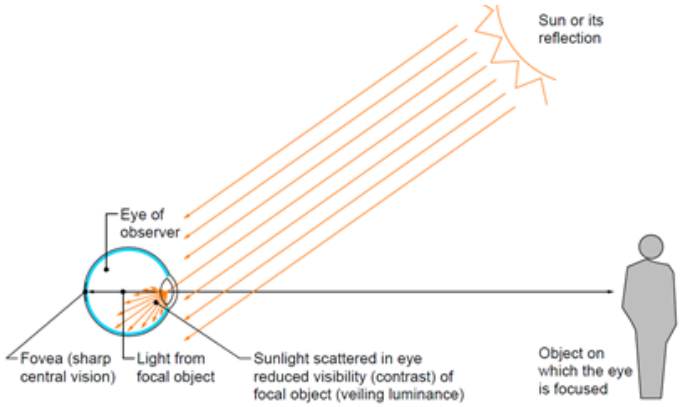


Figure 3: Bright sunlight falling into the eye reduces contrast and visibility of objects. This effect can be quantified by the equivalent veiling luminance measure.

Hassall proposes a workflow to track solar geometry, estimate sun intensity, establish actual facade reflectance, and numerically calculate a measure for the veiling effect. This measure, the equivalent veiling luminance, measured in cd/m² (candela per metre squared), is a representation of apparent brightness to the human eye corrected for the angular distance of the glare source from the focus of vision, which reduces the veiling effect.

[1] Hassall, D. N. H. (1991): Reflectivity. Dealing with Rogue Solar Reflections, Faculty of Architecture, University of New South Wales, ISBN 0 646 07086 X

The Hassall methodology further proposes a limit of acceptability of equivalent veiling luminance of facade reflections for traffic of **500 cd/m²**. Where this is exceeded, solar reflections are considered as potentially causing disability glare.

2.2 Workflow

Arup use in-house developed software to carry out the Hassall calculation based on 3D models, capable of checking for annual worst-case reflections anywhere off the facade towards locations along a stretch of road. We have applied this software to a simplified model of the reflective surfaces of the proposed development.

This involves several steps, as outlined below:

- The size, orientation, and extent of reflective objects on each facade are determined by examination of drawings / 3D models provided by the client, the site and surrounds, and expected glazing materials.
- Several observer locations are analysed for critical facade, representing locations from which traffic participants may observe the facades.
- Times at which the sun is reflected off the facade are determined, as well as the directions in which it is reflected.
- If the sun is reflected towards any observer, the equivalent veiling luminance in the eye of the observer is calculated and evaluated against the maximum allowed level of 500 cd/m² according to Hassall. This involves calculations of the strength of solar illumination, the position of the sun in front of the facade, the apparent position of the sun reflected in the facade, and the reflected solar illumination received by the observer.
- If the limit is exceeded, further assessment is carried out to evaluate if other factors such as facade shading make the situation acceptable or not. Within his methodology, Hassall discusses situations where an undesirable amount of veiling glare is experienced but reflections fall outside the cone of sensitive vision and / or can be blocked by sun visor, hand, or hat.
- In cases where the angular size of the facade observed from a certain distance is too small to reflect the full sun disk, it is reasonable to assume that the intensity of reflections off a panel is proportionally diminished with the percentage of the sun disk solid angle that is reflected by the same panel.

2.3 Assumptions

- For the purposes of this assessment, the proposed glazed facade is initially assumed to have a reflectivity of 20% (external specular reflectivity at normal incidence) in line with Sydney typical DCP maximum values.
- It is assumed that to carry out the visual tasks required for traffic participation, drivers and pedestrians face parallel to their direction of travel and view the road in front of them at 1° down relative to the plane of the road surface, as per view direction assumptions in AS4282:1997 5.4.2[2] which sets out similar considerations for the purposes of glare from night-time road lighting.
- As a conservative assumption, the development at 275 Alfred Street has been excluded from the modelling to assess reflectivity impacts on 271-273 Alfred St.

[2] https://www.standards.org.au/standards-catalogue/others/sa/as--4282-1997

2.4 Modelling and Assessment Approach

This reflectivity study uses a digital 3D model of the proposed development and the surrounding context including buildings, infrastructure and topography referred in Figure 4.

The model has been developed from the context model made available by OCG Architects, drawings provided by OCG and open-source maps. Future overshading from the adjacent proposed development at 275 Alfred street is not considered in the analysis, as a conservative approach.

The model is used to interrogate the view of the building and solar reflections originating from it along the observer paths listed in **Table 2**.

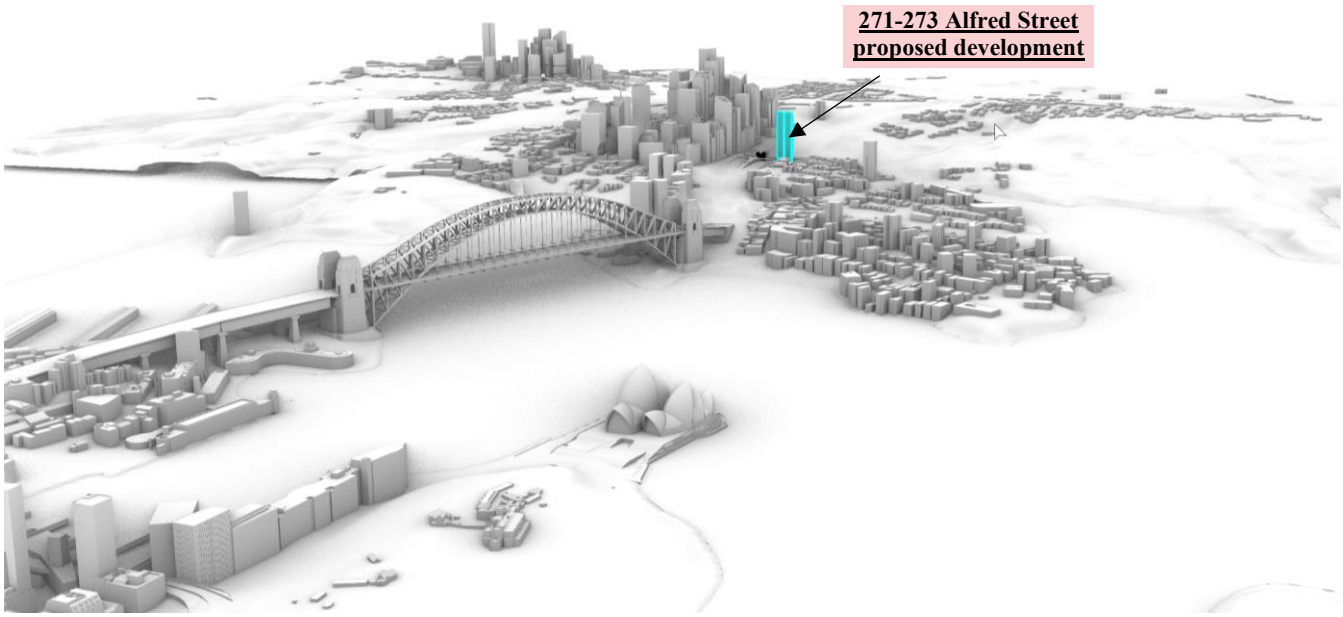


Figure 4: Perspective view of 3D building and context model used for reflectivity assessment. (source: OCG)

2.5 Assessment Locations

The reflectivity assessment is concerned with locations from where the proposed building's facade is visible close to the direction of travel and view of traffic participants including drivers, cyclists and pedestrians. From a review of locations around the site, the roads noted in Table 2 and have been identified as those of possible concern and are assessed in detail in the further sections of this report. They include roads in close proximity from which the building is prominently visible, but also roads at distance with an alignment that could result in view of the building's reflecting façade close to the direction of view following the road.

Table 2: Roads and travel directions for assessment

Ref.	Road name	Type/Function	Direction
1	Arthur St / Mount St	Local road	South / east
2	Pacific Hwy / Alfred St	Local road	North-east / north
4	Whaling Road	Local road	South
5	Bradfield Highway	Local road	North-west
6	Aubin Street	State Highway	North, south
7	Kurraba Road	Local road	West
8	Bannerman Street	Local road	West
9	Bertha Road	Local road	West
10	Rangers Road	Local road	West
11	Kiara Close	Local road	West
1	Arthur St / Mount St	Local road	North-west

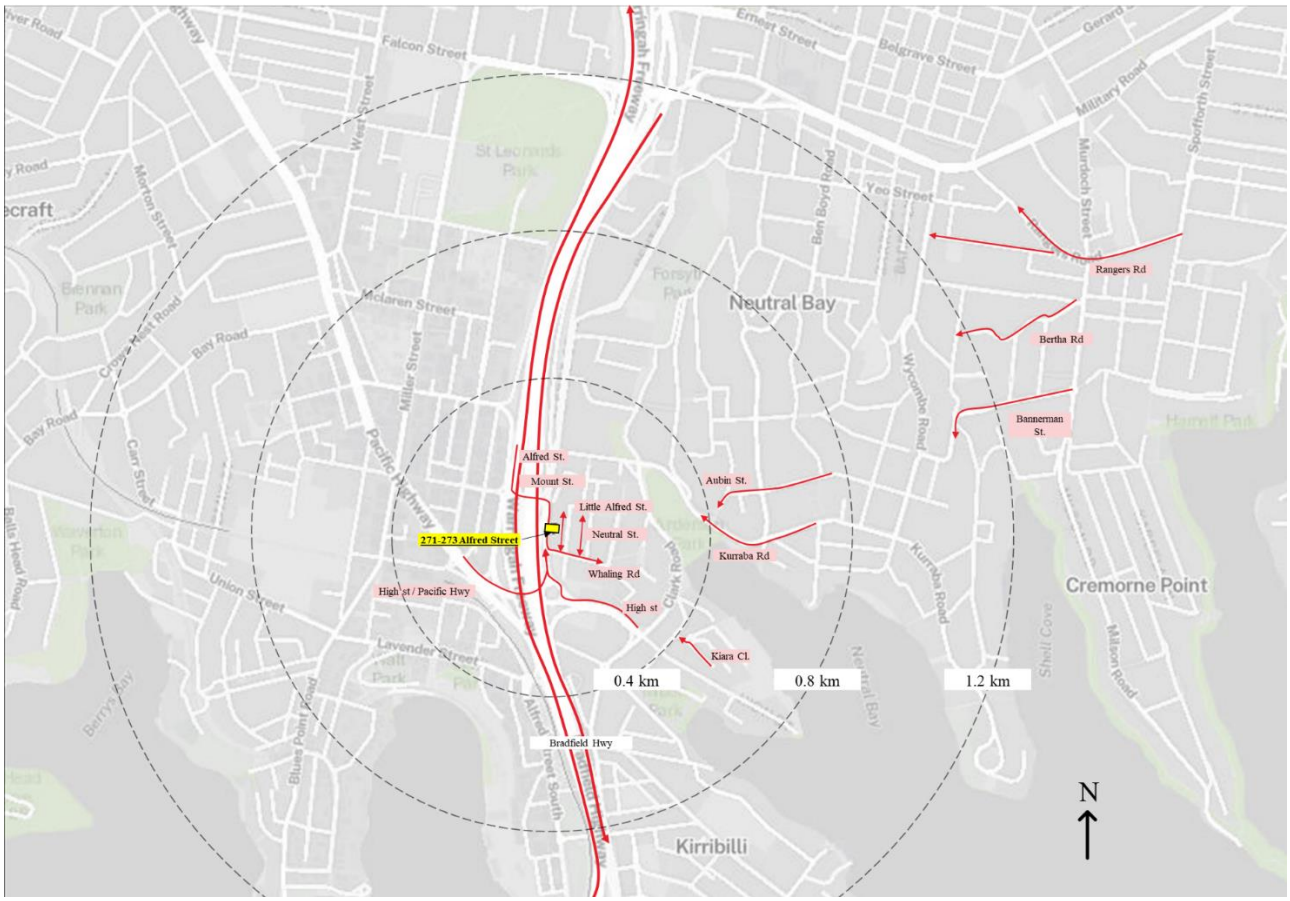


Figure 5: Map of assessed roads(source:nearmaps.nsw). Locations are considered at closely spaced intervals along the indicated lines.

3. Design Description

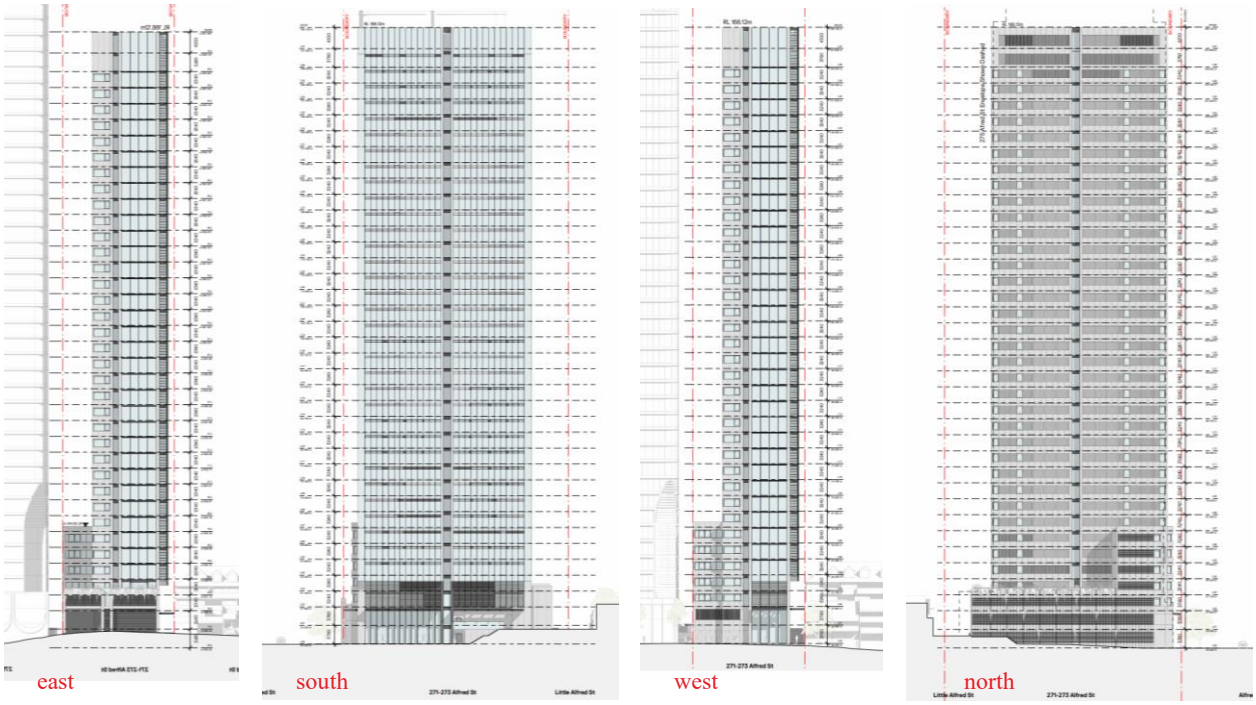


Figure 6: Proposed Development Elevations (Source: OCG)

3.1 Architectural Form and Massing

The proposed development comprises a slender high-rise tower form set above a lower podium. The building massing has been articulated vertically to reduce perceived bulk and to respond to the surrounding urban context. The tower is generally rectilinear in form, with expressed vertical façade elements that visually aid the elevations.

The podium establishes a strong street interface and provides a visual transition to the pedestrian scale, while the tower component is setback to minimise visual dominance when viewed from surrounding streets and transport corridors. Balustrades and balcony glazing introduce depth to the façades; however, the primary glazing planes remain aligned with the building's four main elevations. The north façade incorporates limited glazing due to its proximity to anticipated future development on the adjoining site to the north

3.2 Glazing Characteristics

The proposed glazing is anticipated to be a high-performance architectural glazing system with a moderate external specular reflectivity consistent with contemporary commercial and residential developments in Sydney. For the purposes of this reflectivity assessment, the glazing has been conservatively assumed to have an external reflectivity of approximately 20% at normal incidence, as a common maximum allowance in DCPs in the wider metropolitan area (e.g. Sydney DCP 2012). The southern façade features a second glazing skin at the external side of wintergardens. East and West glazing is provided with automated venetian blinds within an open cavity facade.

Solid façade areas are not proposed to have highly reflective finishes and are predominantly concrete, with painted aluminium elements. Intense reflections are not expected from these areas.

4. Modelling Considerations

4.1 Modelling Simplifications

To maximise accuracy of the results while minimising computational calculation time, some simplifications were applied to the overall model geometry. Small geometry elements have been removed from surrounding building massing for analysis efficiency.

Building massing has been simplified to the main elevation planes. The modelling does not account for secondary mitigating factors such as façade framing elements, joints, surface irregularities or partial self-shading, all of which would further reduce the intensity and coherence of reflected solar light. Exclusion of these features represents a conservative approach consistent with the purpose of the assessment.

5. Assessment

5.1 Format of results

The sections below will comment on the expected impact of reflected glare on traffic, for each observer path reviewed.

Where reflections from the development can exceed the limit of acceptability set out by Hassall (500 cd/m²), indicative perspective views are shown for a single viewpoint on these paths. Note however the modelled paths will be reviewed along their entire lengths.

The equivalent veiling luminance of reflections is colour coded in projected facades in perspective views. Facade areas are shown orange to red where reflections exceed the Hassall limit of 500cd/m² for prevention of disability glare. Reflections off projected facade area shown in blue to cyan are below this limit in intensity.

Calculations per the Hassall methodology are primarily aimed at road traffic but allow by extension reasoning about impact on pedestrians. See section 5.3 for further commentary.

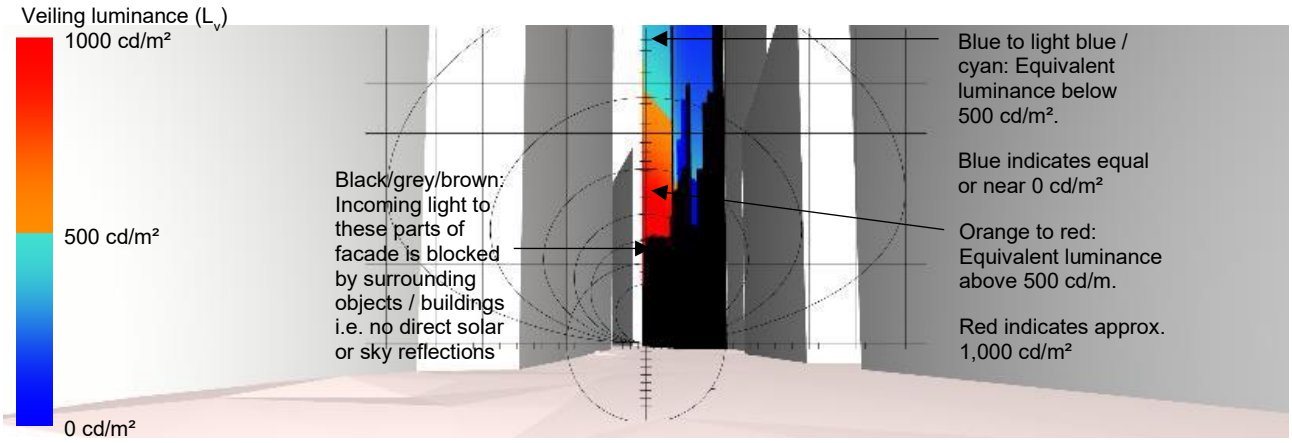


Figure 7: Key of colours indicating reflection intensity per Hassall calculation.

(Note: The 500 cd/m² threshold applies to reflections occurring within the driver's sensitive field of view; reflections occurring well above this region may exceed the threshold without causing disability glare in practice.)

5.2 Modelling results

The below sections identify the maximum equivalent veiling luminance that may occur over the course of the year at any point along the roads that have been subject of detailed assessment. For locations where the Hassall glare threshold of 500 cd/m² is exceeded, any mitigating circumstances are discussed.

5.2.1 Arthur Street / Mount Street

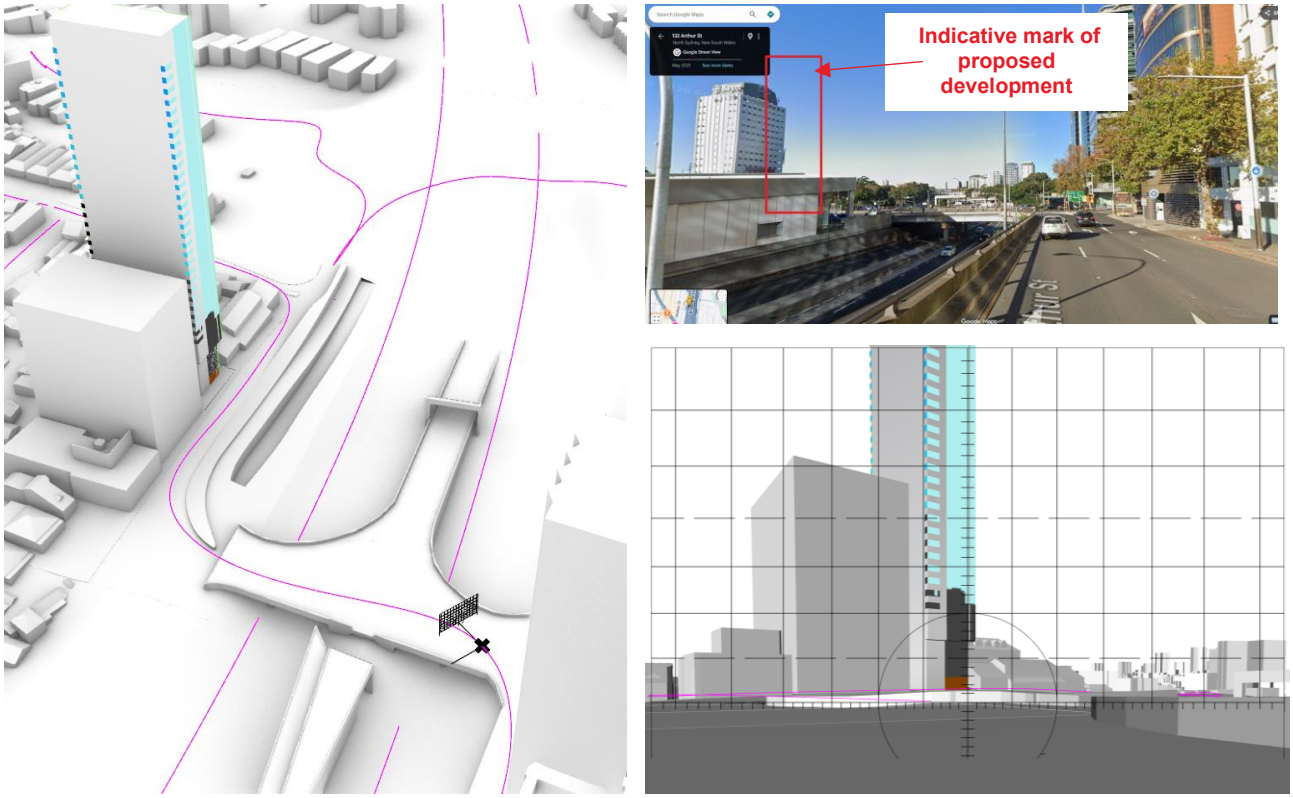


Figure 8: Arthur Street / Mount Street, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
1	Arthur St / Mount St	410	>20°	Below Hassall glare threshold

Reflections from the proposed development received along Arthur Street and Mount Street remain below the Hassall disability glare threshold, with a maximum equivalent veiling luminance of approximately 410 cd/m².

Thus, no unacceptable glare impacts are expected along this route.

5.2.2 Pacific Highway / Alfred Street North

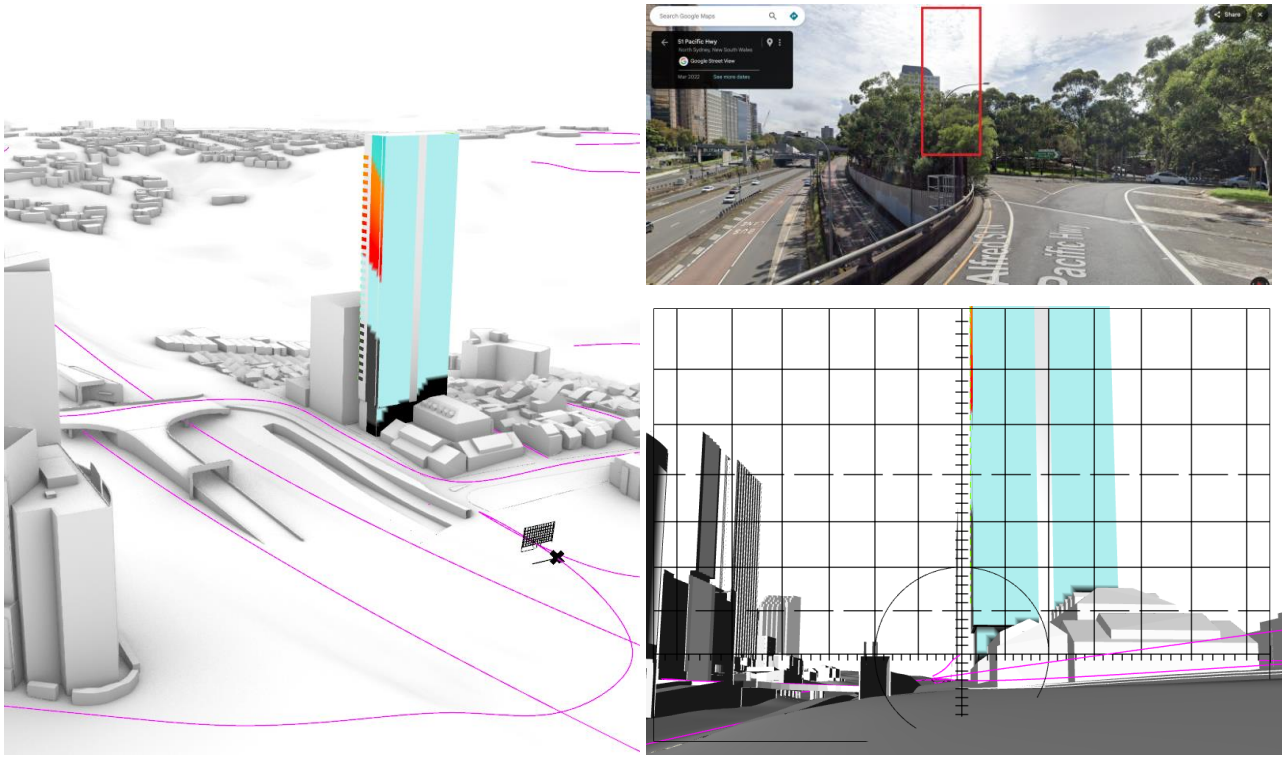


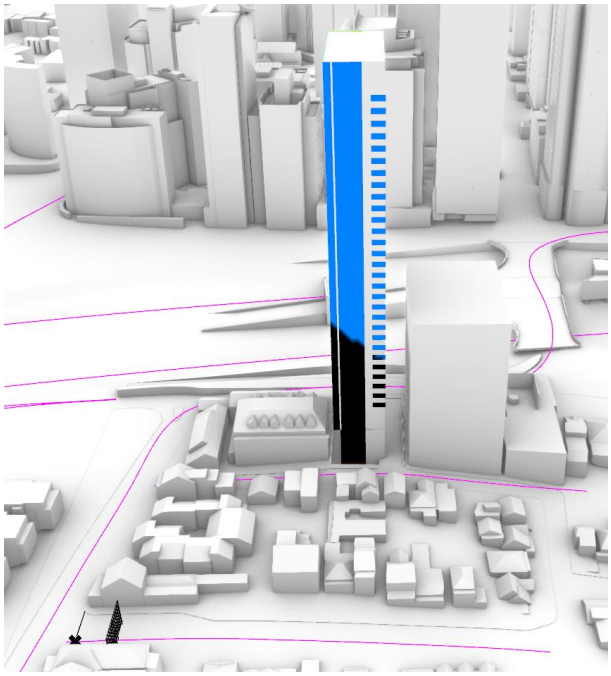
Figure 9: Pacific Hwy, perspective and view from road

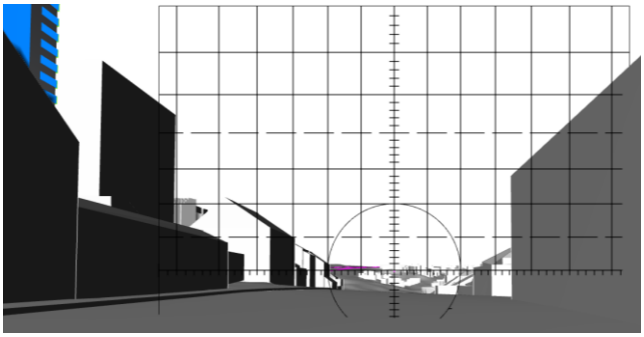
Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
2	Pacific Hwy / Alfred St	1250	24° - 35°	Above typical car windscreen cut-off angle. Glancing angle reflections only, sun directly visible at same time

Reflections from the proposed development received along Pacific Highway, heading north as the road leads onto Alfred Street North, can exceed the Hassall glare threshold and reach a maximum equivalent veiling luminance of approximately 1,250 cd/m². Reflections are however 'glancing angle' reflections i.e. very shallow reflections off the west façade glazing, would only be visible for very short durations of time and would occur while the sun is directly in the field of view at the same angle of elevation. They occur at elevated vertical angles (approximately 24°–35° above the driver's sensitive field of view), which is deemed above typical car windscreen cut-off angles by Hassall (20°).

Thus, no unacceptable glare impacts are expected along this route.

5.2.3 Neutral Street





Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
3	Neutral Street	40	>15°	Below Hassall glare threshold

Reflections from the proposed development received along Neutral Street remain below the Hassall disability glare threshold, with a maximum equivalent veiling luminance of approximately 40 cd/m².

Thus, no unacceptable glare impacts are expected along this route.

5.2.4 Whaling Road

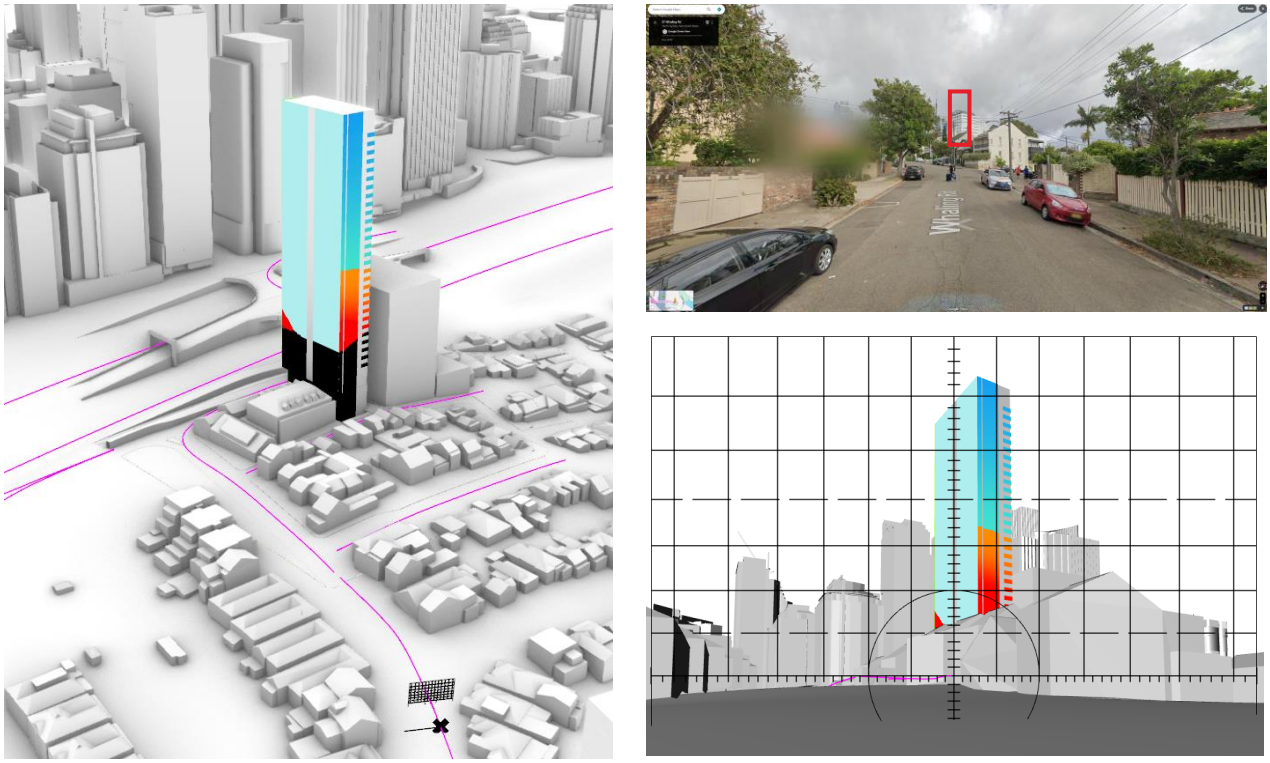


Figure 10: Whaling Rd, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
4	Whaling Road	3900	6° - 17°	Above car visor cut-off angle. Vehicles anticipated to be at lower speeds.

Reflections off the east façade during winter mornings and off the south façade during late summer afternoons are visible ahead when driving uphill on Whaling Road towards the west. Due to their proximity to the direction of travel, they can reach high theoretical veiling luminance up to approximately 3,900 cd/m².

However, reflections remain above 5° of the plane of view, due to houses and street trees on Whaling Road obscuring lower views of the proposed building. At this elevation angle, Hassall proposes that reflections can be blocked by car sun visor, hat or hand. This is considered acceptable as Whaling Road is a dead end road, with local traffic at limited speeds only.

Thus, no unacceptable glare impacts are expected along this route.

5.2.5 Bradfield Highway

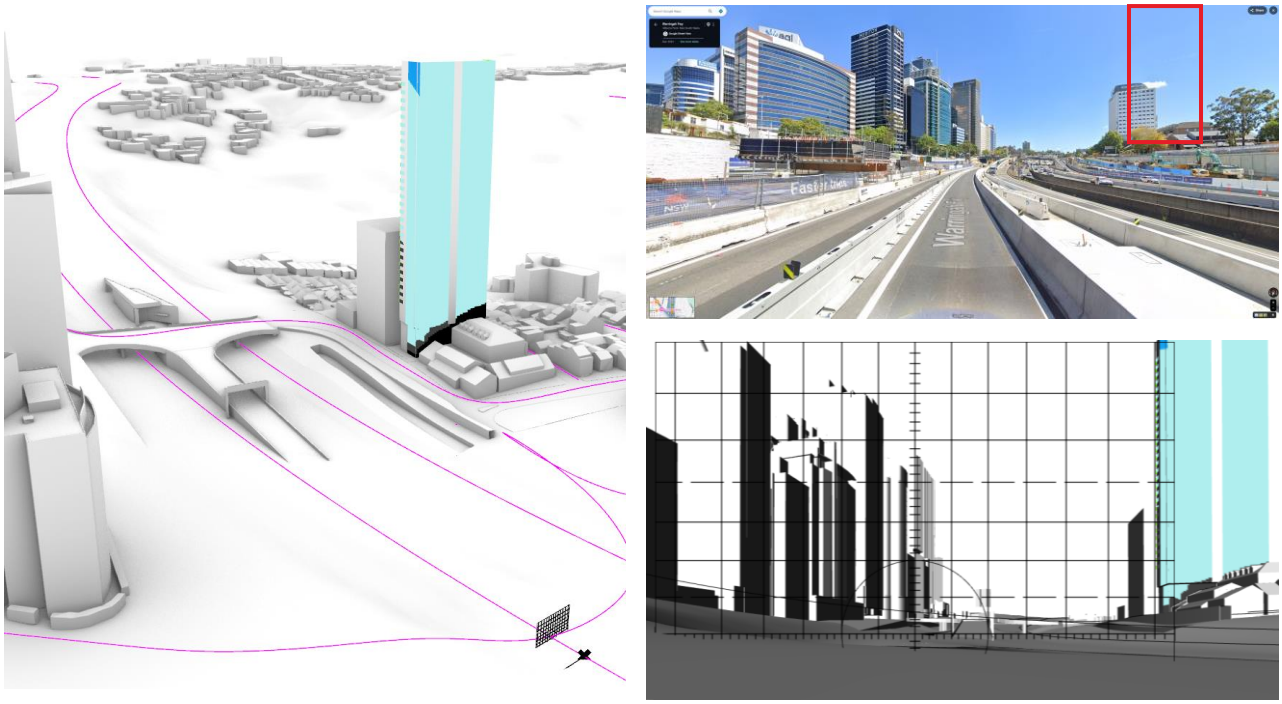


Figure 11: Bradfield Hwy, perspective and view from road travelling north

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
5	Bradfield Highway	210 / 120	>29°	Below Hassall glare threshold

Travelling north or south on Bradfield Highway, sun reflections become visible only relatively close to the site, when the proposed building is off to the east from the direction of travel. Intensity of reflections thus remains below the Hassall disability glare threshold, with a maximum equivalent veiling luminance of approximately 210 cd/m² travelling north and 120 cd/m² travelling south.

Thus, no unacceptable glare impacts are expected along this route.

5.2.6 Aubin Street

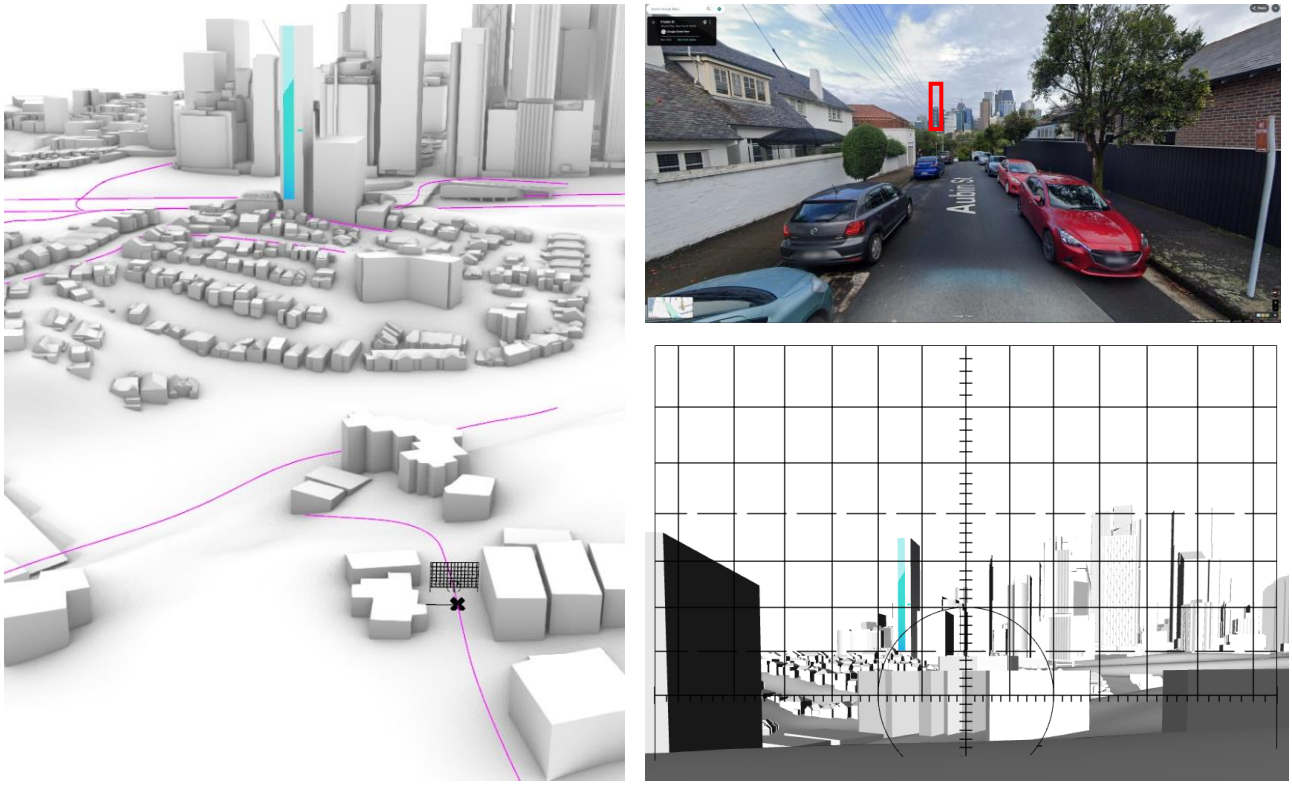


Figure 12: Aubin St, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
6	Aubin Street	450	5° – 14°	Below Hassall glare threshold. Part of road one-way leading away from site

Reflections from the proposed development received along Aubin Street leading towards the site remain below the Hassall disability glare threshold, with a maximum equivalent veiling luminance of approximately 450 cd/m². The eastern section of Aubin Street, where view towards the site could at times receive stronger reflections, is a one-way road in eastern direction i.e. leading away from the site.

Thus, no unacceptable glare impacts are expected along this route.

5.2.7 Kurraba Road

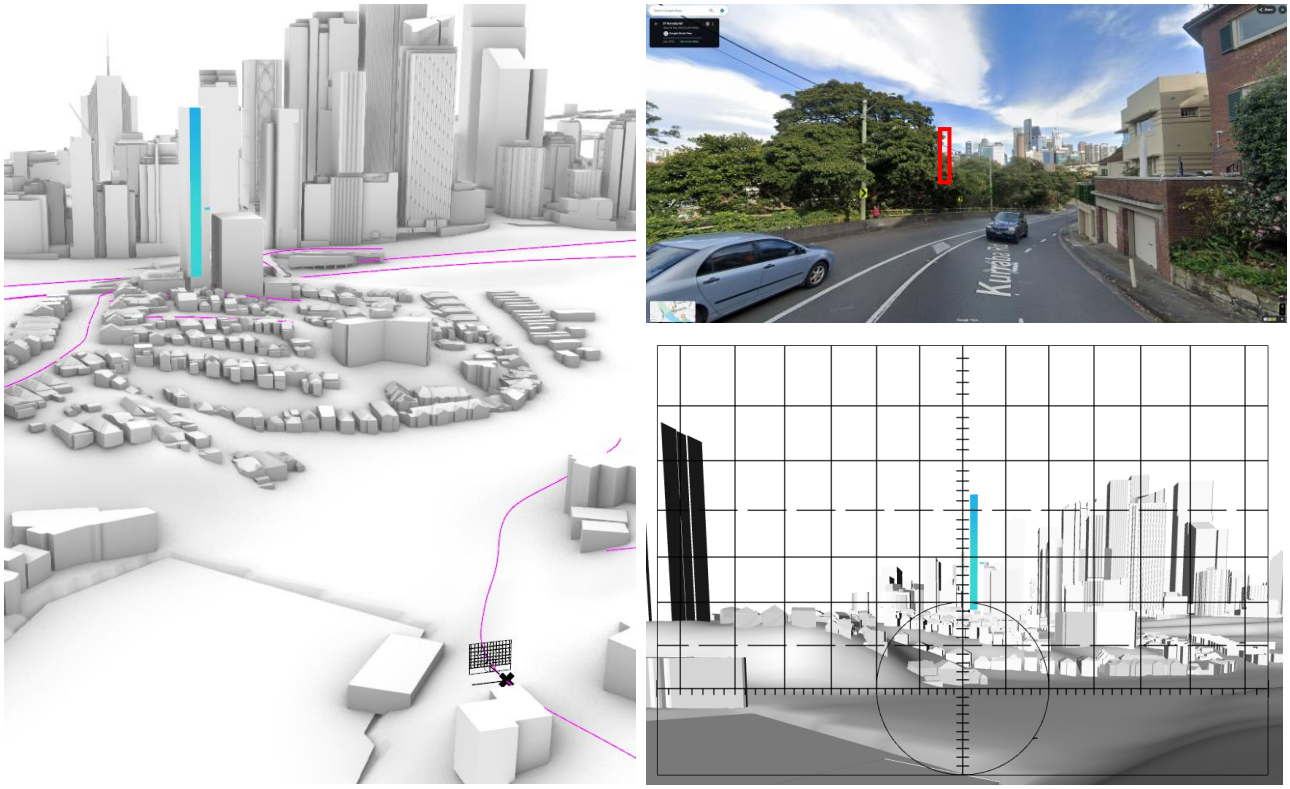


Figure 13: Kurraba Rd, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
7	Kurraba Road	390	9° - 22°	Below Hassall glare threshold.

Reflections from the proposed development received along Kurraba Road remain below the Hassall disability glare threshold, with a maximum equivalent veiling luminance of approximately 390 cd/m². Vegetation along the road obscuring direct view further mitigates reflections.

Thus, no unacceptable glare impacts are expected along this route.

5.2.8 Bannerman Street

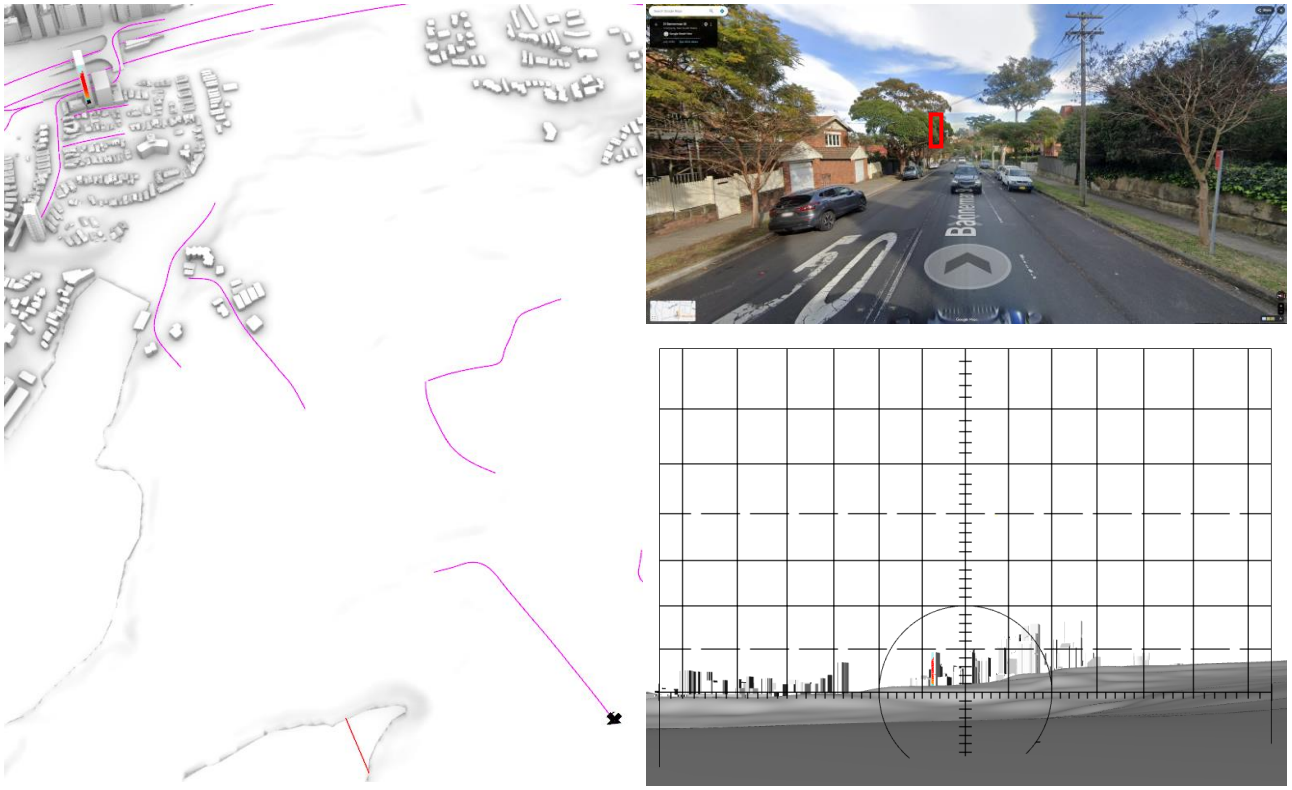


Figure 14: Bannerman St, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
8	Bannerman Street	590	0° - 5°	Screened by surrounding buildings and roadside vegetation.

At Bannerman Street, the model analysis reports a theoretical maximum veiling luminance of approximately 590 cd/m² at low vertical angles. However, the model does not include the local buildings. At this distance to the site, the screening from surrounding buildings and roadside vegetation is expected to obscure view of the building.

Thus, no unacceptable glare impacts are expected along this route.

5.2.9 Bertha Road

Figure 15: Bertha Rd, perspective and view from road

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
9	Bertha Road	0	N/A	No sun reflection.

While Bertha Road leads towards the site from an eastern direction, it is sufficiently north of the site to not receive any sun reflections from the east façade of the building. View towards the site also appears to be obscured by buildings along Bertha Rd.

Thus, no unacceptable glare impacts are expected along this route.

5.2.10 Rangers Road

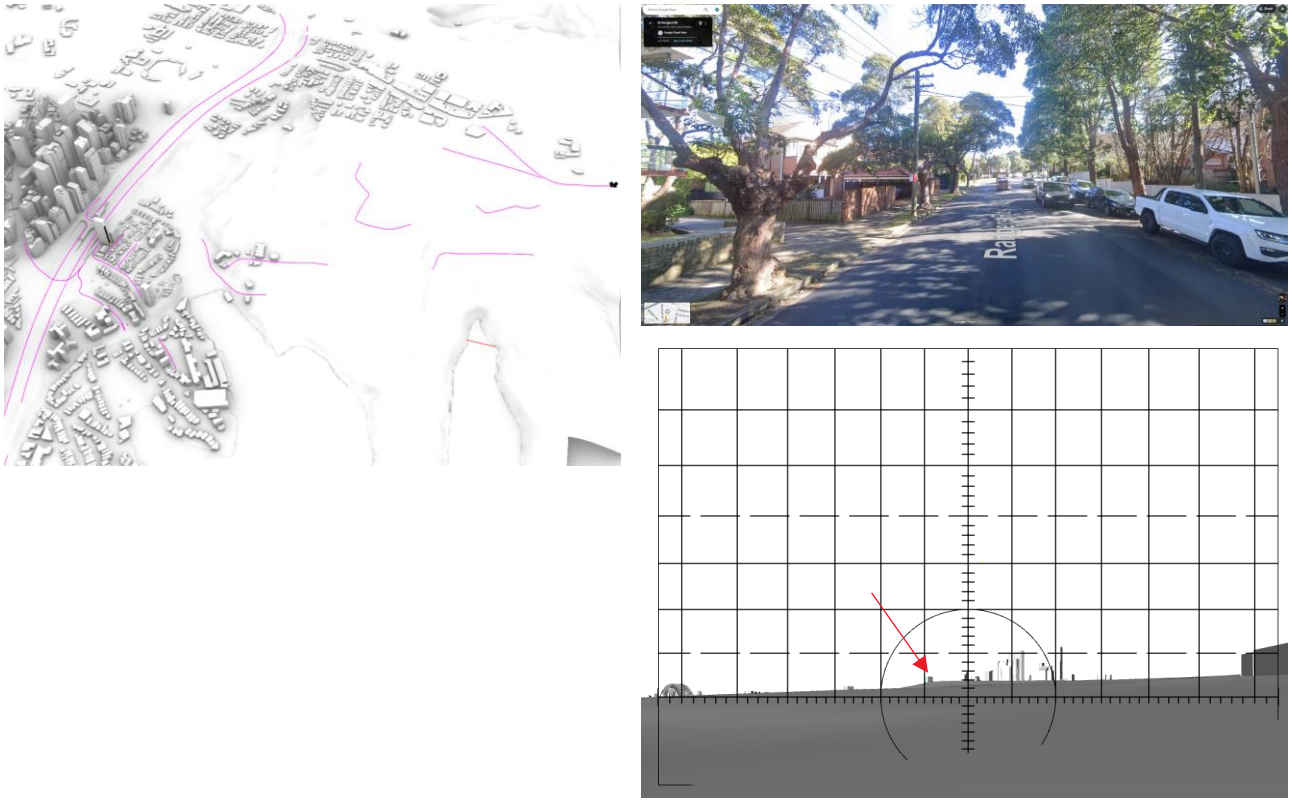


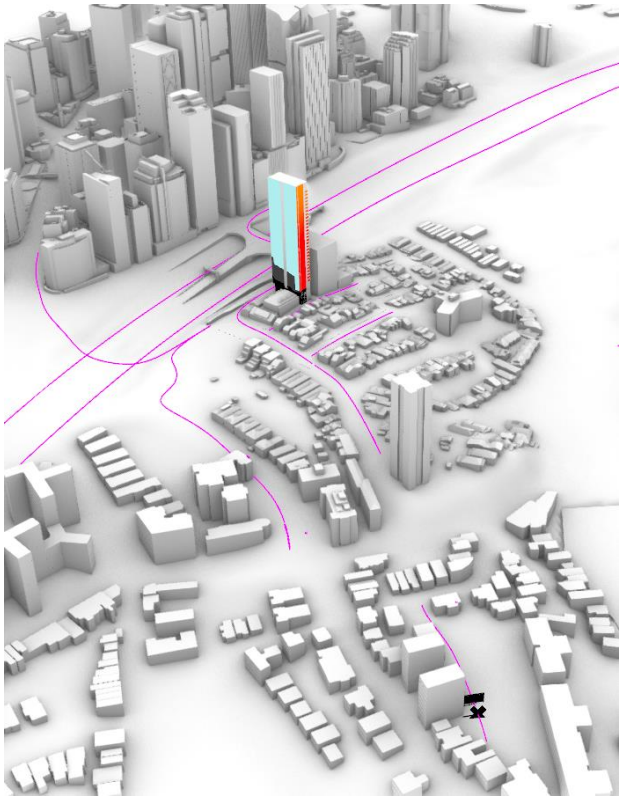
Figure 16: Avenue Rd / Rangers Av, perspective and view from road

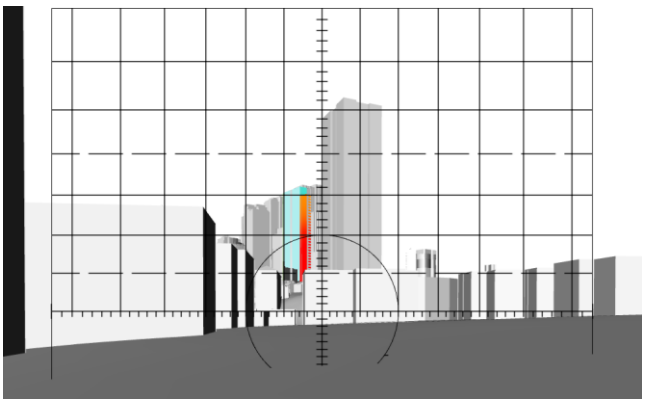
Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
10	Rangers Road	0	N/A	No sun reflection.

While Avenue Road and Rangers Avenue lead towards the site from an eastern direction, they are sufficiently north of the site to not receive any sun reflections from the east façade of the building.

Thus, no unacceptable glare impacts are expected along this route.

5.2.11 Kiara Cl





Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
11	Kiara Close	1660	5° - 15°	Above car visor cut-off angle. Vehicles anticipated to be at lower speeds. Partially screened by surrounding buildings and roadside vegetation

Reflections off the east façade during winter mornings are visible ahead when heading north west on Kiara Close. Due to their proximity to the direction of travel, they can reach high theoretical veiling luminance up to approximately 1,660 cd/m².

However, reflections remain above 5° of the plane of view, due to houses and street trees on Whaling Road obscuring lower views of the proposed building. At this elevation angle, Hassall proposes that reflections can be blocked by car sun visor, hat or hand. This is considered acceptable as Kiara Close is a dead end road, with local traffic at limited speeds only.

Thus, no unacceptable glare impacts are expected along this route.

5.3 Impact on Pedestrians

From the perspective of pedestrians moving along roadways, the incidence of reflections from the building is generally similar to the examined road traffic locations. In addition, pedestrians are easily able to adjust their view at their slower pace compared to vehicles, so that safety concerns are not expected for pedestrians.

5.4 Impact on Surrounding Buildings

Solar reflections from the facade may reach nearby buildings, as is typical in urban areas adjacent to high-rise buildings exposed to sunlight. Reflections from low angle sun, occurring predominantly from the east facade where the building is exposed), are of short duration due to limited width of these facades.

In general, reflections from facades with normal external reflectance below 20% are much less likely to cause discomfort glare to occupants of surrounding buildings than facades with strongly reflective glazing. The proposed building is targeting a glass reflectivity below 20%, which will serve to reduce any potential glare reflections that may occasionally be produced towards pedestrians and other buildings.

6. Conclusion

This reflectivity assessment has been undertaken to evaluate the potential for solar reflections from the proposed development at 271–273 Alfred Street to result in disability glare impacts on surrounding road users, pedestrians, and nearby buildings. The assessment has been carried out in accordance with the Hassall equivalent veiling luminance methodology, adopting a conservative screening criterion of 500 cd/m² to identify potentially unacceptable glare conditions.

6.1 Summary of Outcomes

The following table summarises the outcome of the reflectivity assessment for individual roads reviewed.

Table 3: Summary of analysis results

Ref.	Road	Max. L_v identified [cd/m²]	Vertical position of reflection	Practical Glare Risk Comments
1	Arthur St / Mount St	410	>20°	Below Hassall glare threshold
2	Pacific Hwy / Alfred St	1250	24° - 35°	Above typical car windscreen cut-off angle. Glancing angle reflections only, sun directly visible at same time
3	Neutral Street	40	>15°	Below Hassall glare threshold
4	Whaling Road	3900	6° - 17°	Above car visor cut-off angle. Vehicles anticipated to be at lower speeds.
5	Bradfield Highway	210 / 120	>29°	Below Hassall glare threshold
6	Aubin Street	450	5° – 14°	Below Hassall glare threshold. Part of road one-way leading away from site
7	Kurraba Road	390	9° - 22°	Below Hassall glare threshold.
8	Bannerman Street	590	0° - 5°	Screened by surrounding buildings and roadside vegetation.
9	Bertha Road	0	N/A	No sun reflection.
10	Rangers Road	0	N/A	No sun reflection.
11	Kiara Close	1660	5° - 15°	Above car visor cut-off angle. Vehicles anticipated to be at lower speeds. Partially screened by surrounding buildings and roadside vegetation

* Maximum Lv noted is the theoretical modelled without corrections applied for convex curved glazing. As noted within the respective sections of Section 5.2, it is predicted the intensity of glare may be lower as the installed glazing panels will be curved.

6.2 Conclusion

While the building can, due to its relatively freestanding position east of the North Sydney CBD, cast reflections relatively far, the review has not identified reflections above the 500 cd/m² veiling luminance threshold proposed by Hassall in any critical locations. Where stronger reflections have been identified are not blocked by surrounding context, on Whaling Road and Kiara Close, traffic is low speed only and reflections can be managed by screening with car visor, hand or hat.

No excessive glare risks are thus anticipated from the proposed building. These findings are valid if glazing is kept within the following limits:

- All glazing: max. **20%** normal specular reflectivity (note: total reflectivity including interstitial layers such as metal venetians)