APPENDIX E

FINAL ELECTROLIGHT LIGHTING IMPACT ASSESSMENT REPORT

oOh! Media

Eye Drive Sydney Pty Ltd

23 June 2021
Ref: 2924

LIGHTING IMPACT ASSESSMENT -
OUTDOOR SIGNAGE AT GLEBE ISLAND SILOS, SOMMERVILLE ROAD, ROZELLE

Lighting Impact Assessment

Outdoor Signage at Glebe Island Silos, Sommerville Road, Rozelle

DATE	REV	COMMENT	PREPARED BY	CHECKED BY
23/06/21	REV B	For Information	DS	RS

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CONTENTS

1. INTRODUCTION

Electrolight have been appointed by Eye Drive Sydney Pty Ltd to undertake a Lighting Impact Assessment on the existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle. The signage is located on the southern and western elevations of the Silos. This assessment includes a review of the signage against the Draft Bays West Place Strategy and reports on compliance with the State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64), NSW Transport Corridor Outdoor Advertising and Signage Guidelines and AS4282-2019 Control of the Obtrusive Effects of Outdoor Lighting. This report supports a development application seeking a ten year consent duration for the display of the signage.

The Lighting Impact Assessment Report that was included in the previous application (refer Appendix E) assessed the impact of the signage within the greater existing context but did not review against any potential future development outlined in the Draft Bays West Strategy. As the proposed developments in the Draft Bays West Place Strategy are in closer proximity to other existing residential uses, the potential lighting impact upon these proposed developments is higher than to the surrounding existing residential areas. This report will review the Strategy document and determine, should residential or hotel development occur within the immediate vicinity of the Glebe Island Silos site within the White Bay Power Station Precinct (Precinct 1) within the 10 year consent duration, if the curfew operation of the signage or the existing signage luminance needs to be adjusted to ensure compliance is maintained with the current legislation.

2. DEFINITIONS

2.1 Illuminance

The physical measure of illumination is illuminance. It is the luminous flux arriving at a surface divided by the area of the illuminated surface. Unit: lux (lx); 1 lx = 1 lm/m2.

(a) Horizontal illuminance (Eh) The value of illuminance on a designated horizontal plane

(b) Vertical illuminance (Ev) The value of illuminance on a designated vertical plane

Where the vertical illuminance is considered in the situation of potentially obtrusive light at a property boundary it is referred to as environmental vertical illuminance (Eve).

2.2 Luminance

The physical quantity corresponding to the brightness of a surface (e.g. a lamp, luminaire or reflecting material such as the road surface) when viewed from a specified direction. SI Unit: candela per square metre (cd/m2) – also referred to as “nits”.

2.3 Luminous Intensity

The concentration of luminous flux emitted in a specified direction. Unit: candela (cd).

2.4 Obtrusive Light

Spill Light which, because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information.

2.5 Threshold Increment

The measure of disability glare expressed as the percentage increase in contrast required between a standard object and its background (the carriageway) for it to be seen equally as well with the source of

glare present as with it absent, derived in the specified manner. This metric is directly related to Veiling Luminance.

NOTE: The required value is a maximum for compliance of the lighting scheme.

2.6 AGI32 Light Simulation Software

AGI32 (by U.S. company Lighting Analysts) is an industry standard lighting simulation software package that can accurately model and predict the amount of light reaching a designated surface or workplane. AGi32 is a has been independently tested against the International Commission On Illumination (CIE) benchmark, CIE 171:2006, Test Cases to Assess the Accuracy of Lighting Computer Programs.

2.7 Upward Light Ratio (ULR)

The ratio between the luminuous flux emitted above the horizontal plane to the total flux emitted by a light source. The ULR is used as a measure to limit direct spill light to the sky.

3. SITE DESCRIPTION AND SCOPE

The location of the frontlit signage is at Glebe Island Silos, Sommerville Road, Rozelle. The total display area of the signage is approximately 1,171.8 m2. The signage lighting currently operates from dusk until 1am daily. Refer to Appendix A for the signage location plan and elevations.

The signage is illuminated using top mounted 120W LED floodlights that are aimed towards the sign faces (ie directed away from the normal traffic viewing direction) with performance parameters as outlined in Appendix B.

The Draft Bays West Place Strategy identifies Precinct 1 (up to 2030) as the area of concern, followed by Precinct 6 and 4 (between 2030-2040). Note, time frames are indicative and are subject to detailed masterplans being undertaken for each precinct. This report will assess the signage against the proposed Precinct 1 (up to 2030) development.

4. DESIGN GUIDELINES AND STANDARDS

The Lighting Impact Assessment will review the signage against the following Criteria, Design Guidelines and Standards.

- Draft Bays West Place Strategy
- State Environmental Planning Policy No. 64 – Advertising & Signage SEPP 64 (Refer Appendix C).
- Transport Corridor Outdoor Advertising & Signage Guidelines 2017
- AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting.

5. LUMINANCE ASSESSMENT

The maximum permissible night time luminance of the signage is determined by the existing lighting environment of its surroundings. AS4282 outlines maximum average luminances for different Environmental Zones as shown in Table 1 below:

TABLE 1 - MAXIMUM NIGHT TIME AVERAGE LUMINANCE FOR SIGNAGE		
Environmental Zone	Description	Max Average Luminance (cd/m2)
A4	High district brightness e.g. Town and city centres, commercial areas, and residential areas abutting commercial areas	350
A3	Medium district brightness e.g. suburban areas in towns and cities	250
A2	Low district brightness e.g. sparsely inhabited rural and semi-rural areas	150
A1	Dark e.g. relatively uninhabited rural areas. No Road Lighting	0.1
A0	Intrinsically Dark e.g. Major Optical Observatories. No Road Lighting	0.1

Note: Where the signage is viewed against a predominantly dark background (e.g. night sky) then the maximum applicable environmental zone is A2

Based on an assessment of the surrounding environment, the proposed signage is located within Environmental Zone A4 under AS4282, therefore the maximum night time luminance is 350 cd/m2.

AS4282 does not include limits for daytime operation of externally illuminated signage. However, the Transport Corridor Outdoor Advertising & Signage Guidelines outlines maximum permissible luminance limits for various lighting conditions, including daytime. Under the Guidelines, the proposed signage is classified as being within Zone 3, which is described as an area with generally medium off-street ambient lighting, e.g. small to medium shopping/commercial centres. The maximum night time luminance of a signage within Zone 3 is 350 cd/m2.

The Draft Bays West Place Strategy outlines potential developments in proximity to the signage that may be constructed over the next 10 years. Table 2 outlines the maximum luminance levels to comply with AS4282 and the Transport Corridor Outdoor Advertising & Signage Guidelines for the various lighting conditions listed below:

TABLE 2 - LUMINANCE LEVELS FOR EXTERNALLY ILLUMINATED ADVERTISEMENTS		
Lighting Condition	Max Permissible Luminance (cd/m2) #	Compliant
Daytime	N/A (OFF)	✓
Night time until 11pm (pre-curfew)*	58**	✓
Night time 11pm until 6am (post-curfew)*	OFF	✓

The signage is to be dimmed on site (if required) to ensure the maximum luminance nominated above is not exceeded.

*The current curfew of the existing signage is 1am. In order to comply with the relevant AS4282 requirements the curfew shall be required to be adjusted to 11pm.

** The maximum permissible luminance allowance under AS4282 and the Transport Corridor Guidelines is actually 350cd/m2. The luminance level shown above is the existing Luminance of the signage which shall remain unchanged.

It can be seen from Table 2 that should residential or hotel development occur within the immediate vicinity of the Glebe Island Silos site within the White Bay Power Station Precinct (Precinct 1 of the Draft Bays West Strategy) within the 10 year consent duration, then the existing luminance of the signage can remain unchanged but the curfew of the signage would need to be brought forward to 11pm at night (from 1am) to ensure compliance with the relevant requirements of AS4282. This could be achieved through a condition of consent that becomes triggered should this development occur.

It is our opinion that the illumination of the existing signage will be visually consistent with the current and future lighting context of the local area. A more detailed night time lighting assessment is provided in Section 6.0.

6. AS4282 ASSESSMENT

The existing externally illuminated signage has been assessed against AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting as outlined in Section 4.

AS4282 provides limits for different obtrusive factors associated with dark hours (night time) operation of outdoor lighting systems. Two sets of limiting values for spill light are given based on whether the lighting is operating before a curfew (known as "pre-curfew" operation) or operating after a curfew (known as post-curfew or curfewed operation). Pre-curfew spill lighting limits are higher than post-curfew values, on the understanding that spill light is more obtrusive late at night when residents are trying to sleep. Under AS4282, the post-curfew period is taken to be between 11pm and 6am daily. As it is intended that the signage be illuminated during pre-curfew period only, the assessment will review the proposed signage under the pre-curfew limits.

Illuminance Assessment

The AS4282 assessment includes a review of nearby residential developments and calculation of the amount of illuminance (measured in Lux) that the properties are likely to receive from the signage during night time operation.

The acceptable level of illuminance will in part be determined by the night time lighting environment around the dwellings. AS4282 categorises the night time environment into different zones with maximum lighting limits as shown in Table 3 below:

TABLE 3 - MAXIMUM VALUES OF LIGHT TECHNICAL PARAMETERS

Environmental Zone	Max Vertical Illuminance (lx)		Description
	Pre-curfew	Post-curfew	
A0	0	0	Intrinsically Dark e.g. Major Optical Observatories. No Road Lighting
A1	2	0.1	Dark e.g. relatively uninhabited rural areas. No Road Lighting
A2	5	1	Low district brightness e.g. sparsely inhabited rural and semi-rural areas
A3	10	2	Medium district brightness e.g. suburban areas in towns and cities
A4	25	5	High district brightness e.g. Town and city centres, commercial areas, and residential areas abutting commercial areas

A nearby future development site ("Zone 1"), that falls within the 10 year development plan outlined in the Draft

Bays West Place Strategy has been included for assessment, and as the nearest potential residential land use, will form the focus of the illuminance assessment. See Appendix D for the location of the location of this development.

The existing externally illuminated signage (and surrounding environment) was modeled in lighting calculation program AGI32 to determine the effect (if any) of the light spill from the signage upon the proposed dwellings. Photometric data for the luminaries was provided by the manufacturer*. The sign faces (South & West) were modeled as a 100% white surface with a reflectance of 80%, as outlined in AS4282.

During pre-curfew operation, it can be seen from the lighting model that the maximum illuminance is 11.3 lux to the Future Development Zone within Zone A4. This illuminance level complies with the maximum AS4282 limit of 25 lux for Zone A4 as outlined in Table 3.

Threshold Increment Assessment

The Threshold Increment was also calculated for the traffic on the M4 Western Distributor Freeway (inbound), and the M4 Western Distributor Freeway (inbound). The calculation grids were located at 1.5m above ground level, with an approach viewing distance 200 m from the sign. The calculation results show that the Threshold Increment does not exceed 1.34% for any traffic approach (the allowable maximum under the standard is 20%).

Luminous Intensity

AS4282 nominates luminous intensity limits where a light source can be directly viewed from a residential dwelling, shown in Table 4 below:

TABLE 4 - MAXIMUM LUMINOUS INTENSITIES PER LUMINAIRE FOR EXTERNALLY ILLUMINATED SIGNAGE

Environmental Zone	Non-Curfew L1 luminous intensity (cd)	Non-Curfew L2 luminous intensity (cd)	Curfew luminous intensity (cd)
A0	As close to 0 as possible, without impacting safety	As close to 0 as possible, without impacting safety	0
A1	2500	5000	500
A2	7500	12500	1000
A3	12500	25000	2500
A4	25000	50000	2500

As the signage is being assessed during pre-curfew operation and is not being upgraded/modified, Non-Curfew L1 limits apply.

It can be seen from the lighting model that the maximum luminuous intensity is 8280 cd to future dwellings within Zone A4. This luminuous intensity level complies with the maximum AS4282 limit of 25000 for Pre-curfew operation as outlined in Table 4.

It can therefore be seen that the proposed signage complies with all relevant requirements of AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting.

7. SUMMARY

- Electrolight have been appointed by Eye Drive Sydney Pty Ltd to undertake a Lighting Impact Assessment on the existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle. The signage is located on the southern and western elevations of the Silos. This assessment includes a review of the signage against the Draft Bays West Place Strategy and reports on compliance with the State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64), NSW Transport Corridor Outdoor Advertising and Signage Guidelines and AS4282-2019 Control of the Obtrusive Effects of Outdoor Lighting. This report supports a development application seeking a ten year consent duration for the display of the signage.
- When the proposed "Zone 1" Development site is completed and occupied (refer to Appendix D), the existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle, shall comply with the following operational lighting requirements:

TABLE 2 - LUMINANCE LEVELS FOR EXTERNALLY ILLUMINATED ADVERTISEMENTS		
Lighting Condition	Max Permissible Luminance (cd/m2) #	Compliant
Daytime	N/A (OFF)	✓
Night time until 11pm (pre-curfew)	58	✓
Night time 11pm until 6am (post-curfew)	OFF	✓

- The signage has been found to comply with all relevant requirements of AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting.
- In complying with the above requirements, the signage should not result in unacceptable glare nor should it adversely impact the safety of pedestrians, residents or vehicular traffic. Additionally, the signage should not cause any reduction in visual amenity to nearby residences or accommodation.

8. DESIGN CERTIFICATION

The existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle, if commissioned according to this report, complies with the following criteria, guidelines and standards:

- State Environmental Planning Policy No. 64 – Advertising & Signage SEPP 64 (Refer Appendix B).
- Transport Corridor Outdoor Advertising & Signage Guidelines 2017.
- AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting.

Ryan Shamier
Senior Lighting Designer
Electrolight Sydney
23/06/2021

APPENDIX A
SIGNAGE LOCATION PLAN

2.6 Glebe Island Silos Planning Approval 2012 (DA 041-09-2011)

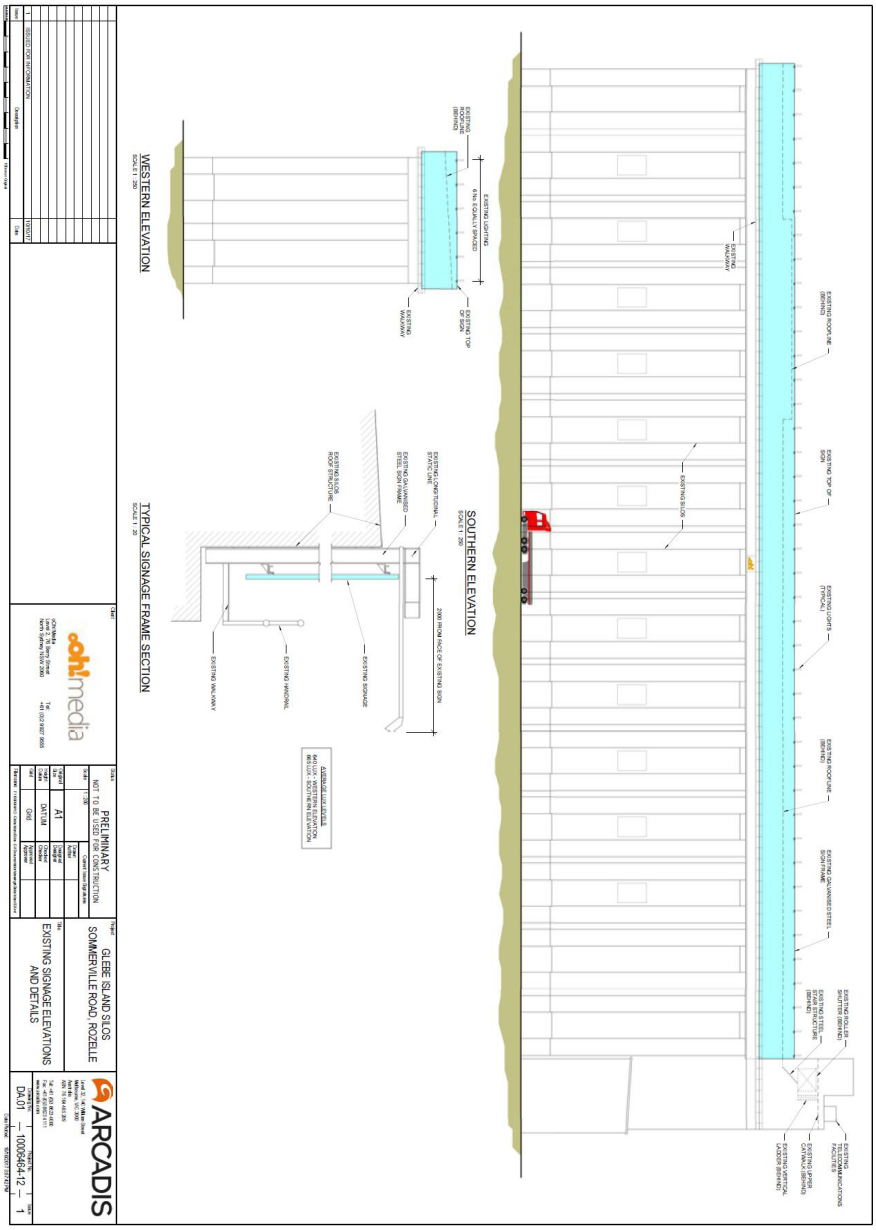
The following images show the Glebe Island Silos and associated signage following the 2012 planning approval.

Figure 2.15 View of the silos with advertising signage, May 2014
Source: oOh!media

Figure 2.16: View of the silos with advertising signage, September 2014
Source: oOh!media

APPENDIX A

SIGNAGE LOCATION ELEVATIONS



APPENDIX B

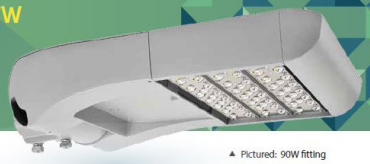
LUMINAIRE SPECIFICATION

tigerlight Leaders in energy efficient lighting

Tiger LED Street/Area Light

30W 60W 90W **120W** 150W - 300W fittings available on special order

Class-leading performance - now 120 lm/W
Highest quality components
Built for ultra-dependable performance.



▲ Pictured: 90W fitting

Class-leading light output

Super-efficient 120+ lumens/watt
3,920 lumens (30W) - 14,920 lumens (120W)
Batwing lenses are standard
Range of other lens options available on special order.

Premium components for ultimate reliability

Top performance Cree XPG2 LEDs & renowned Xitanium driver
10KV surge protection
50,000+ hours life, 5 year warranty.

Compact modular design

Lower cost of manufacture from economies of scale
Efficient heat management dimensions.

Robust, glass-free construction

IP67 rating for dust and water exposure
IK08 rating for impact & vandal resistance
Polyester-coated aluminium casing
Stainless steel fascia on modules (304 grade)
Polycarbonate optical lenses.

Applications

- Street lighting and area lighting
- Private roads, rail networks, hospitals, university grounds, shopping centres
- Car parks, forecourts & plaza areas.

120 lm/W | BATWING BEAM | IP 67 | 5 Year Warranty

Fully tested and certified

IES files & photometric profiles available.
TUV reports available for following standards:

IEC/EN 60598-1: 2008 | IEC/EN 60598-2-3/A1: 2011
EN 62493:2010 | IEC62471: 2008
IEC62471-2:2009 | EN 55015: 2013
EN61547:2009 | EN61000-3-2/A2:2009
EN 61000-3-3:2013 | (EU) 1194/2012:2012-12-12
(EC) 244/2009:2009-03-18

ENEC: No.: U6140888771007
CB: No. : SG-LE-0095
IK08 rating, 3G vibration, 1000 hours salt mist test reports furnished upon request.

lighting facts (cULus and DLC QPL listed. (UL File No.: E467349))

CE CB IP67 IK08 ErP

Practical installer-friendly design

- Easy to open for quick installation.
- One 6mm allen key fits all bolts. Bolts cannot fall to ground.
- Fittings contain built-in spirit levels to simplify installation.
- WAGO press-release connectors present for quick and easy installation.

- Spigot is assembled for a horizontal tenon mount. Reverse the spigot assembly for vertical pole mount.
- Spigot is adjustable -20° to +20° from the horizontal or vertical position to allow for tilting if required.

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Local branches in Sydney & NSW North Coast, Melbourne, Brisbane, Adelaide, Perth

APPENDIX C

State Environmental Planning Policy No. 64 - Advertising and Signage

Schedule 1 Assessment criteria

(Clauses 8, 13 and 17)

1. Character of the area

- Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?
- Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?

2. Special areas

- Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?

3. Views and vistas

- Does the proposal obscure or compromise important views?
- Does the proposal dominate the skyline and reduce the quality of vistas?
- Does the proposal respect the viewing rights of other advertisers?
-

4. Streetscape, setting or landscape

- Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?
- Does the proposal contribute to the visual interest of the streetscape, setting or landscape?
- Does the proposal reduce clutter by rationalising and simplifying existing advertising?
- Does the proposal screen unsightliness?
- Does the proposal protrude above buildings, structures or tree canopies in the area or locality?
- Does the proposal require ongoing vegetation management?

5. Site and building

- Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?
- Does the proposal respect important features of the site or building, or both?
- Does the proposal show innovation and imagination in its relationship to the site or building, or both?

6. Associated devices and logos with advertisements and advertising structures

- Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?

7. Illumination

- Would illumination result in unacceptable glare?
- Would illumination affect safety for pedestrians, vehicles or aircraft?
- Would illumination detract from the amenity of any residence or other form of accommodation?
- Can the intensity of the illumination be adjusted, if necessary?
- Is the illumination subject to a curfew?

8. Safety

- Would the proposal reduce the safety for any public road?
- Would the proposal reduce the safety for pedestrians or bicyclists?
- Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?

APPENDIX D
OBTRUSIVE LIGHTING AND THRESHOLD INCREMENT CALCULATIONS

Calculation Summary			
Label	CalcType	Units	Max
Future Development Zone_Ill_Seg1	Obtrusive - Ill	Lux	0.6
Future Development Zone_Ill_Seg2	Obtrusive - Ill	Lux	1.1
Future Development Zone_Ill_Seg3	Obtrusive - Ill	Lux	0.7
Future Development Zone_Ill_Seg4	Obtrusive - Ill	Lux	1.8
Future Development Zone_Ill_Seg5	Obtrusive - Ill	Lux	11.3
Future Development Zone_Cd_Seg1	Obtrusive - Cd	N.A.	1290
Future Development Zone_Cd_Seg2	Obtrusive - Cd	N.A.	8127
Future Development Zone_Cd_Seg3	Obtrusive - Cd	N.A.	8236
Future Development Zone_Cd_Seg4	Obtrusive - Cd	N.A.	8234
Future Development Zone_Cd_Seg5	Obtrusive - Cd	N.A.	8280

APPENDIX D

OBTRUSIVE LIGHTING AND THRESHOLD INCREMENT CALCULATIONS

Calculation Summary			
Label	CalcType	Units	Max
M4 Western Distributor Freeway_Inbound	Obtrusive - TI	%	1.34
M4 Western Distributor Freeway_Outbound	Obtrusive - TI	%	0.22

APPENDIX D

OBTRUSIVE LIGHTING AND THRESHOLD INCREMENT CALCULATIONS

Obtrusive Light - Compliance Report

AS/NZS 4282:2019, A4 - High District Brightness, Non-Curfew L1
Filename: 210525_2924_Glebe Island Silos_Full Framework
2/06/2021 1:42:49 PM

Illuminance

Maximum Allowable Value: 25 Lux

Calculations Tested (5):

Calculation Label	Test Results	Max. Illum.
Future Development Zone_Ill_Seg1	PASS	0.6
Future Development Zone_Ill_Seg2	PASS	1.1
Future Development Zone_Ill_Seg3	PASS	0.7
Future Development Zone_Ill_Seg4	PASS	1.8
Future Development Zone_Ill_Seg5	PASS	11.3

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 25000 Cd

Calculations Tested (5):

Calculation Label	Test Results
Future Development Zone_Cd_Seg1	PASS
Future Development Zone_Cd_Seg2	PASS
Future Development Zone_Cd_Seg3	PASS
Future Development Zone_Cd_Seg4	PASS
Future Development Zone_Cd_Seg5	PASS

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (2):

Calculation Label	Adaptation Luminance	Test Results
M4 Western Distributor Freeway_Outbound	5	PASS
M4 Western Distributor Freeway_Inbound	5	PASS

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

ELECTRO LIGHT

Belinda Barnett
Urban Concepts

30 November 2017
Ref: 1435

LIGHTING IMPACT ASSESSMENT

OUTDOOR SIGNAGE AT GLEBE ISLAND SILOS, SOMMERVILLE ROAD, ROZELLE

Lighting Impact Assessment

Outdoor Signage at Glebe Island Silos, Sommerville Road, Rozelle

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30/11/17	E	Issued for Information	RMS	DHS

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

CONTENTS

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

1. INTRODUCTION

Electrolight have been appointed by Urban Concepts to undertake a Lighting Impact Assessment on the existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle. The signage is located on the southern and western elevations of the Silos. The objective of the assessment is to report on compliance with the State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64), Glebe Island Silos Advertising Signage Development Control Plan – Section 11.3 Lighting, AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting and the Transport Corridor Outdoor Advertising and Signage Guidelines (2017).

2. DEFINITIONS

2.1 Illuminance

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Where the vertical illuminance is considered in the situation of potentially obtrusive light at a property boundary it is referred to as environmental vertical illuminance (Eve).

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NOTE: The required value is a maximum for compliance of the lighting scheme.

2.6 AGI32 Light Simulation Software

AGI32 (by U.S. company Lighting Analysts) is an industry standard lighting simulation software package that can accurately model and predict the amount of light reaching a designated surface or workplane. AGi32 has been independently tested against the International Commission On

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

Illumination (CIE) benchmark, CIE 171:2006, Test Cases to Assess the Accuracy of Lighting Computer Programs.

3. SITE DESCRIPTION AND SCOPE

The location of the frontlit signage is at Glebe Island Silos, Sommerville Road, Rozelle. The total display area of the signage is approximately 1,140 m2. Refer Appendix A for signage perspectives and Appendix B for signage elevations.

The signage is illuminated using discrete top mounted floodlights that are aimed towards the sign faces (ie directed away from the normal traffic viewing direction). The average Illuminance of the sign faces was calculated using photometric data provided by the luminaire manufacturer #. The average illuminance for the southern elevation was found to be 232 lux and the average illuminance for the western elevation was found to be 254 lux.

Details of the existing sign lighting are outlined in Appendix B.

The sign operates past 10pm and will therefore need to comply with curfewed lighting limits as outlined in AS 4282 Control of the Obtrusive Effects of Outdoor Lighting. The sign does not have animated or flashing content.

Electrolight take no responsibility for the accuracy of third party information.

4. DESIGN GUIDELINES AND STANDARDS

The Lighting Impact Assessment will review the proposed signage against the follow Criteria, Design Guidelines and Standards.

- State Environmental Planning Policy No. 64 – Advertising & Signage SEPP 64 (Refer Appendix C)
- Glebe Island Silos Advertising Signage Development Control Plan – Section 11.3 Lighting
- Transport Corridor Outdoor Advertising and Signage Guidelines – Section 3.3.3 (2017)
- AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. *

* Although AS 4282-1997 specifically excludes internally illuminated advertising signs/displays in Section 1.1 Scope (b) the Transport Corridor Outdoor Advertising and Signage Guideline (2017) references AS4282 and requires compliance to this standard. In the absence of any other applicable Australian Standard AS4282 has been adopted for the purposes of this report.

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

5. LUMINANCE ASSESSMENT

Based on an assessment of the surrounding area, the sign is classified as being within a Zone 3 Area under the Transport Corridor Outdoor Advertising & Signage Guidelines. Zone 3 is described as an area with generally medium off-street ambient lighting e.g. small to medium shopping/commercial centres.

The average luminance of the existing signage at night time is calculated as being 58 cd/m2 (based on a white signage surface with reflectance of 80%). During the day the sign is not lit artificially so the luminance limits are not applicable.

It can be seen that the existing sign complies with the maximum permissible luminances as outlined below:

LUMINANCE LEVELS FOR ADVERTISEMENTS			
Lighting Condition	Max Calculated Existing Luminance (cd/m2)	Max Permissible Luminance (cd/m2)	Compliant
Day Time Luminance	N/A (Not illuminated during daytime)	800	✓
Night Time	58 Avg (131 Max)	200	✓

A more detailed night time lighting impact assessment is provided in Section 6.0.

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

6. AS4282 ASSESSMENT

The existing signage has been assessed against AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting as outlined in Section 4.

As it is intended that the signage be illuminated after 10pm, the requirements for curfewed operation under the standard will be applied. In acknowledgement of the future residential nature of the White Bay Precinct, the sign has been assessed as a residential area with light surrounds, therefore the maximum illuminance in the vertical plane of residential boundaries/habitable rooms for adjacent residential properties is limited to 10 lux before 10pm and 2 lux after 10pm (as outlined in Table 2.1 of AS4282 for curfewed operation). Under the standard, a value of less than 10 lux before 10pm and less than 2 lux after 10pm is deemed to not affect the visual amenity of local residents.

The proposed signage lighting (and surrounding environment) was modelled in lighting calculation program AGI32 to determine the effect (if any) of the light spill from the proposed signage. Appendix E shows the lighting model and the theoretical zone where visual impact exceeds 2 lux. It can be seen that no residential developments fall within the affected zone.

The Threshold Increment was also calculated for traffic on M4 Western Distributor Freeway. The calculation grid was located at 1.5m above ground level, with a minimum approach viewing distance of 250m to the sign, and a windscreen cutoff angle of 20 degrees (as outlined in AS1158). Appendix D shows the results of the calculations. The maximum Threshold Increment is 0.6% along the approach (the allowable maximum under the standard is 20%).

The signage lighting also complies with the luminous intensity limits nominated in the AS4282-1997.

It can therefore be seen that the illuminated signage complies with all relevant requirements of AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting.

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

7. SUMMARY

- The existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle has been assessed as being located in a Zone 3 area under the Transport Corridor Outdoor Advertising and Signage Guidelines – Section 3.3.3 (2017)
- The maximum luminance levels of the sign are as follows:

LUMINANCE LEVELS FOR ADVERTISEMENTS			
Lighting Condition	Max Calculated Existing Luminance (cd/m2)	Max Permissible Luminance (cd/m2)	Compliant
Day Time Luminance	N/A (Not illuminated)	800	✓
Night Time	58 Avg (131 Max)	200	✓

- It can be seen from the table above that the existing illuminated signage complies with the Transport Corridor Outdoor Advertising and Signage Guidelines – Section 3.3.3 (2017)
- The existing signage complies with all relevant requirements of AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. In complying with these requirements, the signage will not result in unacceptable glare nor will it adversely impact the safety of pedestrians, residents or vehicular traffic. The signage will also not cause any reduction in visual amenity to nearby residences or accommodation.

8. DESIGN CERTIFICATION

The existing frontlit signage installed at Glebe Island Silos, Sommerville Road, Rozelle complies with the following criteria, guidelines and standards:

- State Environmental Planning Policy No. 64 – Advertising & Signage SEPP 64 (Refer Appendix C)
- Glebe Island Silos Advertising Signage Development Control Plan – Section 11.3 Lighting
- Transport Corridor Outdoor Advertising and Signage Guidelines – Section 3.3.3 (2017)
- Relevant Sections of AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting.

Ryan Shamier MIES
Electrolight Australia
30/11/17

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

APPENDIX A
SIGNAGE PERSPECTIVES

2.6 Glebe Island Silos Planning Approval 2012 (DA 041-09-2011)

The following images show the Glebe Island Silos and associated signage following the 2012 planning approval.

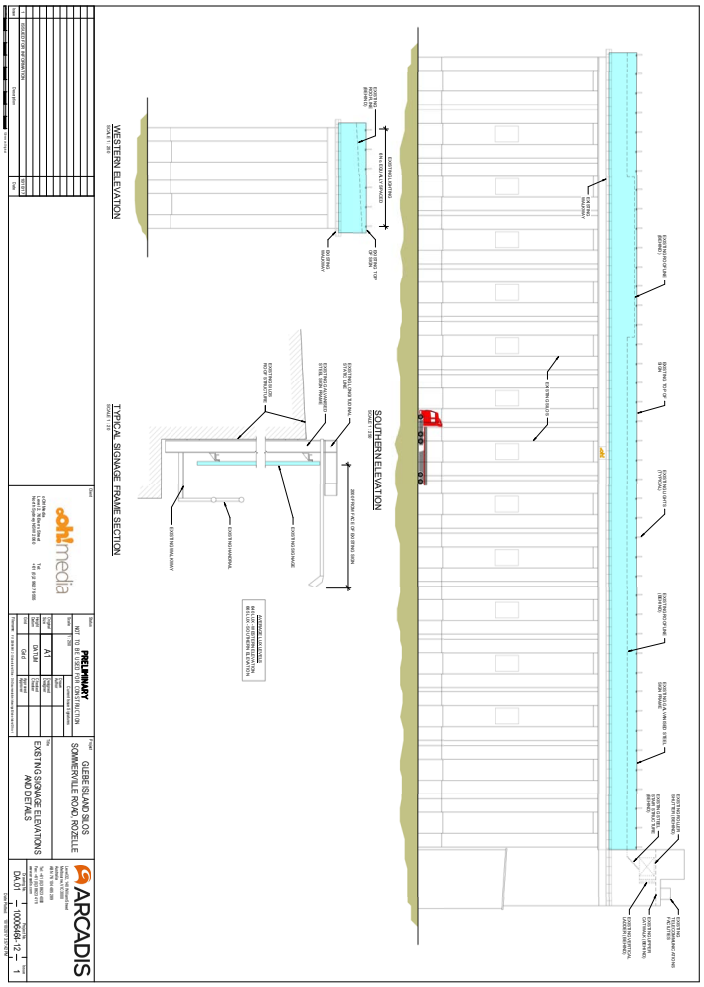
Figure 2.15 View of the silos with advertising signage, May 2014
Source: oOh!media

Figure 2.16: View of the silos with advertising signage, September 2014
Source: oOh!media

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

APPENDIX B

SIGNAGE ELEVATIONS AND DETAILS



APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

tigerlight Leaders in energy efficient lighting

Tiger LED Street/Area Light

30W 60W 90W **120W** 150W - 300W fittings available on special order

Class-leading performance - now 120 lm/W
Highest quality components
Built for ultra-dependable performance.

▲ Pictured: 90W fitting

Class-leading light output

Super-efficient 120+ lumens/watt
3,920 lumens (30W) - 14,920 lumens (120W)
Batwing lenses are standard
Range of other lens options available on special order.

Premium components for ultimate reliability

Top performance Cree XPG2 LEDs & renowned Xitanium driver
10KV surge protection
50,000+ hours life, 5 year warranty.

Compact modular design

Lower cost of manufacture from economies of scale
Efficient heat management dimensions.

Robust, glass-free construction

IP67 rating for dust and water exposure
IK08 rating for impact & vandal resistance
Polyester-coated aluminium casing
Stainless steel fascia on modules (304 grade)
Polycarbonate optical lenses.

Applications

- Street lighting and area lighting
- Private roads, rail networks, hospitals, university grounds, shopping centres
- Car parks, forecourts & plaza areas.

120 lm/W | BATWING BEAM | IP 67 | 5 Year Warranty

Fully tested and certified

IES files & photometric profiles available.
TUV reports available for following standards:

IEC/EN 60598-1: 2008 | IEC/EN 60598-2-3/A1: 2011
EN 62493:2010 | IEC62471: 2008
IEC62471-2:2009 | EN 55015: 2013
EN61547:2009 | EN61000-3-2/A2:2009
EN 61000-3-3:2013 | (EU) 1194/2012:2012-12-12
(EC) 244/2009:2009-03-18

ENEC: No.: U614088771007
CB: No.: SG-LE-0095

IK08 rating, 3G vibration, 1000 hours salt mist test reports furnished upon request.

CB IP67 IK08 ErP

Practical installer-friendly design

- Easy to open for quick installation.
- One 6mm allen key fits all bolts. Bolts cannot fall to ground.
- Fittings contain built-in spirit levels to simplify installation.
- WAGO press-release connectors present for quick and easy installation.

- Spigot is assembled for a horizontal tenon mount. Reverse the spigot assembly for vertical pole mount.
- Spigot is adjustable -20° to +20° from the horizontal or vertical position to allow for tilting if required.

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APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

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APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

APPENDIX C

State Environmental Planning Policy No. 64 - Advertising and Signage

Schedule 1 Assessment criteria

(Clauses 8, 13 and 17)

1. Character of the area

- Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?
- Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?

2. Special areas

- Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?

3. Views and vistas

- Does the proposal obscure or compromise important views?
- Does the proposal dominate the skyline and reduce the quality of vistas?
- Does the proposal respect the viewing rights of other advertisers?

4. Streetscape, setting or landscape

- Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?
- Does the proposal contribute to the visual interest of the streetscape, setting or landscape?
- Does the proposal reduce clutter by rationalising and simplifying existing advertising?
- Does the proposal screen unsightliness?
- Does the proposal protrude above buildings, structures or tree canopies in the area or locality?
- Does the proposal require ongoing vegetation management?

5. Site and building

- Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?
- Does the proposal respect important features of the site or building, or both?

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

- Does the proposal show innovation and imagination in its relationship to the site or building, or both?

6. Associated devices and logos with advertisements and advertising structures

- Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?

7. Illumination

- Would illumination result in unacceptable glare?
- Would illumination affect safety for pedestrians, vehicles or aircraft?
- Would illumination detract from the amenity of any residence or other form of accommodation?
- Can the intensity of the illumination be adjusted, if necessary?
- Is the illumination subject to a curfew?

8. Safety

- Would the proposal reduce the safety for any public road?
- Would the proposal reduce the safety for pedestrians or bicyclists?
- Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

APPENDIX D

Threshold increment calculations – Inbound direction

Threshold increment calculations – Outbound direction

Calculation Summary					
Label	Description	CalcType	Units	Max	Avg
Illuminated Signage Illuminance_South		Illuminance	Lux	510.6	231.580
Illuminated Signage Illuminance_West		Illuminance	Lux	514.7	253.990
Illuminated Signage Luminance_South		Diffuse Luminance	Cd/Sq.m	130.0	58.970
Illuminated Signage Luminance_West		Diffuse Luminance	Cd/Sq.m	131.1	64.680
ObtrusiveLight_T1_1	M4 Western Distributor Freeway_Inbound	Obtrusive Light - TI	%	0.60	N.A.
ObtrusiveLight_T1_2	M4 Western Distributor Freeway_Outbound	Obtrusive Light - TI	%	0.10	N.A.

APPENDIX E - PREVIOUS APPLICATION ASSESSMENT

APPENDIX E

Image: Zone where visual impact in the vertical plane exceeds 2 lux