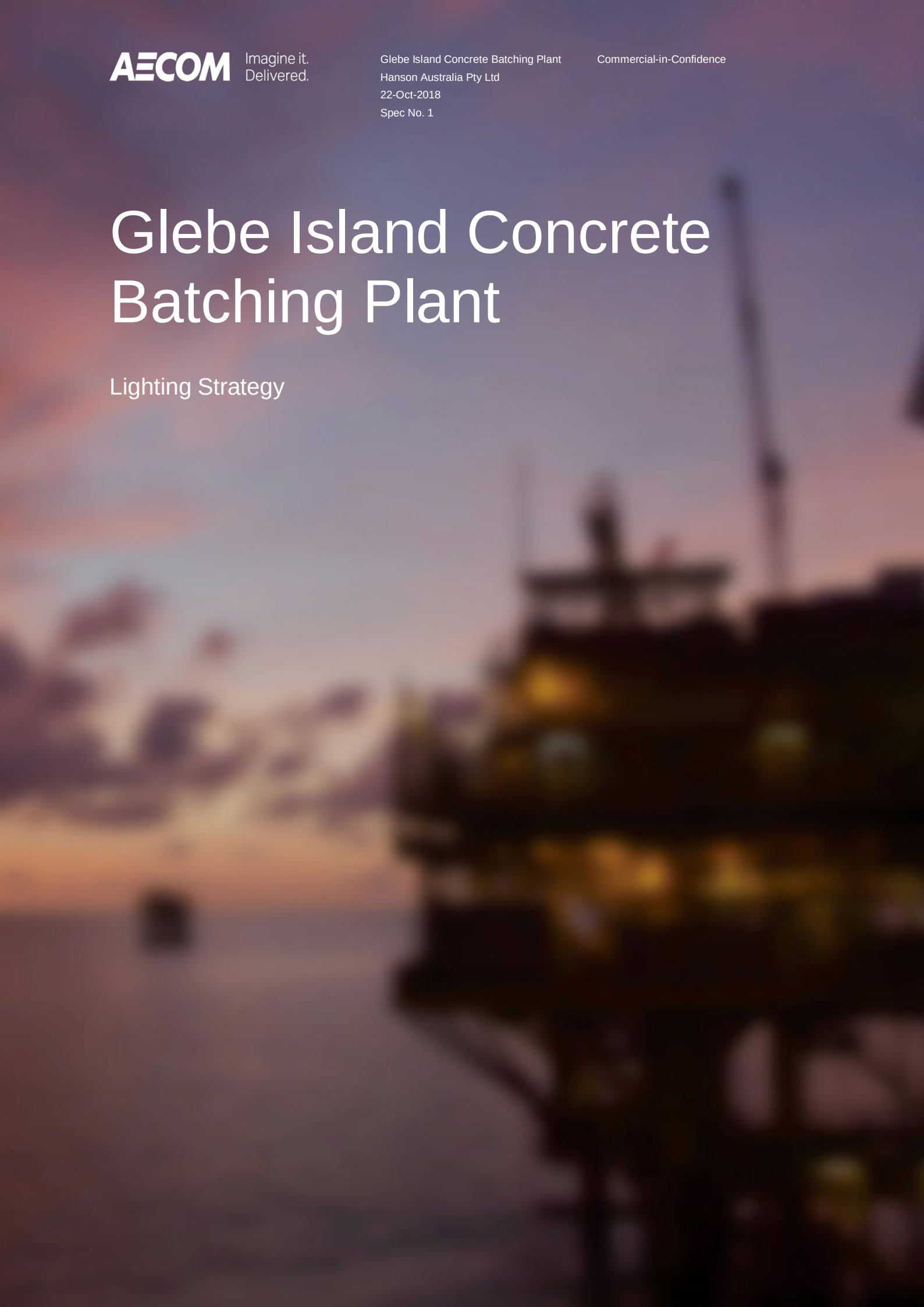
Glebe Island Concrete Batching Plant

Lighting Strategy



Lighting Strategy: 1

Client: Hanson Australia Pty Ltd

Ref 60555976

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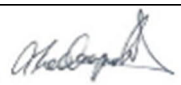
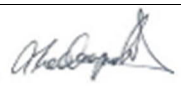
Reviewed by George Theodoropoulos

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	16/10/2018	Draft Issue	George Theodoropoulos	
0	16/10/2018	Draft Issue	Dr Darran Jordan, Senior Archaeologist and Project Manager	
1	22/10/2018	Final Issue	George Theodoropoulos	

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1.0 Introduction

AECOM Australia Pty Ltd (AECOM) have been engaged by Hanson Australia Pty Ltd (Hanson) to prepare a lighting strategy report for the proposed Glebe Island Concrete Batching Plant(CBP). The Glebe Island port facility is located on the shoreline between White Bay and Jones Bay Sydney.

On Thursday the 11th October 2018 AECOM undertook an onsite visual inspection to identify the site and adjacent surrounds where issues pertaining to the installation of new perimeter security, a vehicle carpark and driveway lighting may cause visual impacts.

Numerous observations and images have been taken from the port facility along with photographs of the site from the adjacent Anzac Bridge.

2.0 Observations

Glebe Island port facility currently comprises of an open plan multi-user facility with numerous vessel docks.

The open plan multi-user facility is flood lit via existing high mast high pressure sodium luminaires. Operation of this lighting system is on an as needed basis, and therefore these luminaires are not operational during all nights.

Figure 1. Existing high mast lighting

Figure 2. Multi-user facility with existing high mast lighting

Figure 3.Existing high mast lighting (Ayer, Andrew, Anzac Bridge, https://www.agwa.name/photos/anzac_bridge/7)

Adjacent to the Glebe Island port facility is the abandoned Glebe Island Bridge and associated roadway which has non-operational roadway lighting.

Figure 4. Existing abandoned roadway lighting

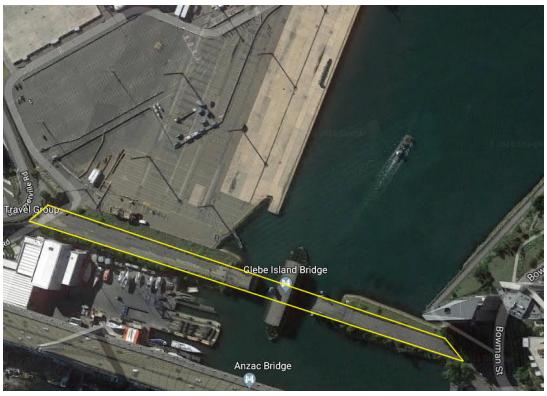
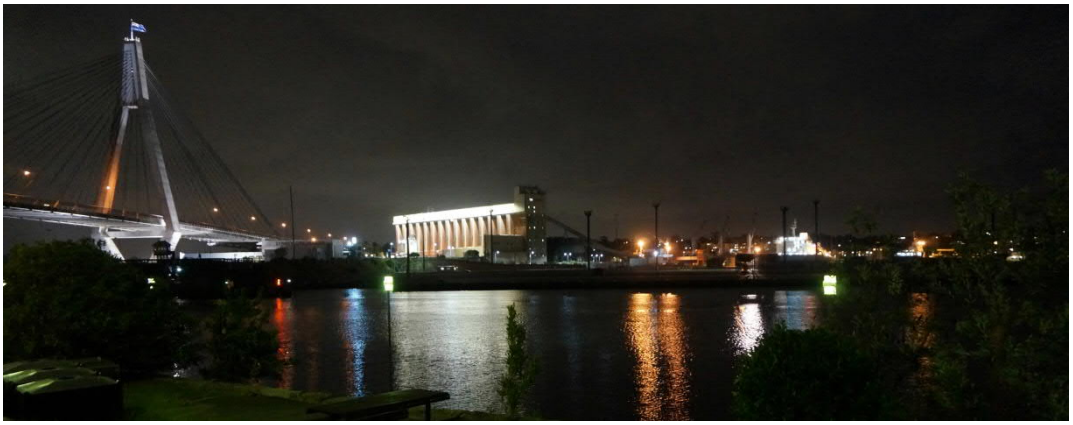


Figure 5. Existing extents of abandoned lighting

Glebe Island Cement Australia has significant high level lighting to the advertisement signage atop the silos viewed when travelling west along Anzac Bridge. This advertising lighting is very distinct and quite visible from multiple locations across the bay.



(Figure 6. Cement Australia advertisement lighting)

Residential apartments located at Jacksons Landing to the east of Glebe Island have a direct line of sight to the proposed batching plant. Residents overlook the existing port facility and harbour. It is noted that these residents are a significant distance away from the proposed CBP, distance approximately 181m.

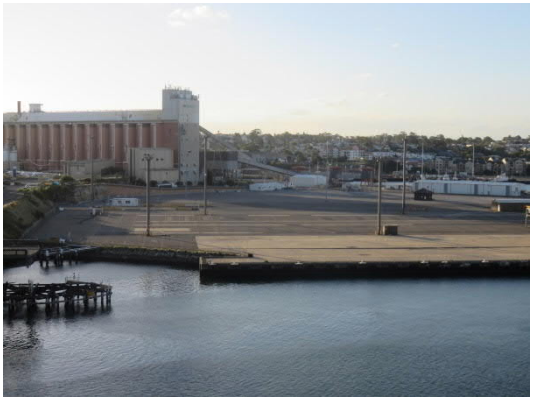


Figure 7. Jackson Landing apartment view of site

Figure 8. View towards Jackson Landing apartments

Figure 9.Approximate distance to Jackson landing apartments

The Anzac Bridge / Western Distributor is located at a high level in comparison to the CBP which is at port level. Due to the height difference no direct visual impact is applicable to motorists or pedestrians from the proposed new development.

3.0 Lighting Performance Requirements

The following areas have been classified as requiring lighting by Hanson.

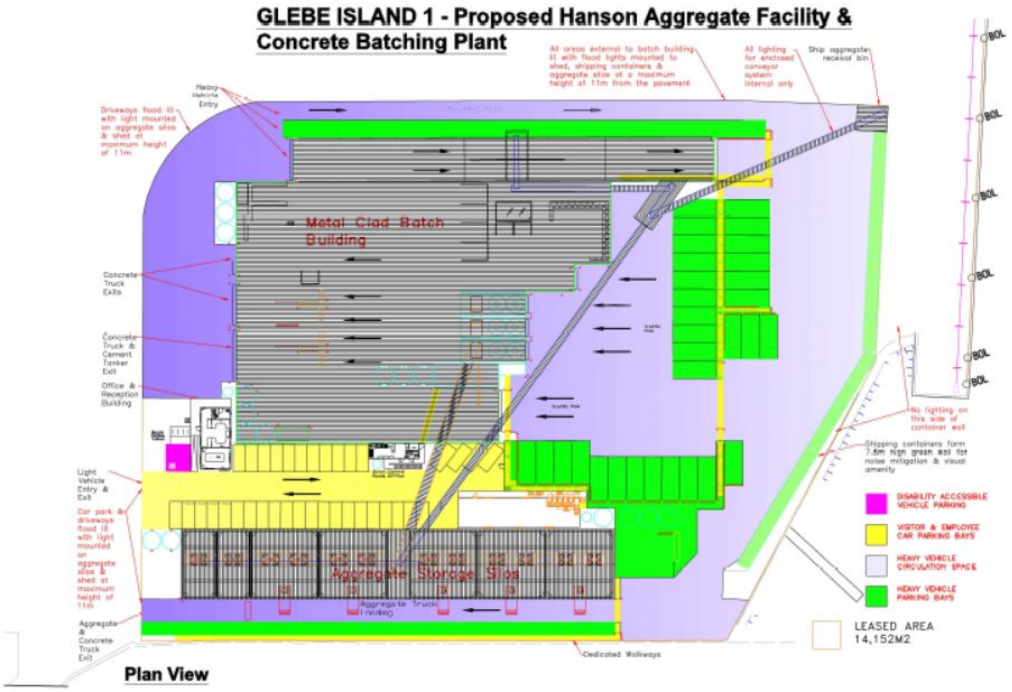


Figure 10. Site lighting designation and classification

Refer to the below recommended lighting technical parameters in conjunction with the diagram above.

1. Visitor and employee car parking bays, *AS/NZS 1158.3 lighting technical parameter of category P11b.*
2. Heavy vehicle circulation space, *AS/NZS 1680.5 lighting technical parameters of general storage – pedestrian access with through traffic Eav(average illuminance) 20lx,*

Emin(minimum illuminance) 2.5lx, U(uniformity of illuminance) 7, GRmax(CIE glare rating maximum) 50.

3. Heavy vehicle parking bays, *AS/NZS 1680.5 lighting technical parameters of general storage – pedestrian access with through traffic Eav(average illuminance) 20lx, Emin(minimum illuminance) 2.5lx, U(uniformity of illuminance) 7, GRmax(CIE glare rating maximum) 50*.
4. Disability accessible vehicle car parking. *AS/NZS 1158.3 lighting technical parameter of category P12.*

Pedestrian circulation spaces around the building perimeter are to be covered by *AS/NZS 1158.3 lighting technical parameter of category P4.*

Luminaires located within the covered areas of the CBP are considered shielded from external view and have been excluded from this strategy, however these should also comprise of full cut-off luminaires.

All external lighting systems applied to the CBP are to be assessed against *AS 4282 Control of the obtrusive effects of outdoor lighting*. The proposed lighting system is to fall below the pre-curfew and post curfew recommended maximum values of light technical parameters for the control of obtrusive, as outlined within the standard.

All external lighting systems applied to the CBP are to be assessed against *AS/NZS 1158.3 Classification of luminaires and associated criteria for control of glare and upward waste light.* The proposed lighting system is to fall below the recommended Maximum UWLR percentage.

4.0 Lighting Impacts

The surrounding roadways of, James Craig Road and Sommerville Road are a fair distance away and are generally shielded from the proposed development. Anzac Bridge and the Western Distributor are elevated roadways located at a higher level to the proposed development and will receive negligible impact from the proposed CBP external lighting.

Residential apartments located at Jacksons Landing to the east of Glebe Island have a direct line of site to the new CBP. The proposed external lighting will be operational during night hours seven days a week. Although the lighting systems will be visible from elevated apartments across the bay obtrusive spill light is likely to be within the limits specified in AS/NZS 4282 through careful selection of luminaires. There may be opportunity to utilise a lighting control system to dim or switch off certain areas of lighting via presence detection during hours of reduced operation. This will reduce the visual impact of the lighting systems.

5.0 Luminaire Specifications for Light Spill Minimisation

Numerous mitigating measures shall be adopted to reduce the possibility of obtrusive spill light beyond the site boundaries and upward waste light.

- LED lens technology allows for the precise aiming of light onto a designated location reducing spill light outside the site boundaries. Luminaires are to be aimed within the confines of the site.
- Luminaires comprising of full cut-off asymmetric lens optics shall be used throughout the site. Luminaires to incorporate a flat glass visor, in order to minimise upward waste light.
- Luminaires mounted between 6m – 12m with a zero degree upward tilt.
- The use of visors and physical obstructions.
- Consideration given to locating carpark pole mounted luminaires against the site perimeter with the main light distribution directed within the site.