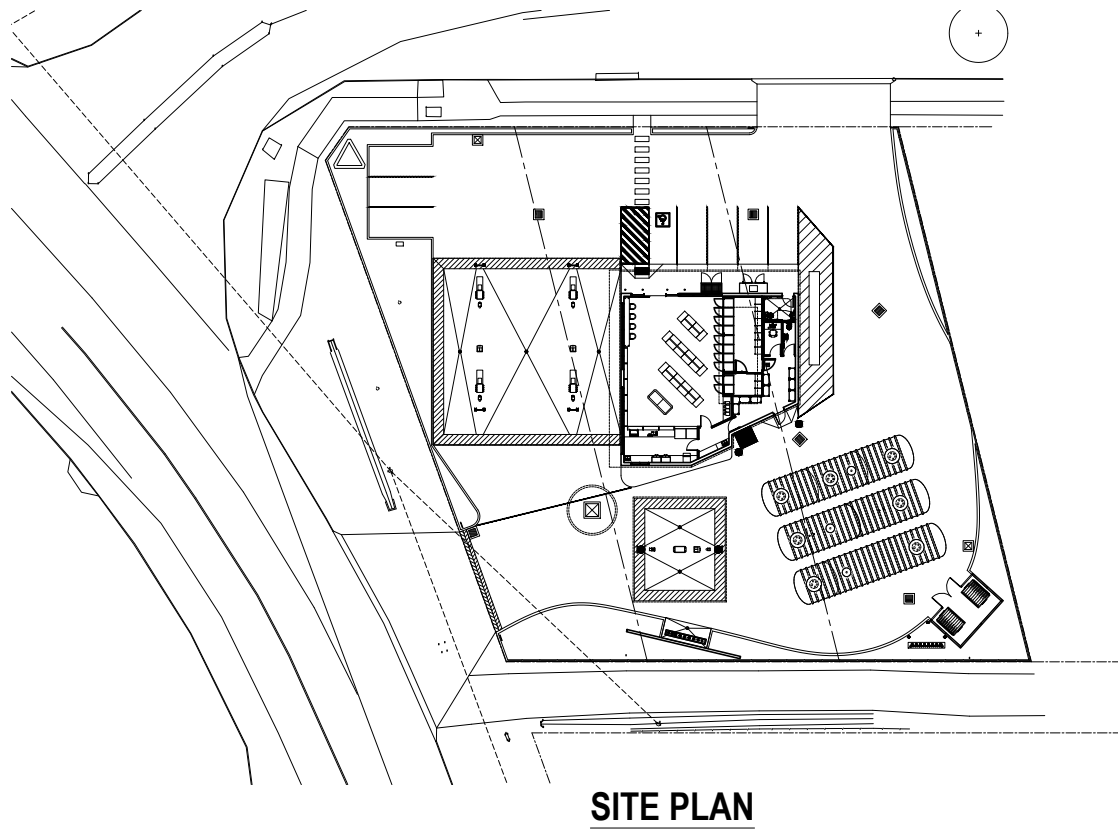


PROPOSED SERVICE STATION SLADE ST EAST, HENTY NSW



The scheme was evaluated for compliance with **AS/NZS 4282:2019 – Control of the obtrusive effects of outdoor lighting**

B2 STATEMENT OF OBJECTIVES

- a) The proposed lighting levels for the activity, being 24-hours operation of the fuel filling station are based on:
 - I. industry standards for the fuel-filling canopy.
 - II. Australian Standard AS/NZS 1158.3.1:2020 for the pedestrian and vehicular inter-action areas on the hardstand – the scheme complies with CAT PC1, PCX and PCD
 - III. Australian Standard AS/NZS 1680.5:2012 for fuel tanker and delivery truck movement on the site.
- b) Consideration was given to the mitigation of adverse lighting impact to nearby sensitive receptors (specifically dwellings), road users on the Slade St and Railway Pde and Upward-Waste-Light (skyglow).
This has been achieved through the use of efficient LED luminaires, all of which have horizontal front glass (meaning zero upward-light) and precise beam patterns to light only the task areas without spilling light outside the site.

B3 SUPPORTING DOCUMENTATION

B3.1 Information relating to the environment

- a) The facility to be lit is located at the corner of Slade Street and Railway Pde, Henty NSW – refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3 for details of the proposed development and its position relative to surrounding development.
 - I. The primary surfaces to be illuminated are the hardstand/forecourt at ground level, to provide safe-movement of pedestrians and vehicles within the site.
 - II. The site is surrounded by residential dwellings.
 - III. The area is considered to be of Medium District Brightness due to the proximity to Railway Pde, which has major-road streetlighting.
- b) The proposed site plan, Drawing 19-045 A-02 A-02 Rev DA1 indicates that an acoustic fence is to be installed along the East and South site boundaries. This fence will assist in containing light to within the site along those boundaries.
- c) Drawing 19-045 A-02 CMP-01 Rev DA1 shows small changes (less than 1m) in height between the proposed site and surrounding sites.
- d) The intersection of Slade St and Railway Pde is not signalised.
- e) Major road luminaires are located along Railway Pde in proximity to the site. It is anticipated that this arrangement of roadlighting would be upgraded as a result of the proposed development and increase of vehicle movements in Railway Pde.
- f) No nearby astronomical observatories are known.
- g) No other adjacent environmentally sensitive areas are apparent.

B3.2 Information relating the lighting design

- a) The design objective for the site lighting is to provide safe movement of vehicles and pedestrians throughout the site for 24-hours operation
- b) Calculations for illuminance and intensity were produced on the *Relevant Boundaries* of the adjacent dwellings and for Threshold Increment on Slade Street and Railway Pde. Refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3
- c) Refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3
- d) Software used in AGI32 - Refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3
- e) Refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3
- f) Refer to Rubidium Light drawing RJS0008-E01 Sheets 1-3
- g) The scheme is compliant with AS/NZS 4282:2019 for 24-hours operation in an A3 Environmental Zone

DRAWING INDEX	
SHEET	DESCRIPTION
RJS0008-E01-1	PROJECT PAGE - LOCALITY PLAN, SITE PLAN
RJS0008-E01-2	SITE LAYOUT
RJS0008-E01-3	OBTRUSIVE LIGHT

Rev.	Date	Drn.	Description
0	11/6/21	SAF	ISSUED FOR APPROVAL

Project:
PROPOSED SERVICE STATION
SLADE ST EAST
HENTY NSW

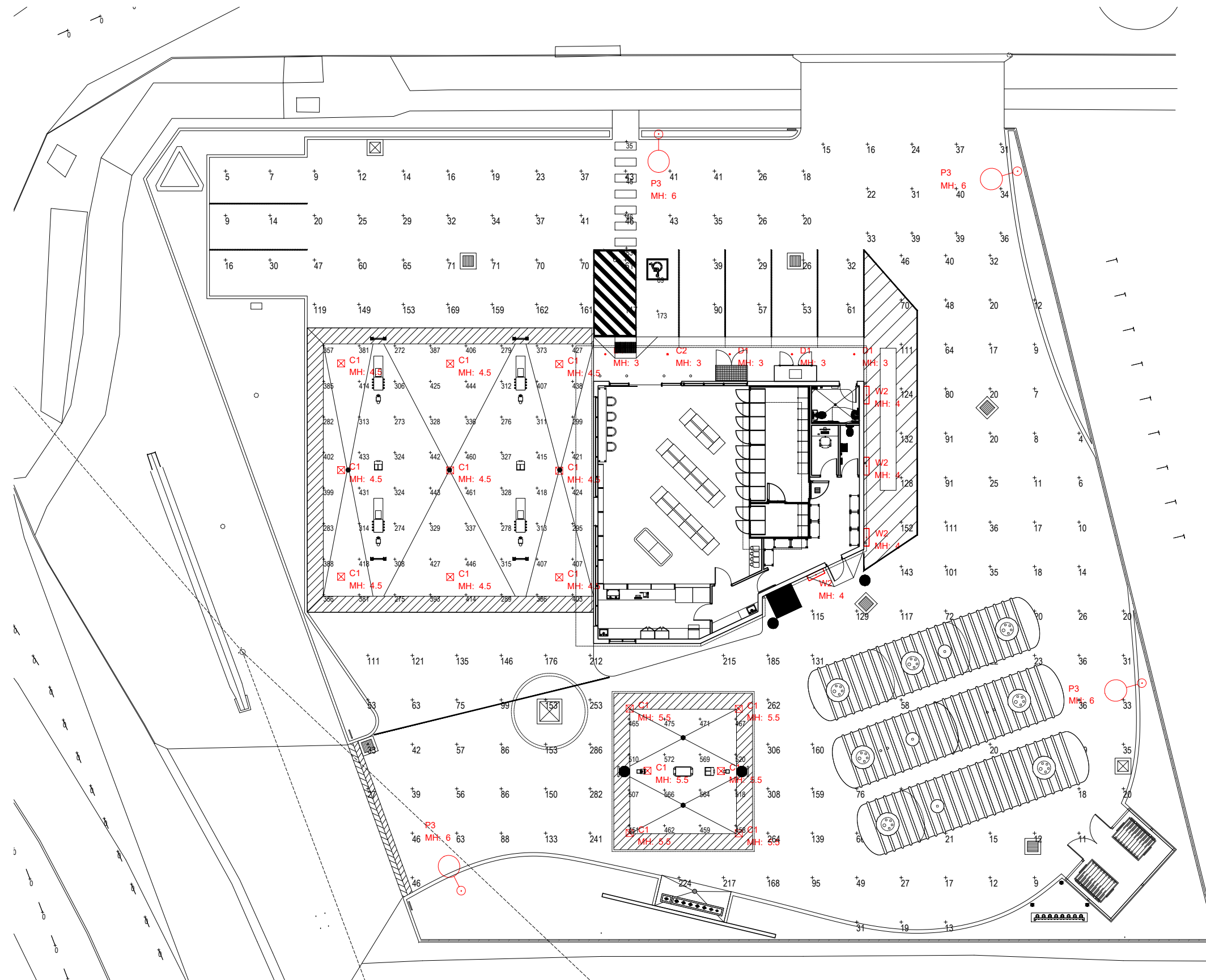
Title:
ELECTRICAL SERVICES
LIGHTING LAYOUT
COVER PAGE

Drawn: SAF Chk TD Date: 11/6/21
Scale: N.T.S.
Drawing No. RJS0008-E01-1 Rev Size A3

Rubidium Light
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Loganholme QLD 4129
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SITE PLAN

GENERAL LIGHTING NOTES:

1. THIS DRAWING IS INTENDED TO CONVEY THE DESIGN CONCEPT ONLY. IT IS EXPECTED THAT THE DESIGN WILL BE FURTHER DEVELOPED.
2. THE PROPOSED CAR PARK LIGHTING SCHEME COMPLIES WITH AS1158.3.1:2005 CAT PC1, PA1 (PEDESTRIAN CROSSING) AND PCD (DISABLED).
3. DISABLED PARKING SPACES WERE NOMINATED AND HAVE BEEN INCLUDED IN CALCULATIONS.
4. THE PROPOSED TRUCK MANEUVERING LIGHTING SCHEME COMPLIES WITH AS1680.5 FOR LOADING AND UNLOADING OF TRUCKS BY FORKLIFT / FOR GENERAL STORAGE - PEDESTRIAN ACCESS WITH THROUGH TRAFFIC.
5. SURFACE REFLECTANCES APPLIED: CEILING 80% WALLS 50% FLOOR 20%.
6. DESIGN SOFTWARE USE AGI32 V19.
7. THIS DRAWING WAS REPRODUCED FROM A RASTER IMAGE - CONFIRM ALL DIMENSIONS.
8. THE NUMBER OF FITTINGS SHOWN, AND THE TYPE OF FITTINGS ARE THE MINIMUM REQUIRED AND ADDITIONAL FITTINGS MAY BE NECESSARY IN THE FINAL COORDINATION.

LIGHTING SYSTEM MAINTENANCE:

THE COMBINED LIGHT-LOSS FACTOR APPLIED TO THESE CALCULATIONS IS BASED ON:

11. ANNUAL CLEANING OF LUMINAIRES IN A NORMAL POLLUTION SUB-CATEGORY ENVIRONMENT.
12. IP5X OR 6X LUMINAIRE.
13. 10 YEAR DESIGN LIFE.
14. SPOT REPLACEMENT OF FAILED LIGHT SOURCES.

OBTRUSIVE LIGHTING ANALYSIS:

15. COMPLIANCE WITH AS/NZS4282-2019 IS DEMONSTRATED FOR A4 ZONE FOR CURFEW OPERATION.
16. ALL OBTRUSIVE LIGHT ANALYSIS IS EVALUATED AT INITIAL FLUX.

Luminaire Schedule					
Symbol	Qty	Label	Description	LLF	Luminaire Lumens
☒	15	C1	LSI HAMILTON CRU-SC-LED-HO-CW 140W 4000K LED MOUNT UNDERCANOPY	0.810	18056
☒	1	C2	LSI HAMILTON CRUS-AC-LED-LW-40 74W 4000K OPTIC LED ASYMMETRIC LIGHT MOUNT UNDER ENTRY AWNING AT 3m	0.810	7826
⊕	4	D1	LSI HAMILTON DOWNLIGHT LED 30W 4000K OPTIC LED MOUNTED UNDER AWNING	0.810	2191
○	4	P3	LUCIEN LIGHTING EWO PM169864_F2_AP07-32led_70CRI-4000K-700mA 69W LED AREA LIGHT ON 6m POLE	0.810	6819
▮	4	W2	LSI HAMILTON XWM-2-LED-08L-40 62W 4000K OPTIC LED WALL MOUNT AT 4m	0.810	7993

Calculation Summary				
Label	Avg	Max	Min	Max/Avg
CAR CANOPY 1200 AFFL	364.36	461	272	N.A.
CARPARK Eh	53.50	169	5	3.16
ENTRY DRIVEWAY	30.54	40	15	1.31
PCX	44.75	53	35	N.A.
PWD	121.00	173	69	N.A.
TRUCK CANOPY 1200 AFFL	502.13	572	451	N.A.
TRUCK HARDSTAND	79.30	308	4	3.88

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Project:
PROPOSED SERVICE STATION
SLADE ST EAST
HENTY NSW

Title:
ELECTRICAL SERVICES
LIGHTING LAYOUT
GENERAL ARR'G'T

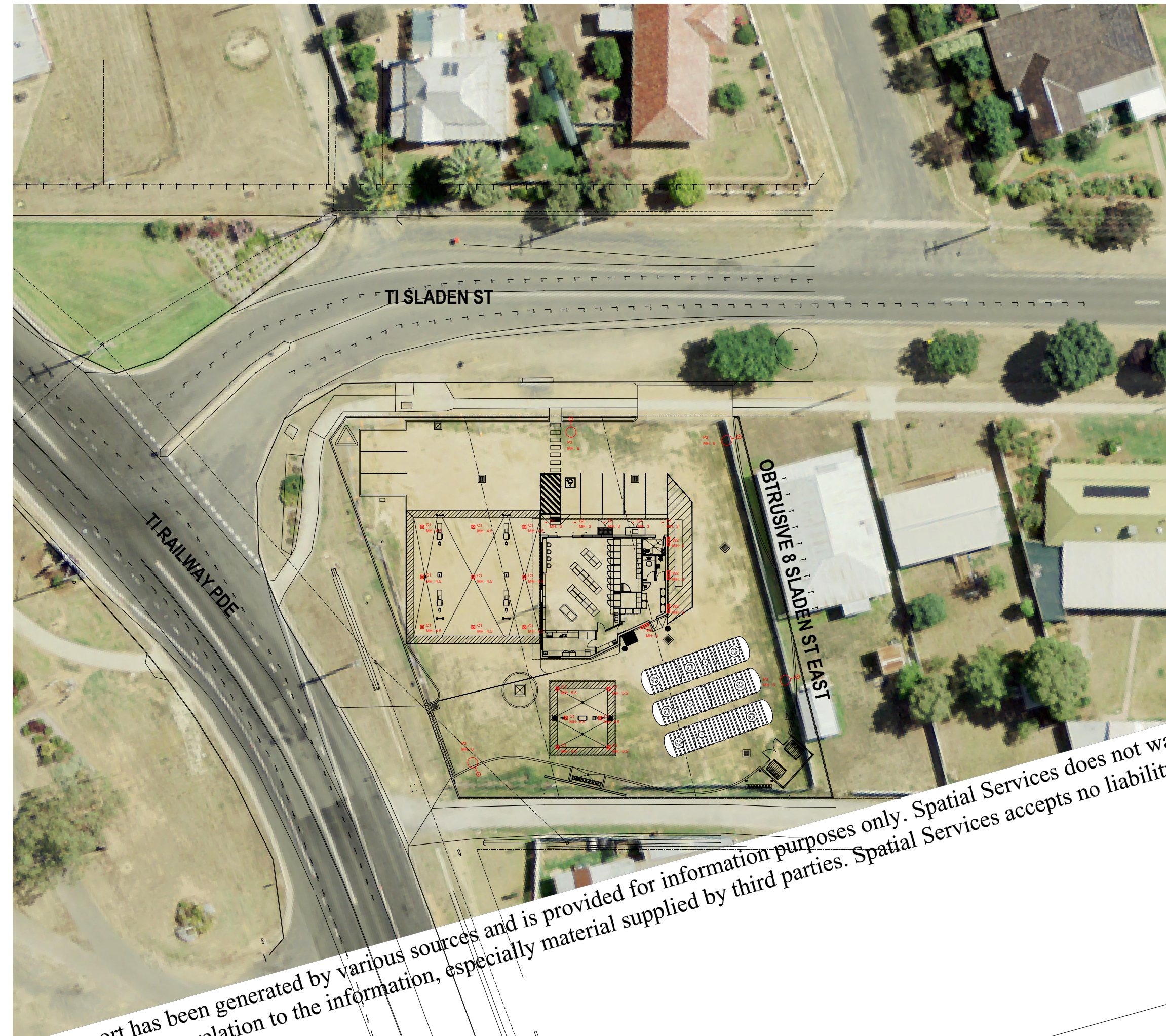
Drawn: SAF Chk TD Date: 11/6/21

Scale: N.T.S.

Drawing No. RJS0008-E01-2 Rev Size A3

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OBTRUSIVE LIGHT - COMPLIANCE REPORT
 AS/NZS 4282:2019, A3 - MEDIUM DISTRICT BRIGHTNESS, CURFEW
 FILENAME: RJS0008-1
 11/06/2021 09:44:27

ILLUMINANCE
 MAXIMUM ALLOWABLE VALUE: 2 LUX

CALCULATIONS TESTED (2):

CALCULATION LABEL	TEST RESULTS	MAX. RESULTS
OBTRUSIVE 8 SLADEN ST EAST_ILL_SEG1	PASS	2
OBTRUSIVE LOTS 1 2 AND 3_ILL_SEG1	PASS	0.4

LUMINOUS INTENSITY (CD) AT VERTICAL PLANES
 MAXIMUM ALLOWABLE VALUE: 2500 CD

CALCULATIONS TESTED (2):

CALCULATION LABEL	TEST RESULTS
OBTRUSIVE 8 SLADEN ST EAST_CD_SEG1	PASS
OBTRUSIVE LOTS 1 2 AND 3_CD_SEG1	PASS

UPWARD WASTE LIGHT RATIO (UWLR)
 MAXIMUM ALLOWABLE VALUE: 2.0 %

CALCULATED UWLR: 0.0 %
 TEST RESULTS: PASS

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0	11/6/21	SAF	ISSUED FOR APPROVAL	

Project:
 PROPOSED SERVICE STATION
 SLADE ST EAST
 HENTY NSW

Title:
 ELECTRICAL SERVICES
 LIGHTING LAYOUT
 AS4282 EVALUATION

Drawn: SAF Chk TD Date: 11/6/21
 Scale: N.T.S.
 Drawing No. RJS0008-E01-3 Rev Size A3

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