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Environmental Noise Impact Assessment

Section 4.55 Modification Application
Station Beach Boat House Palm Beach -
1191 Barrenjoey Road, Palm Beach, NSW

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6953-5.1R

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1.0 EXECUTIVE SUMMARY

Doyle Consulting Group propose to submit a Section 4.55 Modification Application (S4.55 MA) to modify the Development Consent (*DA2021/0669, determined 24 December 2021*) for the recently approved reconstruction of the Station Beach Boat House Palm Beach (*SBBHPB*) at 1191 Barrenjoey Road, Palm Beach, NSW (the Site).

SBBHPB is located on the western side of Governor Phillip Park on Station Beach looking over Pittwater, as shown in Figure 1. *SBBHPB* currently operates as a café (The Boat House), boat hire venue and seaplane dock.

The nearest residences to the site are located circa 600 metres to the north and south.

The Development Consent for DA2121/0669 permits the reconstruction of The Boat House and its use as a function venue on Fridays and Saturdays through the daylight savings months of October to March, only, and the construction of a new ancillary building which will include amenities, bin room, cool room, freezer room and store rooms.

The Boat House is approved to cater for up to 152 patrons - Condition 97 of DA2121/0669 - from 7 am to 4 pm, 7 days a week as a café and from 4 pm to 10 pm, Fridays and Saturdays (*daylight savings months only*) as a function venue – Condition 96 of DA2121/0669. The areas for patronage are split as 48 indoors, 30 outdoor covered deck seating and 74 on the lower deck seating area. Parking is provided for the *SBBHPB* in formal and in-formal at grade parking bays adjacent to the Governor Phillip Park internal access road.

Live music is approved within The Boat House during functions throughout the daylight savings months of October to March, only.

The *SBBHPB* requires mechanical plant for the new ancillary building which includes condensers, an evaporative cooler and exhaust fans. The locations of the mechanical plant and equipment are shown in the mechanical services plans prepared by JCOS Building Engineering for project No. 21039, dated 31 July 2023, attached in appendix F.

The S4.55 MA will seek approval to modify Condition 96 to permit the hours of operation to be as follows:

- Monday to Sunday: 7 am to 11 pm (all year round).

Acceptable noise limits are derived from Liquor and Gaming NSW for patron and music noise, and from the NSW Environment Protection Authority (EPA) for noise arising from the mechanical plant and car park at the residential receiver locations. Acceptable noise limits are derived from the EPA for patron, music, mechanical plant and car park noise at the active recreation and commercial receiver locations.

This assessment considers the cumulative noise impact from the *SBBHPB* once the proposed works are complete and during the proposed hours of operation for the S4.55 MA. Patron and music noise is based on the proposed future activities within The Boat House. All calculations are based on the drawings by Canvas Architecture and Design, dated 26 August 2022, attached as Appendix C.

Calculations show that, the operation of the site following the approved works and during the proposed amended hours of operation will meet the Liquor and Gaming NSW and EPA's noise level requirements at all nearby residential, active recreation and commercial locations, and will therefore be acceptable.

2.0 CONSULTING BRIEF

Day Design Pty Ltd was engaged by Blue Pacific Constructions on behalf of Station Beach Boat House Palm Beach to assess the environmental noise impact during the proposed amended operating hours following the reconstruction of the venue at 1191 Barrenjoey Road, Palm Beach, NSW.

This commission involves the following:

Scope of Work:

- Inspect the site and environs
- Prepare a site plan identifying the proposal and nearby noise sensitive locations
- Establish acceptable noise level criteria
- Quantify noise emission from the approved Station Beach Boat House Palm Beach during the proposed amended operating hours
- Calculate the level of noise emission taking into account distance attenuation, sound barrier screening and ground absorption
- Provide recommendations for noise control
- Prepare an Environmental Noise Impact Report.

3.0 PROJECT DESCRIPTION

3.1 Site Description

The Site is located at 1191 Barrenjoey Road, Palm Beach, NSW, on land zoned *E2 Environmental Conservation*, under Pittwater Local Environment Plan (LEP) 2014.

The Site is bounded by Governor Phillip Park to the north, east and south and Pittwater to the west. Dunes Palm Beach (café) is located circa 450 meters to the south-south-east and Palm Beach Golf Club is located adjacent to the south of the Site. The nearest residential receivers to the Site are located circa 600 metres to the north on Barrenjoey Road, circa 600 metres to the south on Beach Road and circa 2.15 kilometres to the west-south-west on Great Mackerel Beach.

It is noted that Dunes Palm Beach, which also operates as a function venue 7 days a week until up to 11 pm, is located approximately 125 metres from the residential receivers on Beach Road.

The location of the proposed development and the surrounding premises, in various directions, are shown in Figure 1 and Figure 2, and summarised below in Table 1.

Table 1 Noise Sensitive Receptors

Receptor and Type	Address	Direction from site
R1 – Commercial	*Dunes Palm Beach*, 1193 Barrenjoey Road	South South East
R2 – Residential	1, 1A & 2 Waratah Road	South
R3 – Active Recreation	*Palm Beach Golf Club*, 2 Beach Road	South
R4 – Residential	1199 Barrenjoey Road *(Ku-ring-gai Chase National Park)*	North
R5 – Residential	1 Ross Smith Parade	West South West

Figure 1. Location Plan 1 – 1191 Barrenjoey Road, Palm Beach, NSW

Figure 2. Location Plan 2 – 1191 Barrenjoey Road, Palm Beach, NSW

3.2 Development Description

The *SBBHPB* is approved through Development Consent - *DA2021/0669,* determined by Northern Beaches Council 24 December 2021 - for the use as a function venue on Fridays and Saturdays, only. The construction of a new ancillary building which will include amenities, bin room, cool room, freezer room and store rooms is also approved.

The *SBBHPB* will provide a venue for functions including, but not limited to, weddings, birthday parties and corporate events.

The *SBBHPB* is approved to cater for up to 152 patrons. The areas for patronage are split as 48 indoors, 30 outdoor covered deck seating and 74 on the lower deck seating area. Parking is provided for the *SBBHPB* in formal and in-formal at grade parking bays adjacent to the Governor Phillip Park internal access road – approximately 488 parking spaces (*Referred to as Zones 1, 2 and 3 in Figure 8 of the gtk Consulting Traffic Management and Car Parking Solutions, [draft] Car Parking Assessment, titled 'Proposed Renovations Station Beach Boat House Wharf Palm Beach 1191 Barrenjoey Rd Palm Beach', dated March 2020 – attached as Appendix D*).

Amplified music is approved to be used within the *SBBHPB* and will consist of pre-recorded music (eg DJ or 'i-pod') or small live performances on occasions during functions throughout the daylight savings months of October to March, only. It is noted that during the previous general use of *SBBHPB*, amplified music consisting of pre-recorded music was at times played through an in-house speaker system – speakers were located in both internal and external areas.

The *SBBHPB* requires mechanical plant for the new ancillary building which includes condensers, an evaporative cooler and exhaust fans. The locations of the mechanical plant and equipment are shown in the mechanical services plans prepared by JCOS Building Engineering for project No. 21039, dated 31 July 2023, attached in appendix F.

The approved operating hours for *SBBHPB* are as follows (per Condition 96 of the Consent):

Outside Daylight Savings -

- Monday to Sunday (including public holidays) 7 am to 4 pm.

During Daylight Savings -

- Monday to Thursday 7 am to 4 pm;
- Friday and Saturday 7 am to 10 pm;
- Sunday 7 am to 4 pm.

It is proposed to submit a S4.55 MA to Northern Beaches Council which will seek approval to modify Condition 96 to permit the hours of operation of the *SBBHPB* to be as follows:

- Monday to Sunday: 7 am to 11 pm (all year round).

The approved reconstruction can be seen in the architectural drawings provided by Canvas Architecture and Design, dated 26 August 2022, attached as Appendix C.

NOTE: *this application does not propose any other changes to the approved use of the SBBHPB, i.e. patrons and music, of the SBBHPB between the approved hours, therefore, there will be no change to the acoustic impact on the surrounding area. Considering the above, no assessment of the noise impact from patrons and music within SBBHPB during the approved hours is required*.

4.0 ACOUSTICAL CRITERIA

There are several noise guidelines that are potentially applicable to this proposal. We have presented each and established the project specific noise criteria in Section 4.4.

4.1 Measured Ambient Noise Levels

In order to assess the severity of a possible environmental noise problem in a residential area it is necessary to measure the ambient background noise level at the times and locations of worst possible annoyance. The lower the background noise level, the more perceptible the intrusive noise becomes and the more potentially annoying.

The ambient L_{90} background noise level is a statistical measure of the sound pressure level that is exceeded for 90% of the measuring period (typically 15 minutes).

The Rating Background Level (RBL) is defined by the EPA as the median value of the (lower) tenth percentile of L_{90} ambient background noise levels for day, evening or night periods, measured over a number of days during the proposed days and times of operation.

The places of worst possible annoyance are the residential premises located to the north on Barrenjoey Road, south on Beach Road and west-south-west on Great Mackerel Beach. These potentially affected locations can be seen in Figure 1 as 'R2' and Figure 2 as 'R2', 'R4' and 'R5'. The times of worst annoyance will be during the evening and night when ambient noise is typically at its lowest.

Ambient noise levels have been measured in the front yard of 3 Beach Road, shown as Location 'A', in Figure 1, from Monday 23 March to Tuesday 31 March, 2020 and adjacent to the southern 'Fisherman's Cottage' in *Ku-ring-gai Chase National Park*, and the first floor front deck of 1 Monash Avenue, shown as Locations 'B' and 'C', respectively, in Figure 2, from Tuesday 4 August to Friday 14 August 2020.

It is noted the two 'Fisherman's Cottages' in *Ku-ring-gai Chase National Park* are currently fenced off from public access and in a state of disrepair.

The measured noise levels are presented in Appendix A1 to A3 and also in Table 2.

Table 2 Ambient Noise Levels

Noise Measurement Location	Time Period	Rating Background Level	Existing L_{eq} Noise Level
Location 'A' - Front yard, 3 Beach Road	Day (7 am to 6 pm)	**40 dBA**	**56 dBA**
	Evening (6 pm to 10 pm)	**37 dBA**	**56 dBA**
	*Early Night (10 pm to 11.30 pm)**	**36 dBA**	**n/a**
	Night (10 pm to 7 am)	**34 dBA**	**49 dBA**
Location 'B' - Fisherman's Cottages, *Ku-ring-gai Chase National Park*	Day (7 am to 6 pm)	**37 dBA**	**49 dBA**
	Evening (6 pm to 10 pm)	**37 dBA**	**47 dBA**
	*Early Night (10 pm to 11.30 pm)**	**38 dBA**	**n/a**
	Night (10 pm to 7 am)	**36 dBA**	**48 dBA**
Location 'C' - Front deck, 1 Monash Avenue	Day (7 am to 6 pm)	**46 dBA**	**58 dBA**
	Evening (6 pm to 10 pm)	**45 dBA**	**58 dBA**
	*Early Night (10 pm to 11.30 pm)**	**44 dBA**	**n/a**
	Night (10 pm to 7 am)	**42 dBA**	**58 dBA**

* *The early night period is inclusive of the 30 minute period after 11.00 pm to account for the assessment of potential noise emissions that may cause sleep disturbance when vehicles are leaving the SBBHPB at the close of business between 11 pm and 11.30 pm. Note that noise emissions (ie staff arriving) during the early morning period have not been assessed as they form part of the existing operation of the SBBHPB and no changes are proposed during this time period – 6:30 am to 7.00 am.*

Meteorological conditions during the testing from Monday 23 March to Tuesday 31 March, 2020 typically consisted of clear skies with some moderate rain falls and temperatures between 14 and 25°C with meteorological conditions during the testing from Tuesday 4 August to Friday 14 August 2020 typically consisted of clear skies with some heavy rain falls and temperatures between 3 and 21°C with. Rain and wind[1] affected data has been removed from the assessment period. Atmospheric conditions were otherwise ideal for noise monitoring. Noise measurements were therefore considered reliable and typical for the receptor area.

[1] *It is noted that the general area around Palm Beach is coastal with light winds between 1.1 and 12.6 km/h occurring 69.94% of the time and a gentle winds between 12.6 and 19.8 km/h occurring 24.68% of the time. Calm conditions with winds ≤ 1.1 km/h occur only 1.96% of the time. Considering the above, wind is clearly a common feature of the meteorological conditions in the area. Data affected by wind only, has not been removed from the assessment period (Data source - Bureau of Meteorology)*

Short-term background noise measurements were also carried out at Location 'A' on Monday 23 March, 2020 at 04.40 pm and Location 'B' and Location 'C' on Tuesday 4 August at 10.41 am and 12.16 pm, respectively, to determine the ambient noise levels in octave band centre frequencies, these levels are shown below in Table 3.

Table 3 Measured Short-term $L_{90,\ 15\ minute}$ Background Noise Levels

Description - Background noise spectrum	Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)									
	dBA	**31.5**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Location 'A'	**43**	52	53	47	41	40	38	35	29	21
Location 'B'	**34**	49	44	36	32	32	30	26	21	16
Location 'C'	**45**	38	41	37	38	41	41	38	33	25

Meteorological conditions during the measurements consisted of clear skies and a temperature of 17°C to 20°C. Atmospheric conditions were ideal for noise monitoring. Noise measurements were therefore considered reliable and typical for the receptor area.

4.2 Liquor and Gaming NSW – Licence

Liquor and Gaming NSW (formerly NSW Office of Liquor, Gaming and Racing) issues licensed premises with operational consent conditions that require the noise emission from music and patrons inside a licensed premises to meet specified noise criteria.

4.2.1 Current Licence

SBBHPB currently operates in accordance with Liquor Licence Number: *LIQO660010514*, which does not contain any requirements in relation to noise emission from general operations inside the licensed premises.

4.2.2 General Requirements

Liquor and Gaming NSW (formerly NSW Office of Liquor, Gaming and Racing), requires the following in relation to noise emission from patrons inside licensed premises:

> *"The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8 kHz inclusive) by more than 5 dB between 07:00 am and 12:00 midnight at the boundary of any affected residence.*
>
> *The L_{A10} noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8 kHz inclusive) between 12:00 midnight and 07:00 am at the boundary of any affected residence.*
>
> *Notwithstanding compliance with the above, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours of 12:00 midnight and 07:00 am".*

4.3 NSW Environment Protection Authority

4.3.1 NSW Noise Policy for Industry

The NSW Environment Protection Authority (EPA) published the *Noise Policy for Industry* (NPI) in October 2017. The *NPI* is specifically aimed at assessing noise from industrial noise sources listed in Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO, 1997).

The *NPI* provides a framework to assess noise emission from a premises, and whether that premises produces intrusive or non-intrusive noise and / or maintains the acoustic amenity.

Section 2.1 of the *NPI* states the following:

"Intrusive noise levels are only applied to residential receivers (residences). For other receiver types identified in Table 2.2, only the amenity levels apply."

4.3.1.1 Project Intrusiveness Noise Levels

The EPA states in Section 2.3 of its NSW *NPI* (October 2017) that the intrusiveness of an industrial noise source may generally be considered acceptable if the level of noise from the source (represented by the L_{Aeq} descriptor), measured over a 15-minute period, does not exceed the rating background noise level by more than 5 dB when beyond a minimum threshold (EPA *NPI*, 2017, Section 2.3).

The RBLs at Logger Location 'A' were 40 dBA during the day, 37 dBA in the evening and 34 dBA at night (see Table 2). Therefore the acceptable L_{eq} noise intrusiveness criteria in these areas are:

Residential Receptors – 'R2'

- (40 + 5 =) 45 dBA $L_{eq,\ 15\ minute}$ during the day;
- (37 + 5 =) 42 dBA $L_{eq,\ 15\ minute}$ in the evening; and
- (34 + 5 =) 39 dBA $L_{eq,\ 15\ minute}$ at night.

The RBLs at Logger Location 'B' were 37 dBA during the day and in the evening and 36 dBA at night (see Table 2). Therefore the acceptable L_{eq} noise intrusiveness criteria in these areas are:

Residential Receptor – 'R4'

- (37 + 5 =) 42 dBA $L_{eq,\ 15\ minute}$ during the day and in the evening; and
- (36 + 5 =) 41 dBA $L_{eq,\ 15\ minute}$ at night.

The RBLs at Logger Location 'C' were 46 dBA during the day, 45 dBA in the evening and 42 dBA at night (see Table 2). Therefore the acceptable L_{eq} noise intrusiveness criteria in these areas are:

Residential Receptor – 'R5'

- (46 + 5 =) 51 dBA $L_{eq,\ 15\ minute}$ during the day;
- (45 + 5 =) 50 dBA $L_{eq,\ 15\ minute}$ in the evening; and
- (42 + 5 =) 47 dBA $L_{eq,\ 15\ minute}$ at night.

4.3.1.2 Project Amenity Noise Levels

Depending on the type of area in which the noise is being made, there is a certain reasonable expectancy for noise amenity. The NSW *NPI* provides a schedule of recommended L_{eq} industrial noise levels that under normal circumstances should not be exceeded. If successive developments occur near a residential area, each one allowing a criterion of background noise level plus 5 dB, the ambient noise level will gradually creep higher.

The recommended L_{eq} noise levels in Table 4 are taken from Section 2.4, Table 2.2 of the NPI.

Table 4 Amenity Noise Levels

Receiver	Noise Amenity Area	Time of Day	L_{eq}, dBA, Recommended Amenity Noise Level
Residential	Suburban	Day	55
		Evening	45
		Night	40
Active recreation area (eg school playground, golf course)	All	When in use	55
Commercial premises	All	When in use	65

The L_{Aeq} is determined over a 15-minute period for the project intrusiveness noise level and over an assessment period (day, evening and night) for the project amenity noise level. This leads to the situation where, because of the different averaging periods, the same numerical value does not necessarily represent the same amount of noise heard by a person for different time periods. To standardise the time periods for the intrusiveness and amenity noise levels, the *NPI* assumes that the $\mathbf{L_{Aeq,15min}}$ will be taken to be equal to the $\mathbf{L_{Aeq,\,period}}$ **+ 3 decibels (dB)** (Section 2.2, NPI).

Compliance with the amenity criteria will limit ambient noise creep. **Section 2.4** of the *NPI* states the following:

'To ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a ***project amenity noise level*** *applies for each new source of industrial noise as follows:*

- ***Project amenity noise level for industrial developments = recommended amenity noise level (Table 2.2) minus 5 dB (A).***

The following exceptions to the above method to derive the project amenity noise level apply:

3. *Where the resultant project amenity noise level is 10 dB or more lower than the existing industrial noise level[2]. In this case the project amenity noise levels can be set at 10 dB below existing industrial noise levels if it can be demonstrated that existing industrial noise levels are unlikely to reduce over time.'*

The existing L_{eq} noise levels at Location 'A' were 56 dBA during the day and in the evening and 49 dBA at night (see Table 2). Therefore, the acceptable L_{eq} amenity criteria for the residential receptors in this area are:

Residential Receptors – 'R2'

- (55 – 5 + 3 =) 53 dBA $L_{eq,\ 15\ minute}$ during the day;
- (56 – 10 + 3 =) 49 dBA $L_{eq,\ 15\ minute}$ in the evening; and
- (49 – 10 + 3 =) 42 dBA $L_{eq,\ 15\ minute}$ at night.

The existing L_{eq} noise levels at Location 'B' were 49 dBA during the day, 47 dBA in the evening and 48 dBA at night (see Table 2). Therefore, the acceptable L_{eq} amenity criteria for the residential receptors in this area are:

Residential Receptor – 'R4'

- (55 – 5 + 3 =) 53 dBA $L_{eq,\ 15\ minute}$ during the day;
- (45 – 5 + 3 =) 43 dBA $L_{eq,\ 15\ minute}$ in the evening; and
- (48 – 10 + 3 =) 41 dBA $L_{eq,\ 15\ minute}$ at night.

The existing L_{eq} noise levels at Location 'C' were 58 dBA during the day, in the evening and at night (see Table 2). Therefore, the acceptable L_{eq} amenity criteria for the residential receptors in this area are:

Residential Receptor – 'R5'

- (55 – 5 + 3 =) 53 dBA $L_{eq,\ 15\ minute}$ during the day;
- (58 – 10 + 3 =) 51 dBA $L_{eq,\ 15\ minute}$ in the evening and at night.

The acceptable amenity criteria for the nearby commercial premises, *Dunes Palm Beach*, 'R1', is:

- (65 – 5 + 3 =) 63 dBA $L_{eq,\ 15\ minute}$ when in use.

The acceptable amenity criteria for the nearby active recreation area *Palm Beach Golf Club*, 'R3', is:

- (55 – 5 + 3 =) 53 dBA $L_{eq,\ 15\ minute}$ when in use.

[2] *The existing L_{eq} ambient noise levels in the general area are not influenced by industrial noise sources, however, considering the L_{eq} noise levels shown in Table 2, the resultant project amenity noise level is 10 dB or more lower than the existing L_{eq} noise levels during some time periods. Day Design are of the opinion that where the existing L_{eq} noise levels exceed the amenity noise level threshold due to existing non-industrial noise sources, the guidelines set out in Section 2.4, point 3 of the NPI should be adopted.*

4.3.1.3 Sleep Disturbance Criteria

The EPA's *NPI* states in Section 2.5 that the potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

Sleep may be disturbed if the subject development night-time noise levels at a residential location exceed the following:

- $L_{Aeq,\ 15min}$ 40 dBA or the prevailing RBL plus 5 dB, whichever is greater; and/or
- L_{AFmax} 52 dBA or the prevailing RBL plus 15 dB, whichever is greater.

Where either of the above criteria are triggered, a detailed maximum noise level event assessment should be undertaken.

The RBL at Location 'A' was 36 dBA in the early night (see Table 2). Therefore, the acceptable $L_{eq,\ 15\ minute}$ and L_{AFmax} noise sleep disturbance criteria in this area is:

Residential Receptors – 'R2'

- (36 + 5 =) 41 dBA $L_{eq,\ 15\ minute}$ in the early night; and/or
- (36 + 15 =) 51 dBA L_{AFmax} in the early night.

The RBL at Location 'B' was 38 dBA in the early night (see Table 2). Therefore, the acceptable $L_{eq,\ 15\ minute}$ and L_{AFmax} noise sleep disturbance criteria in this area is:

Residential Receptors – 'R4'

- (38 + 5 =) 43 dBA $L_{eq,\ 15\ minute}$ in the early night; and/or
- (38 + 15 =) 53 dBA L_{AFmax} in the early night.

The RBL at Location 'C' was 44 dBA in the early night (see Table 2). Therefore, the acceptable $L_{eq,\ 15\ minute}$ and L_{AFmax} noise sleep disturbance criteria in this area is:

Residential Receptors – 'R5'

- (44 + 5 =) 49 dBA $L_{eq,\ 15\ minute}$ in the early night; and/or
- (44 + 15 =) 59 dBA L_{AFmax} in the early night.

4.3.1 NSW Road Noise Policy

The NSW Road Noise Policy (RNP), in Section 2.3.1, sets out road traffic noise assessment criteria for residential land uses in Table 3. The information in that table is extracted below in Table 5.

Table 5 Road Traffic Noise Assessment Criterion - Residential

Road Category	Type of project/land use	Assessment Criteria – dB(A)	
		Day (7 am – 10 pm)	Night (10 pm – 7 am)
Local roads	6. Existing residences affected by **additional traffic** on existing local roads generated by land use developments	$L_{Aeq, (1\ hour)}$ 55 (external)	$L_{Aeq, (1\ hour)}$ 50 (external)

4.4 Project Specific Noise Criteria

As discussed in the note in Section 3.2 of this report, the S4.55 MA does not propose any changes to the general operation of the *SBBHPB* during the approved operating hours. Therefore, an assessment of the noise emissions associated with the future use *SBBHPB* during the proposed amended operating hours is required.

The measured background noise levels have been used to establish the most stringent noise criteria at each receptor location as follows:

4.4.1 Residential Receptors

Noise emissions from the use of the car park and the mechanical plant serving the development are assessed against the NSW *NPI* at the residential receptors as follows:

The measured background noise levels at Location 'A' have been used to establish the noise criteria at receptor locations 'R2':

- **39 dBA** $L_{eq,\ 15\ minute}$ at night.

The measured background noise levels at Location 'B' have been used to establish the noise criteria at receptor locations 'R4':

- **41 dBA** $L_{eq,\ 15\ minute}$ at night.

The measured background noise levels at Location 'C' have been used to establish the noise criteria at receptor locations 'R5':

- **47 dBA** $L_{eq,\ 15\ minute}$ at night.

These criteria apply at the most-affected point on or within the residential property boundary. For upper floors, the noise is assessed outside the nearest window.

The following criterion will be applied at 1 metre from the residential façade of 'R2', 'R4' and 'R5' for potential sleep disturbance caused by the use of the car park in the early night time:

Residential Receptors – 'R2'

- **51 dBA** L_{AFmax} in the early night time.

Residential Receptors – 'R4'

- **53 dBA** L_{AFmax} in the early night time.

Residential Receptors – 'R5'

- **59 dBA** L_{AFmax} in the early night time.

The L_{10} noise emissions from patrons and music during a function are assessed against the Liquor and Gaming NSW noise criteria, as shown in Table 6.

Table 6 L_{10} Noise Level Criteria for Residential Receptors

Description	Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)									
	dBA	**31.5**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
'R2'										
Early Night (10 pm – 11 pm)	**41**	50	51	45	39	38	36	33	27	19
'R4'										
Early Night (10 pm – 11 pm)	**43**	58	53	45	41	41	39	35	30	25
'R5'										
Early Night (10 pm – 11 pm)	**49**	42	45	41	42	45	45	42	37	29

These criteria apply at the most-affected point on or within the residential property boundary. For upper floors, the noise is assessed outside the nearest window.

4.4.2 Commercial Receptor

Noise emissions from the patrons, music, mechanical plant and the car park are assessed against the NSW *NPI* at the commercial receptor, 'R1', as follows:

- **63 dBA** $L_{eq,\ 15\ minute}$ when in use.

These criteria apply at the most-affected point on or within the property boundary of the nearby commercial receptors, 'R1', for all noise sources.

4.4.3 Active Recreation Receptor

Active Recreation Receptor – 'R3'

- **53 dBA** $L_{eq,\ 15\ minute}$ during the day for patron, music, mechanical plant and car park noise.

This criterion applies at the most-affected point within the area that is reasonably expected to be used by people, when in use.

4.4.4 On – Road Traffic Noise Criteria

The following criterion will be applied at 1 metre from the most affected façade of 'R2', for on – road traffic noise. Compliance at 'R2' will ensure compliance at all other residential receivers:

- **50 dBA** (external) $L_{eq,\ 1\ hour}$ between 10 pm and 7 am.

5.0 NOISE EMISSIONS

The main sources of noise from *SBBHPB* will be the patrons and music in The Boat House during a function, mechanical plant associated with the ancillary building and the use of the car park.

The noise impact from each area has been calculated and the noise impact from the patrons, music and mechanical plant within the reconstructed *SBBHPB* and the use of the car park established for the most affected receptors.

The locations of the reconstructed areas of the *SBBHPB* can be seen in the floor plans prepared by Canvas Architecture and Design, dated 26 August 2022, shown in Appendix C.

5.1 The Boat House – Patrons and Music

The Boat House will cater for up to 152 patrons during a function. As a worst-case scenario we have modelled noise emissions from the use of The Boat House for a Wedding reception.

From our observations of other sites, we have modelled the noise emission from people talking in The Boat House during a Wedding Reception as follows:

- Patrons (50% male and 50% female) talking with a loud voice (10%), talking with a raised voice (20%), talking normally (20%) and the rest are not talking or listening (50%).

In addition, we have assumed the following when calculating noise emissions from The *SBBHPB*:

- Amplified music will be played at times and will consist predominantly of either pre-recorded amplified music or small live performances;
- Any small band will be located on the outdoor covered deck, in the south-eastern corner;
- Speakers located in the outdoor covered deck will be orientated to project noise towards the west-south-west or west-north-west, ie towards the Pittwater;
- All external operable windows and doors on the southern and western sides of The Boat House will be open during operation (approx 20% of the floor area).

Based on information in Harris[3] and in our noise level database gathered over many years, we calculate the sound power levels shown in Tables 7.

Table 7 L_{10} Sound Power Levels – Patrons & Music

Description	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)									
	dBA	**31.5**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
One male talking with normal voice	**66**	51	57	57	63	66	59	55	51	46
One female talking with normal voice	**63**	47	52	52	59	62	57	52	51	46
One male talking with raised voice	**72**	56	61	61	67	72	67	63	58	51
One female talking with raised voice	**70**	37	42	42	63	68	66	62	58	52
One male talking with loud voice	**83**	57	62	64	73	80	79	75	68	59
One female talking with loud voice	**79**	33	38	40	66	73	75	73	65	58
Lower deck**:** 74 adults (10% loud, 20% raised, 20% normal voice)	**91**	68	73	74	82	88	87	83	77	69
Covered deck**:** 30 adults (10% loud, 20% raised, 20% normal voice)	**87**	64	69	70	78	84	83	80	73	65
Indoor seating area**:** 48 adults (10% loud, 20% raised, 20% normal voice)	**89**	66	71	72	80	86	85	82	75	67
Amplified Band	**103**	107	112	108	107	100	97	87	87	86

NOTE: *For the purpose of predicting L_{eq} noise levels at the commercial, and active recreation receptor locations, 3 dB has been subtracted from the L_{10} sound power levels shown in Table 7, ie the L_{eq} sound power level of one male speaking with a normal voice is equal to (66 – 3 =) 63 dBA.*

[3] *Handbook of Acoustical Measurements and Noise Control, Third Edition, Cyril M. Harris, McGraw-Hill Inc, New York, (Page 16.2)*

5.2 Mechanical Plant

The specifications and locations of the mechanical plant and equipment to serve the Site have been provided by the client.

The sound power levels of the mechanical plant and equipment are presented below in Table 8.

Table 8 L_{eq} Sound Power Levels – Mechanical Plant

Description	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
	dBA	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
CU-01 - *Daikin RXS95LVMA*	**69**	74	71	70	65	64	61	56	54
CU-02 - *Daikin RXYMQ5AV4A*	**71**	76	73	72	67	66	63	58	56
KEX-01 - *Fantech HUD634*	**93**	88	96	92	92	87	81	76	72
TEF-01 - *Fantech CEEC25V*	**69**	64	58	63	66	65	60	54	60
KEX-01 - *Fantech TD-800/200ECO*	**69**	62	52	58	63	65	63	58	49
DC-1 - *Braemar RPA400*	**73**	78	75	74	69	68	65	60	58

5.3 Car Park Noise Emission

The RTA, in their "Guide to Traffic Generating Developments", estimates that the traffic generation rate for '*Restaurants'* during the evening peak hour is calculated by multiplying five per 100 m^2 of the restaurant's (café) floor area.

Given that The Boat House floor area is approximately 139.3 m^2, the estimated number of vehicle trips during the evening peak hour is seven, which is equivalent to two vehicle trips/ 15 minutes.

Day Design is of the opinion that during a function the vehicle trip rate during the peak hour period will be significantly higher, ie for a wedding reception with 152 guests, up to a third may drive (51) a private vehicle and will arrive at some stage during the peak hour. This is equivalent to 13 vehicle trips in a 15 minute period. As a worst-case scenario, we have used the aforementioned 15 minute vehicle trip rate (13) to calculate noise emissions from the car parks, Zones 1, 2 and 3 (see Section 3.2), during all periods of operation (day, evening and night).

For the assessment of sleep disturbance we have assumed all vehicles will leave the car park between 11 pm and 11.30 pm. To ensure a worst case scenario, we have assumed a patron will enter their vehicle and slam the door closed in either the most northern parking space of Zone 2 or the most southern parking space of Zone 1.

The Sound Exposure Level[4] (SEL) and $L_{AF.max}$ sound power level and spectra of vehicle noise is shown in Table 9 and is based on previous measurements by Day Design.

Table 9 SEL & $L_{AF,max}$ Sound Power Levels - Car Park

Description	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
	dBA	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
SEL level of car door slam, ignition and drive away	**91**	104	96	89	87	86	83	81	75
SEL level of car drive by at approximately 10 km/h	**82**	90	87	80	78	77	72	70	64
$L_{AF,\,max}$ level of car door slam	**92**	98	92	90	88	88	83	80	76

[4] *SEL is the total sound energy of a single noise event condensed into a one second duration.*

5.4 Predicted Noise Levels

Knowing the sound power level of a noise source (see Tables 7 to 9), the sound pressure level (as measured with a sound level meter) can be calculated at a remote location using suitable formulae to account for distance losses, sound barriers, ground absorption, etc.

All predictions in Tables 10 to 15 are based on the assumptions outlined above and the proposed construction detailed in the drawings attached as Appendix C.

5.4.1 Predicted Noise Levels – Residential Receptors

5.4.1.1 Predicted Patron & Live Music Noise Levels– Residential Receptors

The predicted cumulative L_{10} level of noise from patrons and live music at the residential receptors from The *SBBHPB* during a function are shown in Table 10.

Table 10 Predicted L_{10} Noise Levels – Patrons & Live Music – Residential Receptors

Description	Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)									
	dBA	**31.5**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Early Night (10 pm – 11 pm)										
'R2' – 1, 1A & 2 Waratah Road										
Cumulative External Noise Level	**30**	41	46	36	29	26	27	19	11	3
Early Night Criterion (10 pm – 11 pm)	**41**	50	51	45	39	38	36	33	27	19
Compliance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
'R4' – 1199 Barrenjoey Road										
Cumulative External Noise Level	**33**	44	49	39	32	28	29	20	13	3
Early Night Criterion (10 pm – 11 pm)	**43**	58	53	45	41	41	39	35	30	25
Compliance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
'R5' – 1 Ross Smith Parade										
Cumulative External Noise Level	**28**	32	37	33	32	26	21	7	3	3
Early Night Criterion (10 pm – 11 pm)	**49**	42	45	41	42	45	45	42	37	29
Compliance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The predicted L_{10} levels of noise from patrons and live music at The *SBBHPB* during a function - and during the proposed amended operating hours - are summarised in Tables 10 at the nearest affected residences. The predicted levels of noise at the residential receptor locations, 'R2', 'R4' and 'R5', comply with the early night noise criteria in Section 4.4.1 of this report, and are acceptable.

5.4.1.2 Predicted Mechanical Plant & Car Park Noise Levels– Residential Receptors

The predicted $L_{eq,\ 15\ minute}$ level of noise from the mechanical plant and the use of the car park at the nearest affected residences is shown in Table 11.

Table 11 Predicted $L_{Aeq,\ 15\ minute}$ Noise Levels – Mechanical Plant & Car Park – Residential Receptors

Description	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
Night – 10 pm to 7 am			
R2 – 1, 1A & 2 Waratah Road			
- Car park	11		
- Mechanical plant	22		
Cumulative Noise Level	23	39	Yes
R4 – 1199 Barrenjoey Road			
- Car park	<10		
- Mechanical plant	22		
Cumulative Noise Level	22	41	Yes
R5 – 1 Ross Smith Parade			
- Car park	<10		
- Mechanical plant	17		
Cumulative Noise Level	17	47	Yes

The predicted L_{eq} levels of noise from mechanical plant and the use of the car park at the *SBBHPB* are summarised in Table 11 at the nearest affected residences. The predicted levels of noise comply with the night noise criteria at residential receptors 'R2', 'R4' and 'R5', and are acceptable.

5.4.1.3 Sleep Disturbance Assessment – Residential Receptors

The predicted $L_{AF,max}$ level of noise from the car park for the assessment of sleep disturbance at the nearest affected residences is shown in Table 12.

Table 12 Predicted $L_{AF,max}$ Noise Levels – Sleep Disturbance – Early Night (10 pm –11.30 pm) - Residential Receptor

Description	Predicted Noise Level $L_{AF,max}$ (dBA) at Receptor Locations		
	'R2' – 1, 1A & 2 Waratah Road	**R4 – 1199 Barrenjoey Road**	**R5 – 1 Ross Smith Parade**
Car Park Noise Level	29	28	15
Acceptable Noise Limits – Night	**51**	**53**	**59**
Complies	Yes	Yes	Yes

The predicted $L_{AF,max}$ level of noise from the car park at the *SBBHPB* are summarised in Table 12 at the nearest affected residences. The predicted levels of noise at the residential receptors 'R2', 'R4' and 'R5' complies with the sleep disturbance noise criterion in Section 4.4.1 of this report, and is acceptable.

5.4.2 Predicted Noise Levels - Commercial Receptors

The predicted cumulative L_{eq} level of noise from patrons, music, mechanical plant and the use of the car park at the commercial receptors is shown in Table 13.

Table 13 Predicted L_{eq} Noise Levels – Patrons, Music, Mechanical Plant & Car Park– Commercial Receptors

Receptor Location	Predicted Noise Level (dBA)	Criterion (dBA)	Compliance
'R1' – Dunes Palm Beach			
- The Boat House w/ Live Music	33		
- Mechanical Plant	30	63	
- Car Park	15		
Cumulative	**35**	**63**	**Yes**

The predicted L_{eq} levels of noise from patrons, music, mechanical plant and the use of the car park at the *SBBHPB* are summarised in Table 13 at the nearest affected commercial receptor location. The predicted levels of noise at the commercial receptor location, 'R1', comply with the criterion in Section 4.4.2 of this report, and is acceptable.

5.4.3 Predicted Noise Levels – Active Recreation Receptors

The predicted cumulative L_{eq} level of noise from patrons, music, mechanical plant and the use of the car park at the active recreation receptor is shown in Table 14.

Table 14 Predicted L_{eq} Noise Levels – Patrons, Music, Mechanical Plant & Car Park – Active Recreation Receptor

Receptor Location	Predicted Noise Level (dBA)	Criterion (dBA)	Compliance
'R3' – Palm Beach Golf Club			
- The Boat House w/Live Music	55		
- Mechanical Plant	49	53	
- Car Park	39		
Cumulative	**56**	**53**	**See below**

The predicted L_{eq} levels of noise from patrons, music, mechanical plant and the use of the car park at the *SBBHPB* are summarised in Table 14 at the nearest affected active recreation receptor location. The predicted levels of noise at the active recreation area receptor location 'R3' exceeds the recommended amenity noise level by up to 3 dB, therefore, the acoustic amenity of the area may be adversely affected. Further comment/assessment is necessary, as follows.

The active recreation area is unlikely to be in use (people playing golf) during the proposed amended operating hours (see Section 3.2).

With consideration to the above, we are of the opinion that any increase in noise levels from the use of the *SBBHPB* at the nearby active recreation area 'R3' will be at times that it is not in use (during the proposed operating hours), and should therefore be considered acceptable, with the acoustic amenity of the area being maintained.

5.4.4 Predicted On – Road Traffic Noise Levels

The external $L_{eq,\ 15\ hour,}$ and $L_{eq,\ 1\ hour}$ noise levels at the most affected receptor locations, 'R2', from noise associated with on – road traffic (vehicles entering and exiting the car park for a function at The *SBBHPB*) throughout the night are calculated to be as shown below in Table 15.

Table 15 Predicted $L_{eq,\ 15\ hour}$ & $L_{eq,\ 1\ hour}$ Noise Levels – On – Road Traffic

Receptor Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
Night – 10 pm to 7 am			
R2 – 1, 1A & 2 Waratah Road	43	50	Yes

The predicted external levels of noise from on – road traffic are within the noise criteria in Section 4.4.4, and are therefore acceptable.

6.0 NOISE CONTROL RECOMMENDATION - NOISE MANAGEMENT PLAN

The calculated level of noise emission from the *SBBHPB* during the proposed operating hours comply with the acceptable noise limits at all receptor locations. Notwithstanding the above, we recommend the following engineering noise controls and noise management plan are implemented and adhered to:

We recommend administrative noise controls be adopted by management, as follows:

- Amplified music in The Boat House should be limited to a maximum L_{10} level of 95 dBA at 1 metre from any speaker between 7 am and 11 pm;
- *SBBHPB* management should regularly measure the maximum L_{10} noise level at 1 metre from the speakers with a sound level meter (*minimum Type 2 meter capable of measuring L_{10} noise levels or an equivalent L_{eq} noise level*) during a function when amplified music is being played, alternatively, an in-house sound system with a noise limiter (max output limited to an L_{10} noise level 95 dBA at 1 metre) may be installed;
- External speakers located in the outdoor covered deck area should be orientated to project sound towards the west-south-west or west-north-west, ie towards the Pittwater;
- There should be no amplified music at the *SBBHPB* between 11 pm and 7 am on any given day;
- Patrons should be encouraged not to make an unreasonable level of noise when leaving the *SBBHPB;*
- Management should ensure patrons attending functions park their vehicles in parking Zones 1, 2 and 3 only;
- The Plan of Management prepared on behalf of Barrenjoey Boatshed Pty Ltd, titled '*Plan of Management*', dated 9 August 2023 and attached as Appendix E, should be followed and strictly enforced by *SBBHPB* management at all times during the operation of the venue.

7.0 NOISE IMPACT STATEMENT

Day Design Pty Ltd was engaged by Blue Pacific Constructions on behalf of Station Beach Boat House Palm Beach to assess the environmental noise impact of the proposed modification to Condition 96 - operating hours - for their existing venue at 1191 Barrenjoey Road, Palm Beach, NSW.

Calculations show that, the level of noise emitted from the Station Beach Boat House Palm Beach will meet the Liquor and Gaming NSW and the Environment Protection Authority's noise level requirements as detailed in Section 4 of this report, and be considered acceptable.

Adam Shearer, BCT (Audio), MDesSc (Audio and Acoustics), MAAS
Senior Acoustical Consultant
for and on behalf of Day Design Pty Ltd

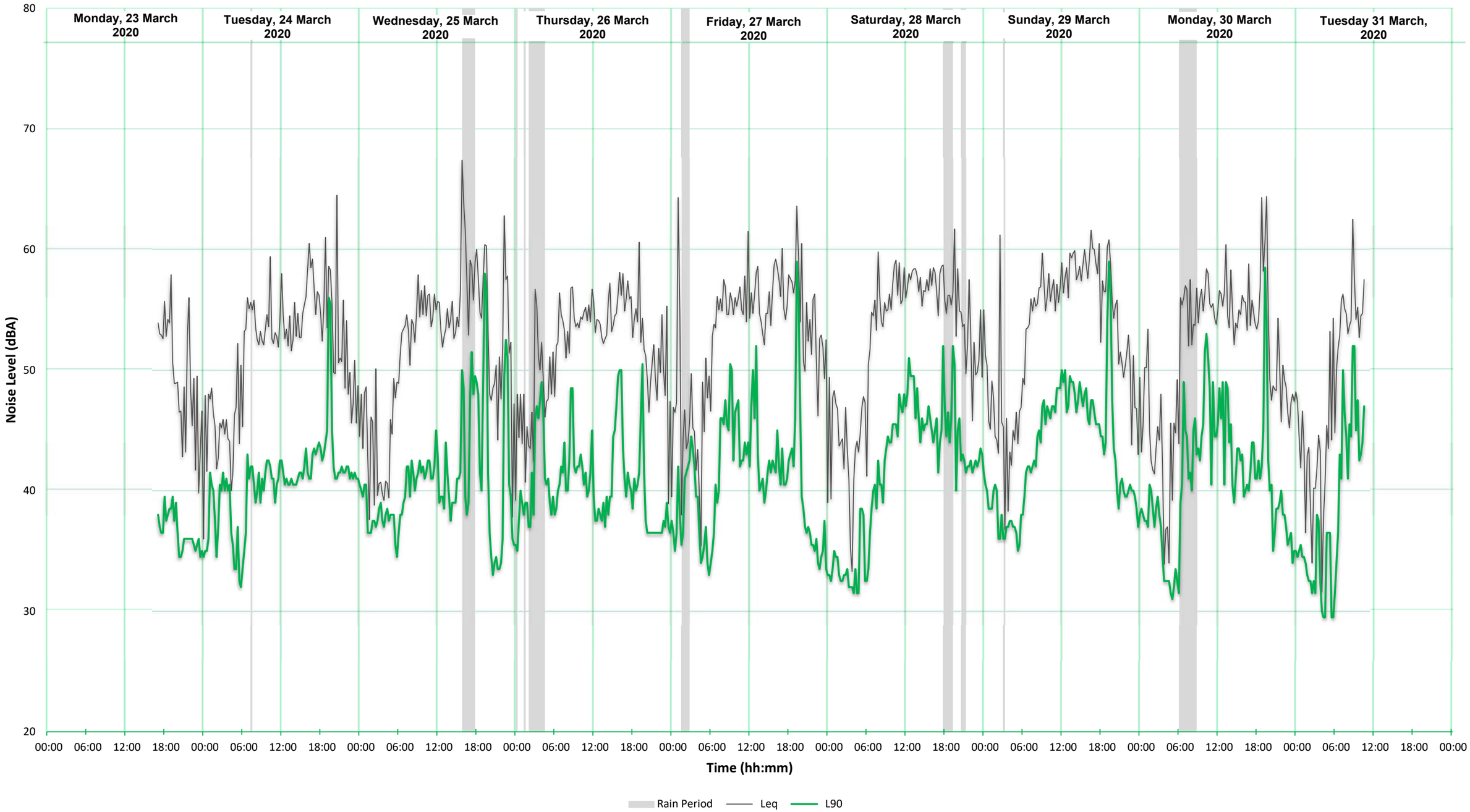
AAAC MEMBERSHIP

Day Design Pty Ltd is a member company of the Association of Australasian Acoustical Consultants, and the work herein reported has been performed in accordance with the terms of membership.

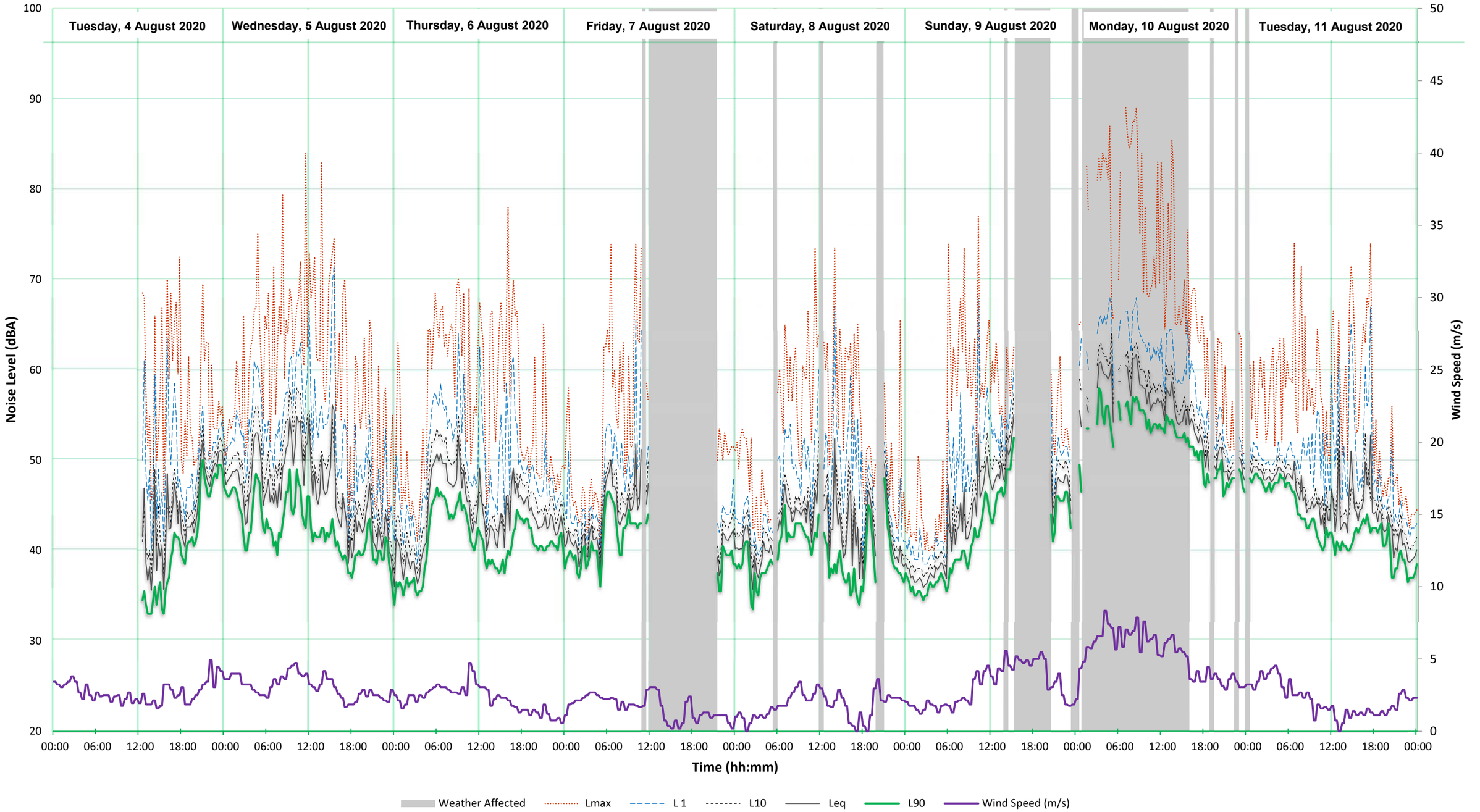
Attachments:

Appendix A1 – Ambient Noise Survey – 3 Beach Road, Palm Beach
Appendix A2 – Ambient Noise Survey – 'Fisherman's Cottage', *Ku-ring-gai Chase National Park*, Palm Beach
Appendix A3 – Ambient Noise Survey – 1 Monash Avenue, Great Mackerel Beach
Appendix B – Noise Survey Instrumentation
Appendix C – Architectural Drawings
Appendix D – g*tk Consulting Traffic Management and Car Parking Solutions – Car Park Zone Map*
Appendix E – *Plan of Management* – 9 August 2023
Appendix F – Mechanical plant & equipment layout

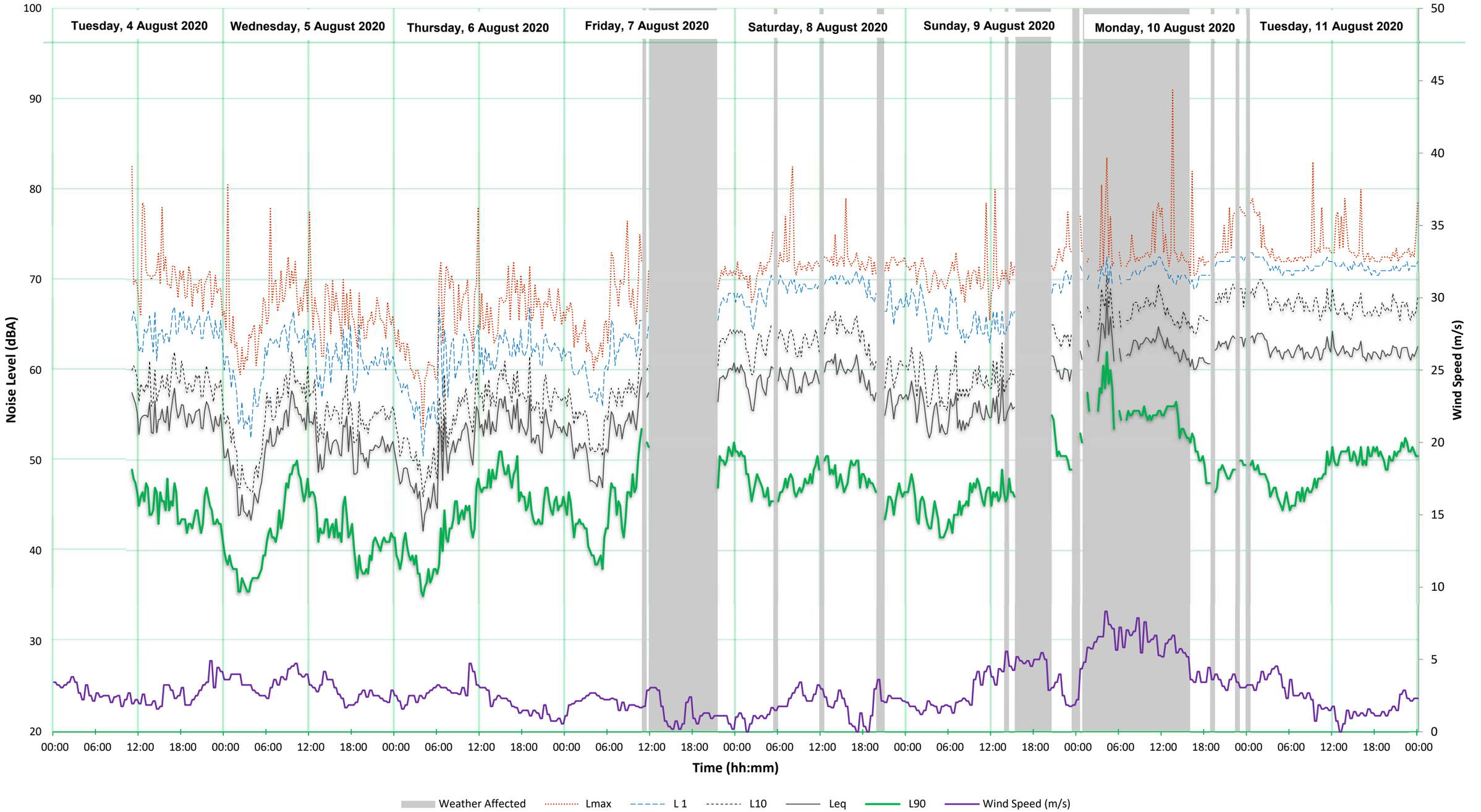
Located at Front yard, 3 Beach Road, Palm Beach, NSW



Located at Beachside Cottage, Barrenjoey Headland, Palm Beach, NSW



Located at First Floor, 1 Monash Avenue, Great Mackrel Beach, NSW



Noise level measurements and analysis in this report were made with instrumentation as follows:

Description	Model No.	Serial No.
Infobyte Noise Logger (Type 2)	iM4	112
Condenser Microphone 0.5" diameter	MK 250	112
Infobyte Noise Logger (Type 2)	iM4	113
Condenser Microphone 0.5" diameter	MK 250	113
Infobyte Noise Logger (Type 1)	iM4	122
Condenser Microphone 0.5" diameter	MK 250	5219
Modular Precision Sound Analyser	B&K 2250	269 0243
Condenser Microphone 0.5" diameter	B&K 4189	302 2960
Acoustical Calibrator	B&K 4230	272 1949
Modular Precision Sound Analyser	B&K 2270	301 0781
Condenser Microphone 0.5" diameter	B&K 4189	304 4649
Acoustical Calibrator	Svantek SV30A	10 839

An environmental noise logger is used to continuously monitor ambient noise levels and provide information on the statistical distribution of noise during an extended period of time. The Infobyte Noise Monitor iM4 is a Type 1 or Type 2 precision environmental noise monitor meeting all the applicable requirements of AS1259 for an integrating-averaging sound level meter.

The **B&K 2250/2270 Sound Analyser** is a real-time precision integrating sound level meter with octave and third octave filters, that sample noise at a rate of 10 samples per second and provides L_{eq}, L_{10} and L_{90} noise levels using both Fast and Slow response and L_{peak} noise levels on Impulse response time settings. The meter is frequency weighted to provide dBA, dBC or Linear sound pressure level readings as required.

All instrument systems had been laboratory calibrated using instrumentation traceable to Australian National Standards and certified within the last two years thus conforming to Australian Standards. The measurement system was also field calibrated prior to and after noise surveys. Calibration drift was found to be less than 1 dB during unattended long-term measurements and 0.5 during attended short-term measurements. No adjustments for instrument drift during the measurement period were warranted.

Additional Notes
Refer to Mechanical Engineer's Details.
Refer to Ecology, Aquatic and Coastal report.
Flood RLs are set as prescribed by Flood Consultant. Refer to details.
Refer to BCA Consultant Reports and Specifications.
Note Alternate Access Consultant report.
Refer to Performance Solution Report.
Refer to Fire Engineering Report.
Refer to Landscape Architect Design and Details.

Section J Compliance
Part J1 - BUILDING FABRIC - Cafe/Office Building
Part J3 - BUILDING SEALING - Cafe/Office Building
Part J5 - A/C & VENTILATION SYSTEMS - Cafe/Office Building
Part J6 - ARTIFICIAL LIGHTING & POWER - Cafe/Office Building
RELEVANT NCC/BCA CLAUSE
Clause J1.3 - Roof Construction
Clause J1.5 - Glazing; and
Clause J1.6 - Floor Construction
DTS Non-Compliance
Refer to Consultnat Report re: Clause J1.3, Clause J1.5 and Clause J1.6
RELEVANT PERFORMANCE REQUIREMENTS
Clause JP1 - Energy Use
ASSESSMENT METHOD (by Consultant)
NCC 2019, Volume 1, Amendment 1, Clause A2.2(2)(b)(i) - Section JV3 Verification using a reference building
Thermal Insulation (Floor, Roof and Walls) is to be in accordance with BCA Clause J1.0 ,ASNZS 4859.1-2018, AS/NZS 4859.2-2018 and JV3 Report

Flooding
In order to protect property and occupants from flood risk the following is required:
Building Components and Structural Soundness – B1
All new development below the Flood Planning Level of shall be designed and constructed as flood compatible buildings in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).
Building Components and Structural Soundness – B2
All new development must be designed to ensure structural integrity up to the Probable Maximum Flood level of 2.93m AHD, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion.
Building Components and Structural Soundness – B3
All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level. All existing electrical equipment and power points located below the Flood Planning Level must have residual current devices installed to cut electricity supply during flood events.

Fencing – F1
New fencing (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be open to allow for the unimpeded movement of flood waters. It must be designed with a minimum of 50% open area from the natural ground level up to the 1% AEP flood level. Openings should be a minimum of 75mm x 75mm.
Storage of Goods – G1
Storage areas for hazardous or potentially polluting materials shall not be located below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.
Flood Proofing
The floor levels of the Boat Hire General Storage and Bin Room must be wet flood proofed up to the Probable Maximum Flood level of 2.93m AHD.
Details demonstrating compliance are to be submitted to the Certifying Authority prior to the issue of the Construction Certificate.
Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood- prone property and reduce public and private losses in accordance with Council and NSW Government policy.

Flooring Notes
Floor Coverings to NCC 2019 Vol 1 C1.10
Slip Ratings to SA HB 198:2014 and AS 4663-2013 Tables 3(a) and 3(b)
Particleboard structural flooring in accordance with AS1860.2-2006
Flooring and Decking in accordance with AS1684 Parts 2, 3 or 4-2010
Sub-floor ventilation in accordance with BCA Clause F1.12 and Table F1.12

Fire Response
Refer to design and Design Certificate by Fire Consultant for lighting and Fire extinguisher layout and specifications
Fire precautions during construction with a Fire extinguisher at each exit (temporary) from each storey

General Specification Notes
Termite risk management in accordance with AS3660.1-2014
Blockwork in accordance with AS3700-2018
Structural Steel in accordance with AS4100-1998
Structural Timber in accordance with AS1720.1-2010
Roof Drainage iin accordance with AS/NZS3500.3-2018
Metal Sheet Roofing in accordance with AS1562.1-2018. Metal Roofing to be light coloured roof with a solar absorptance of 0.45 or less
Pliable building membrane in accordance with AS/NZS 4200.1-2017
Aluminium Structures in accordance with AS/NZS 1664.1-1997 or AS/NZS 1664.2-1997
Waterproofing of wet areas in accordance with BCA Clause & Table F1.7 and AS3740-2010
Damp-proofing - Damp proof course that prevents moisture from the ground from reaching the lowest timber elements of the building, and walls above damp-proof course in accordance with AS/NZS 2904-1995 or AS3660.1- 2014

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DP.1117451

NOTES **(FOR CONSTRUCTION)**
This drawing is the copyright of Canvas Architecture & Design and may not be altered, reproduced or transmitted in any form or by any means in part or in whole without prior written permission of Canvas Architecture & Design.
All levels and dimensions are to be checked and verified on site prior to the commencement of any work.
All new and altered works to relevant BCA and AS/NZ standards.

CLIENT: LONDON LAKES PARTNERSHIP

THE BOATHOUSE
PALM BEACH

Compliance with Section J of the NCC 2019-volume 1 – Amendment 1 for new Café/Office Building is achieved using the performance based JV3 Verification method using a reference building to Partners Energy Report

Canvas Architecture & Design
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21 Endeavour Drive
BEACON HILL NSW 2100
RoslynToia
NSW REG: 9453 BARCH (HONS I)
roslyn@canvasarch.com.au
0405 60 11 30

Drawing Name
SITE PLAN

Drawing Scale
1:200

Drawn
RT

Layout ID
CC02-A
26/08/22 Section 4.55 Certificate

6953-5 Appendix C

Additional Notes
Refer to Mechanical Engineer's Details.
Refer to Ecology, Aquatic and Coastal report.
Flood RLs are set as prescribed by Flood Consultant. Refer to details.
Refer to BCA Consultant Reports and Specifications.
Note Alternate Access Consultant report.
Refer to Performance Solution Report.
Refer to Fire Engineering Report.
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Section J Compliance
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RELEVANT NCC/BCA CLAUSE
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Clause J1.6 - Floor Construction
DTS Non-Compliance
Refer to Consultnat Report re: Clause J1.3, Clause J1.5 and Clause J1.6
RELEVANT PERFORMANCE REQUIREMENTS
Clause JP1 - Energy Use
ASSESSMENT METHOD (by Consultant)
NCC 2019, Volume 1, Amendment 1, Clause A2.2(2)(b)(i) - Section JV3 Verification using a reference building
Thermal Insulation (Floor, Roof and Walls) is to be in accordance with BCA Clause J1.2, AS/NZS 4859.1-2018, AS/NZS 4859.2-2018 and JV3 Report

Flooding
In order to protect property and occupants from flood risk the following is required:
Building Components and Structural Soundness – B1
All new development below the Flood Planning Level of shall be designed and constructed as flood compatible buildings in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).
Building Components and Structural Soundness – B2
All new development must be designed to ensure structural integrity up to the Probable Maximum Flood level of 2.93m AHD, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion.
Building Components and Structural Soundness – B3
All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level. All existing electrical equipment and power points located below the Flood Planning Level must have residual current devices installed to cut electricity supply during flood events.

Fencing – F1
New fencing (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be open to allow for the unimpeded movement of flood waters. It must be designed with a minimum of 50% open area from the natural ground level up to the 1% AEP flood level. Openings should be a minimum of 75mm x 75mm.
Storage of Goods – G1
Storage areas for hazardous or potentially polluting materials shall not be located below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.
Flood Proofing
The floor levels of the Boat Hire General Storage and Bin Room must be wet flood proofed up to the Probable Maximum Flood level of 2.93m AHD.
Details demonstrating compliance are to be submitted to the Certifying Authority prior to the issue of the Construction Certificate.
Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood- prone property and reduce public and private losses in accordance with Council and NSW Government policy.

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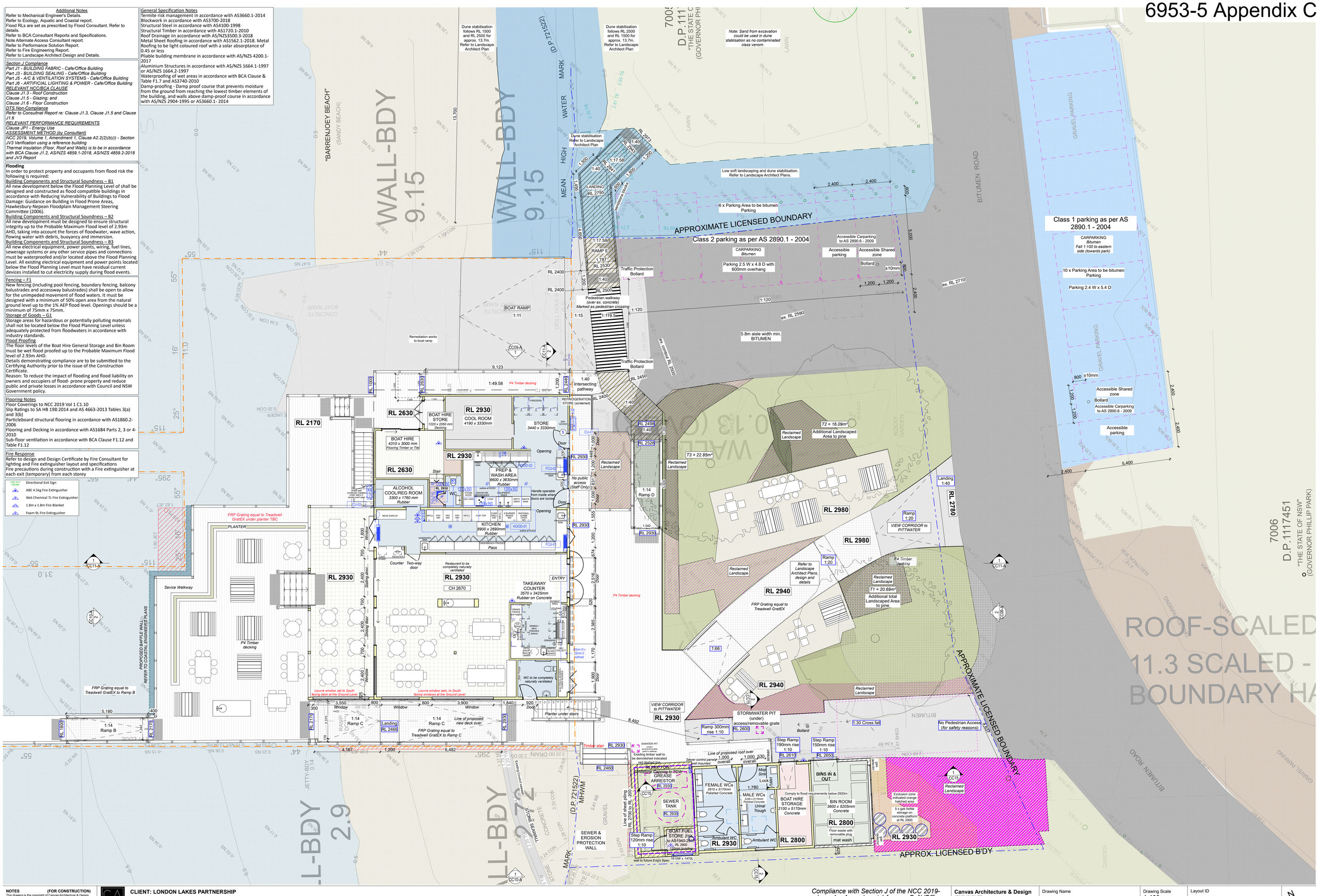

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CLIENT: LONDON LAKES PARTNERSHIP
THE BOATHOUSE
PALM BEACH

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21 Endeavour Drive
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RoslynToia
NSW REG: 9453 BARCH (HONS I)
roslyn@canvasarch.com.au
0405 60 11 30

Drawing Name
SITE & GROUND PLAN

Drawing Scale
1:100

Drawn
RT

Layout ID
CC04-A
26/08/22 Section 4.55 Certificate

Additional Notes

Refer to Mechanical Engineer's Details.
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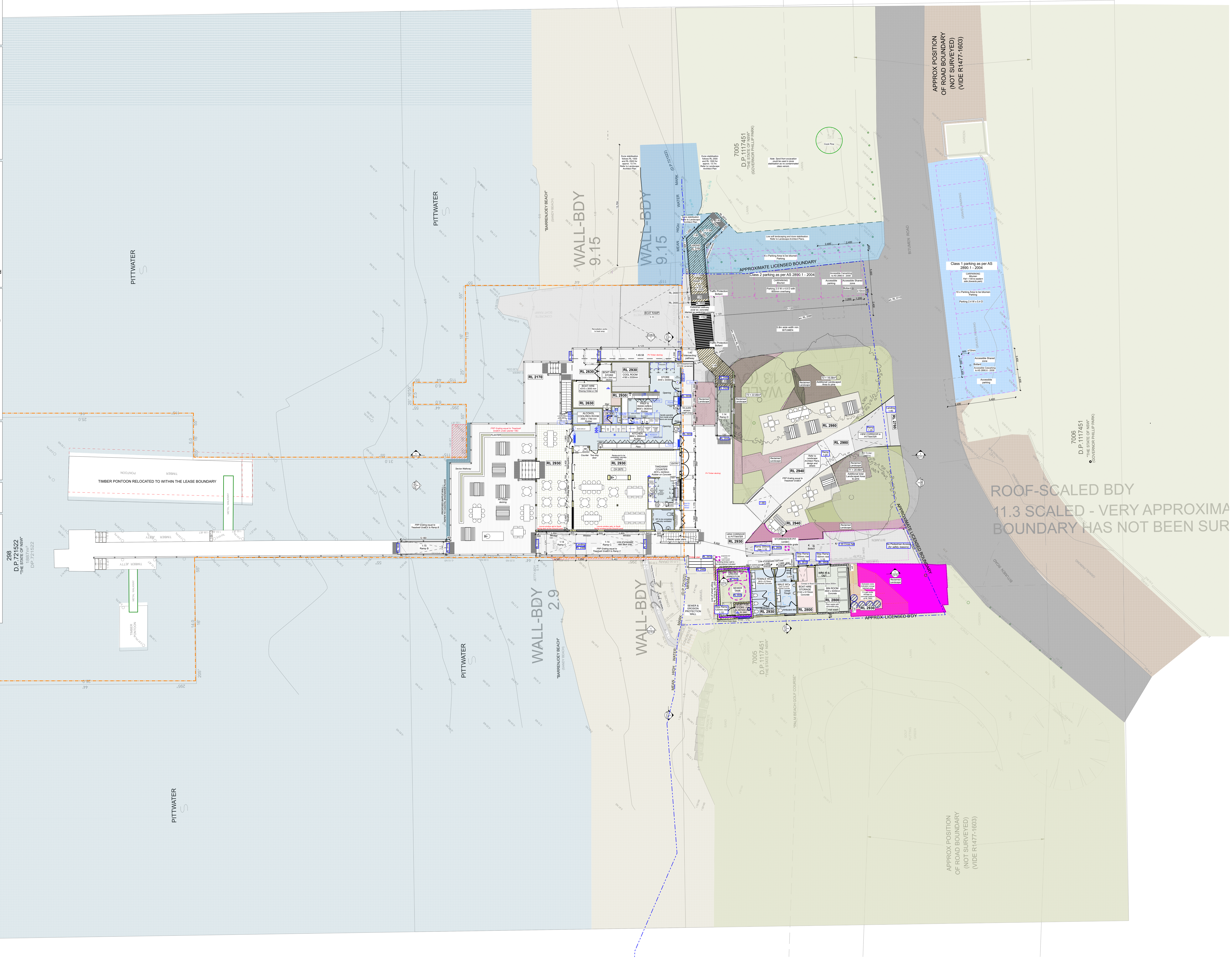

CANVAS

CLIENT: LONDON LAKES PARTNERSHIP

THE BOATHOUSE
PALM BEACH

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roslyn@canvasarch.com.au 0405 60 11 30

Drawing Name: **SITE & GROUND PLAN 1:200**

Drawing Scale: **1:200**

Drawn: **RT**

Layout ID: **CC05-A**

26/08/22 Section 4.55 Certificate

N

6953-5 Appendix C

Additional Notes

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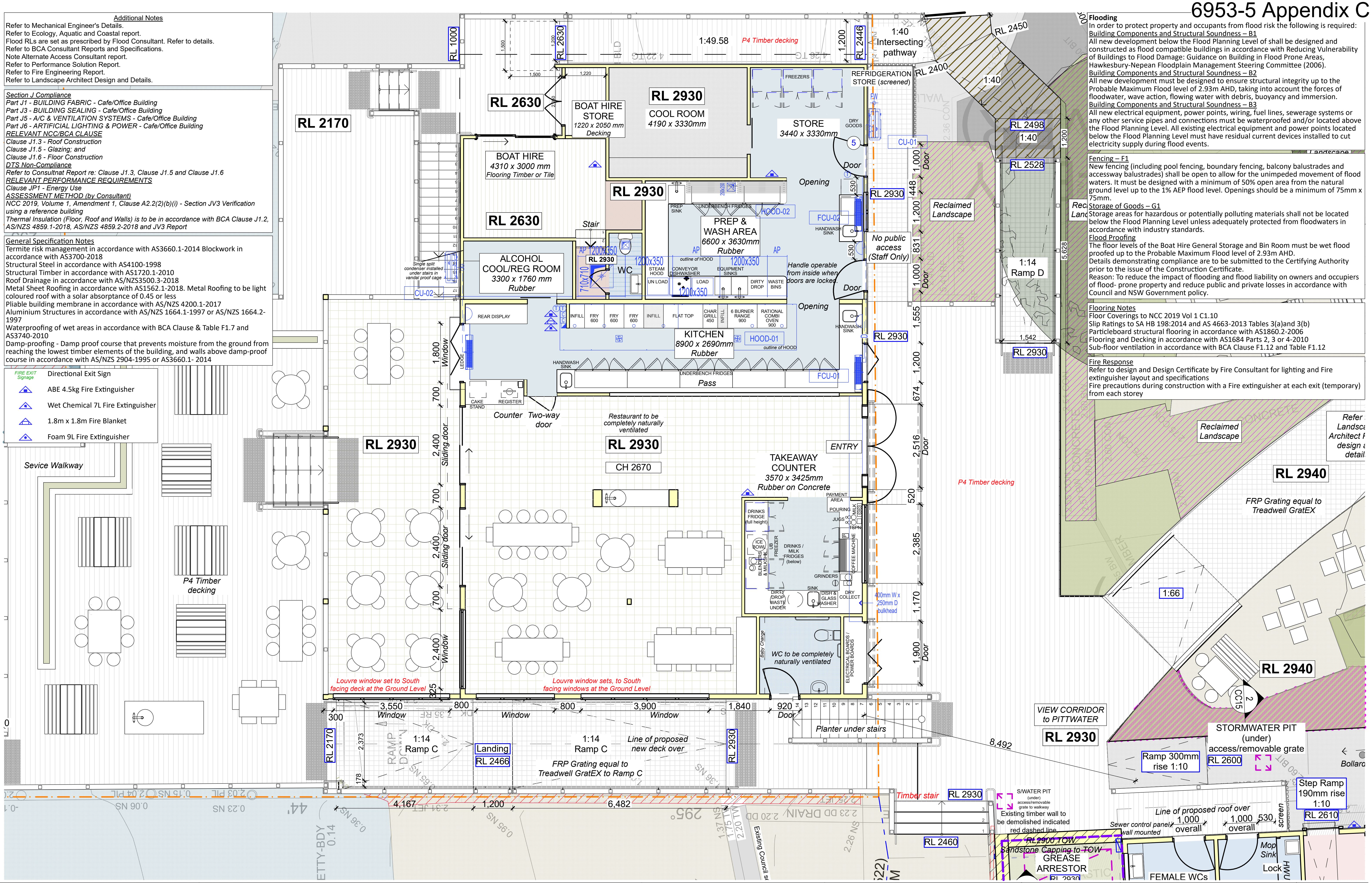

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Drawing Name
PROPOSED GROUND FLOOR PLAN - A3

Drawing Scale
1:100

Drawn
RT

Layout ID
CC06-A
26/08/22 Section 4.55 Certificate

N

Additional Notes

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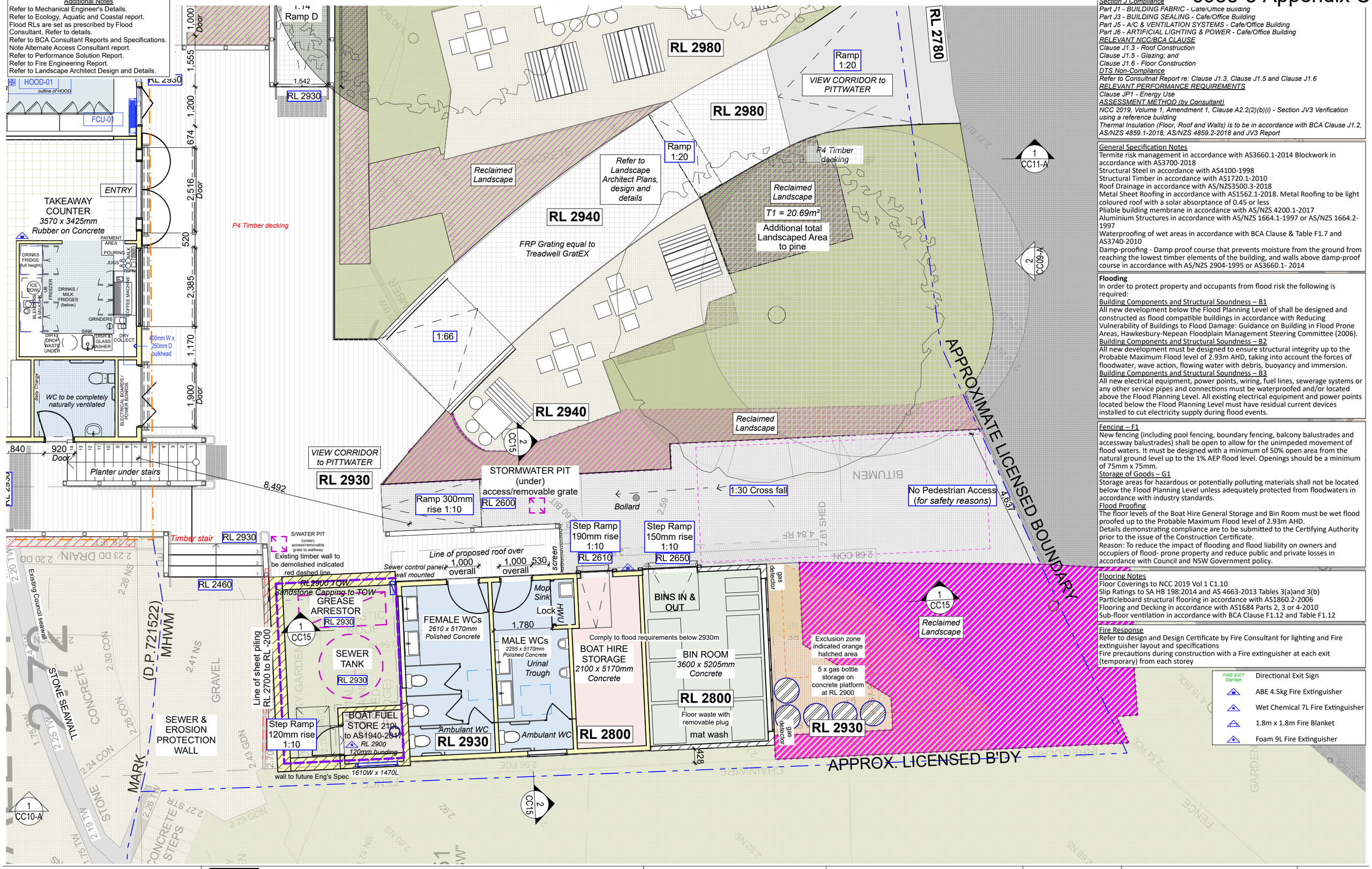

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PROPOSED ANCILLARY BUILDING GROUND FLOOR PLAN - A3

Drawing Scale
1:100

Drawn
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Layout ID
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N

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"BARRENJOEY BEACH" (SANDY BEACH)
WALL-BDY 9.15
MEAN HIGH WATER MARK (D.P.721522)
7005 D.P.1117451 "THE STATE OF NSW" (GOVERNOR PHILLIP PARK)
ex. GRASS (below)
APPROXIMATE LICENSED BOUNDARY
BITUMEN ROAD
GRAVEL PARKING
CARPARKING (below) Bitumen
BOAT RAMP (below)
Remediation works to boat ramp (below)
CC09-A
Approximate area indicated for Solar Panel location and Design Calculations
260 x 260 mm Toilet exhaust riser from below to roof mounted vertical exhaust fan. Refer to Mechanical Engineer's details
Mechanical
710 x 710 mm Kitchen exhaust riser from below to vertical exhaust fan. Discharge to be above roof line. Refer to Mechanical Engineer's details
Platform below
RAMP (below)
GARDEN (below)
SEATING AREA (below)
RAMP (below)
Landing below
Walkway below
Refer to Landscape Architect Plans, design and details
ex. BITUMEN (below)
PLANTING & SEATING (below)
Stair below
RL 5915
DECK with roof over Deck waterproofed Graded at 110 degrees. Tiled and lined.
RL 6015
Windows W08, W09, W10 to First Floor North Elevation and portion of sliding Door D07 to West Elevation to be fixed so no portion is openable within 6m of Kitchen exhaust as per Mechanical Engineer's details
Windows.
Window STORE (other than food perishables) 4480 x 2930 mm Timber
HWU (on tiled hob with drain)
RESTAURANT OFFICE 94.5m² Timber
SEAPLANE OFFICE 2900 x 2895mm Timber
High level windows.
No tall greater than 4m from upper level windows
High level windows to WCs.
Windows to Seaplane Office.
New glazed hinged door
Fall to lower deck less than 4m
EXISTING WHARF TO BE RELOCATED WITHIN LEASE BOUNDARY
DECKING (below)
PATH TO JETTY
RAMP (below)
VIEW CORRIDOR to PITTWATER
LOADING BAY (below)
ANCILLARY BUILDING
GAS BOTTLES (below)
VENT-01
Wind Driven Roof Ventilation to Mechanical Engineer's details
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7006 D.P.1117451 "THE STATE OF NSW" (GOVERNOR PHILLIP PARK)
ROOF-SCALED 11.3 SCALED - BOUNDARY HA
WALL-BDY 2.9
JETTY-BDY
(D.P.721522) MHWM
MARK
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CONCRETE

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NOTES (FOR CONSTRUCTION)
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CLIENT: LONDON LAKES PARTNERSHIP
THE BOATHOUSE
PALM BEACH

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Drawing Name
PROPOSED FIRST FLOOR PLAN

Drawing Scale
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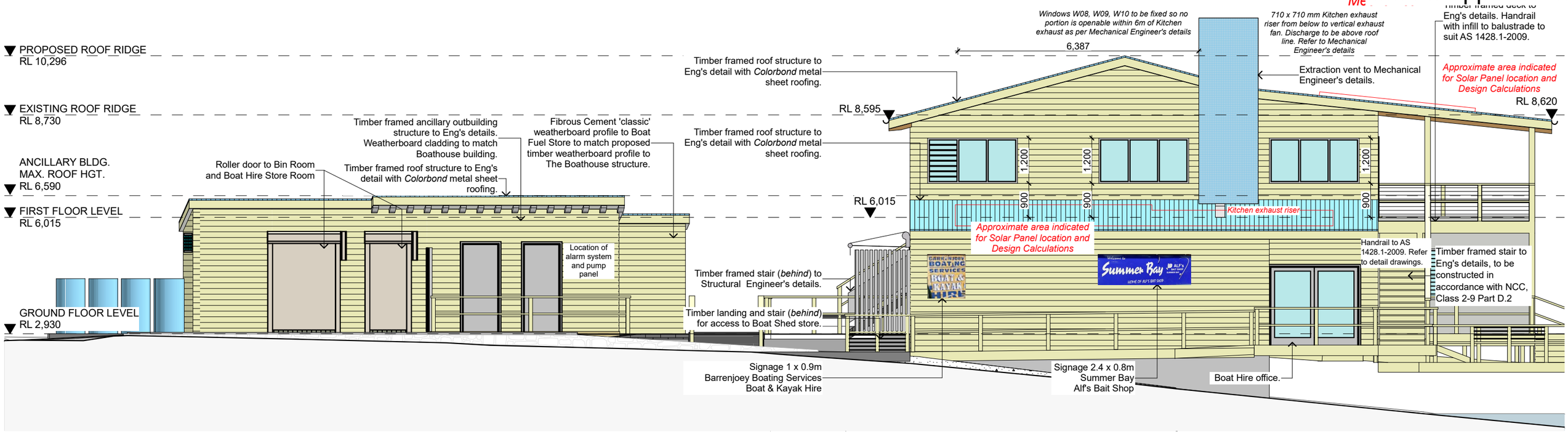
CC08-A
26/08/22 Section 4.55 Certificate



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NORTH ELEVATION

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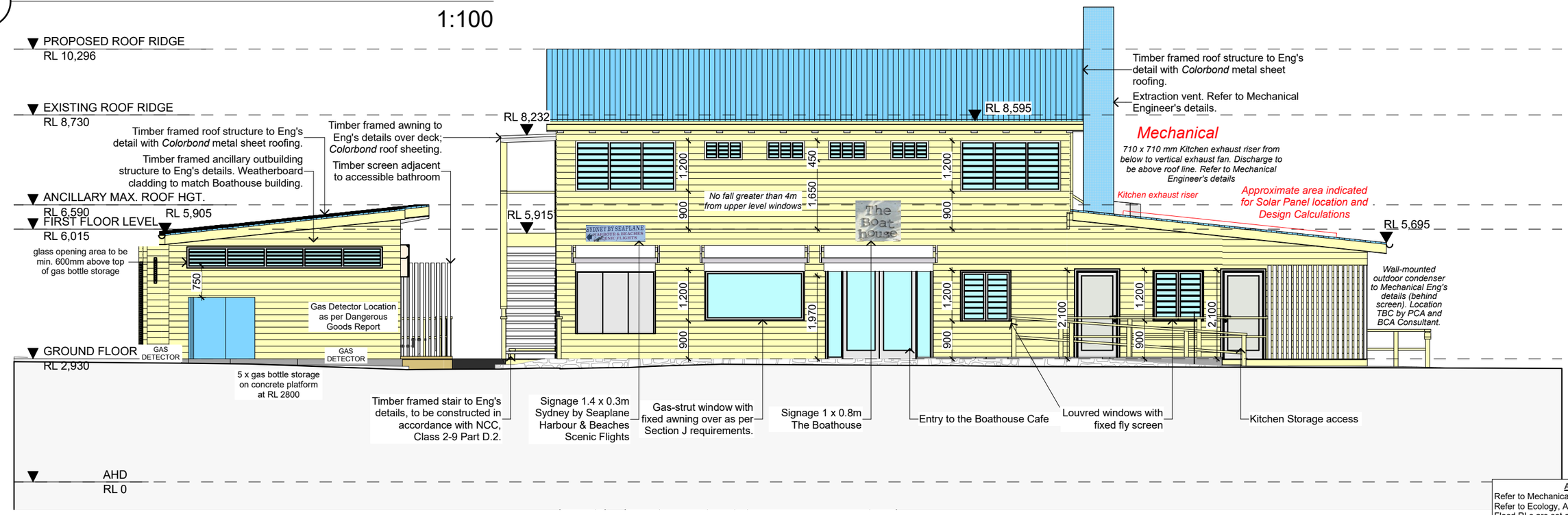

2

EAST ELEVATION

1:100

Additional Notes

Refer to Mechanical Engineer's Details.
Refer to Ecology, Aquatic and Coastal report.
Flood RLs are set as prescribed by Flood Consultant. Refer to details.
Refer to BCA Consultant Reports and Specifications.
Note Alternate Access Consultant report.
Refer to Performance Solution Report.
Refer to Fire Engineering Report.
Refer to Landscape Architect Deisgn and Details.

CLIENT: LONDON LAKES PARTNERSHIP

THE BOATHOUSE
PALM BEACH

Compliance with Section J of the NCC 2019- volume 1 – Amendment 1 for new Café/Office Building is achieved using the performance based JV3 Verification method using a reference building to Partners Energy Report

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Refer to Ecology, Aquatic and Coastal report.
Flood RLs are set as prescribed by Floor Consultant. Refer to details.
Note Alternate Access Consultant report.

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Drawing Name
NORTH / EAST ELEVATIONS

Drawing Scale
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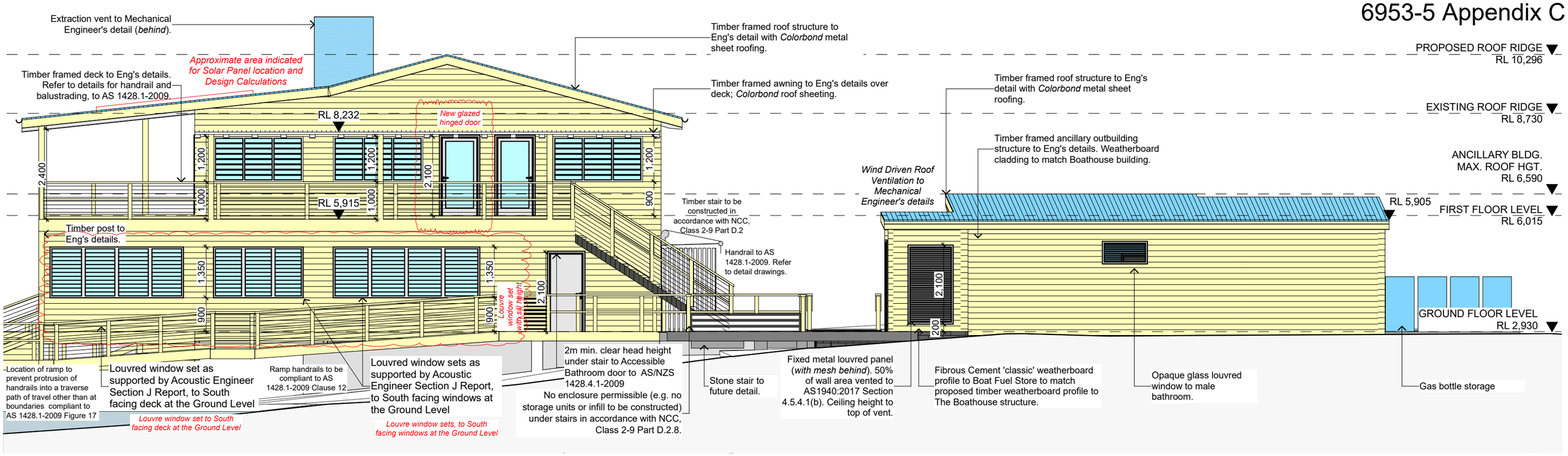
Drawn
RT

Layout ID
CC09-A
26/08/22 Section 4.55 Certificate



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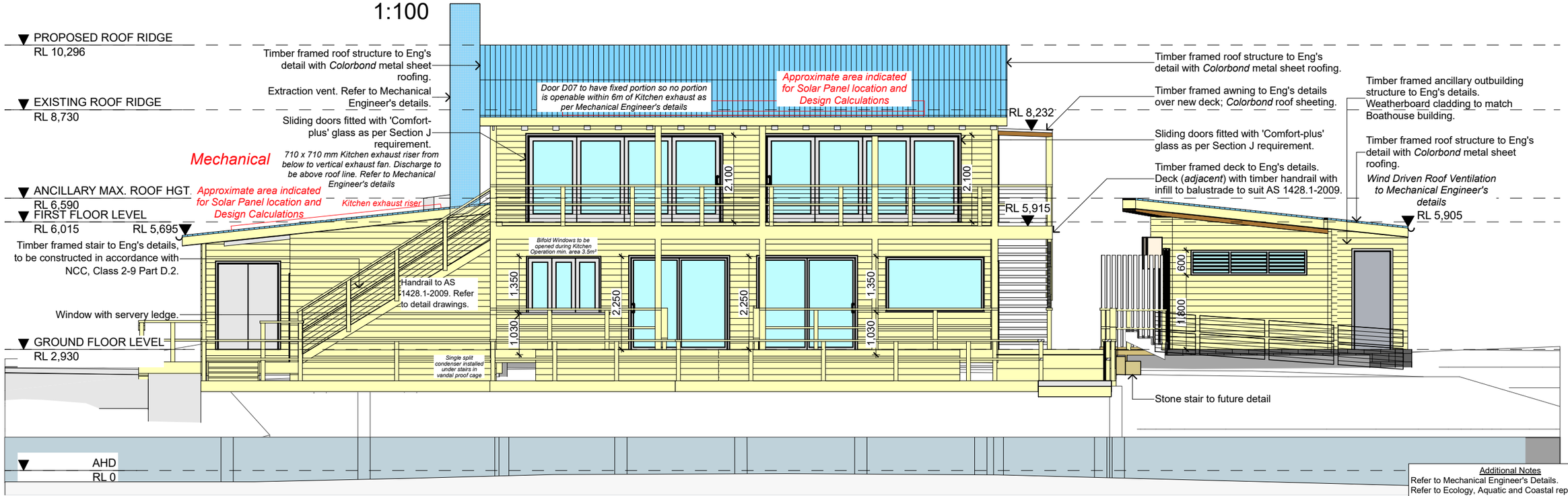
SOUTH ELEVATION

1:100



2

WEST ELEVATION

1:100

Additional Notes

Refer to Mechanical Engineer's Details.
Refer to Ecology, Aquatic and Coastal report.
Flood RLs are set as prescribed by Flood Consultant. Refer to details.
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Drawing Name
SOUTH / WEST ELEVATIONS

Drawing Scale
1:100

Drawn
RT

Layout ID
CC10-A

26/08/22 Section 4.55 Certificate

Figure 8 shows the car parking areas in zones and **Tables 4** and **5** contains the total number of occupied and unoccupied car parking spaces in each zone between the peak parking times of 11.00am and 4.00pm:

Figure 8: Parking zones

Source: ROAR Data Pty Ltd 2020

Plan of Management

Barrenjoey Boatshed
ACN 669 506 165
Governor Phillip Park, Barrenjoey Road,
Palm Beach NSW 2108

Submitted to
Northern Beaches Council
On behalf of Barrenjoey Boatshed Pty Ltd.

Mobile: 0431 718 190

Contents

1.0 Introduction

1.1 Purpose of Plan of Management

This Plan of Management (POM) has been prepared for the existing **On-Premises Licence (Restaurant)** liquor licence of **Barrenjoey Boatshed**, situated at **Governor Phillip Park, Barrenjoey Road, Palm Beach NSW 2108. Barrenjoey Boatshed** recognises the need to ensure the safety and security of customers, staff, residents and the greater community in which the proposed liquor licence will operate under. The safety and security issues have been considered carefully to ensure the utmost safety of staff and patrons.

The **POM** is consistent with the Crime Prevention Through Environmental Design (CPTED) document prepared by the Department of Planning.

CPTED aims to create the reality (or perception) that the costs of committing crime are greater than the likely benefits. This is achieved by creating environmental and social conditions that:

- maximise risk to offenders (increasing the likelihood of detection, challenge and apprehension);
- maximise the effort required to commit crime (increasing the time, energy and resources required to commit crime);
- minimise the actual and perceived benefits of crime (removing, minimising or concealing crime attractors and rewards); and
- minimise excuse making opportunities (removing conditions that encourage/facilitate rationalisation of inappropriate behaviour).

The policies and procedures outlined in this **POM** will help to make the premise a safe, efficient and pleasant environment in which to work and visit. Additionally, the safety and security issues addressed in this **POM** have been devised to ensure the quiet amenity of neighbouring properties is maintained at all times during the operation of the premises.

All staff, as part of the induction process, will be required to be familiar with this **POM**.

1.2 Reason for liquor licence

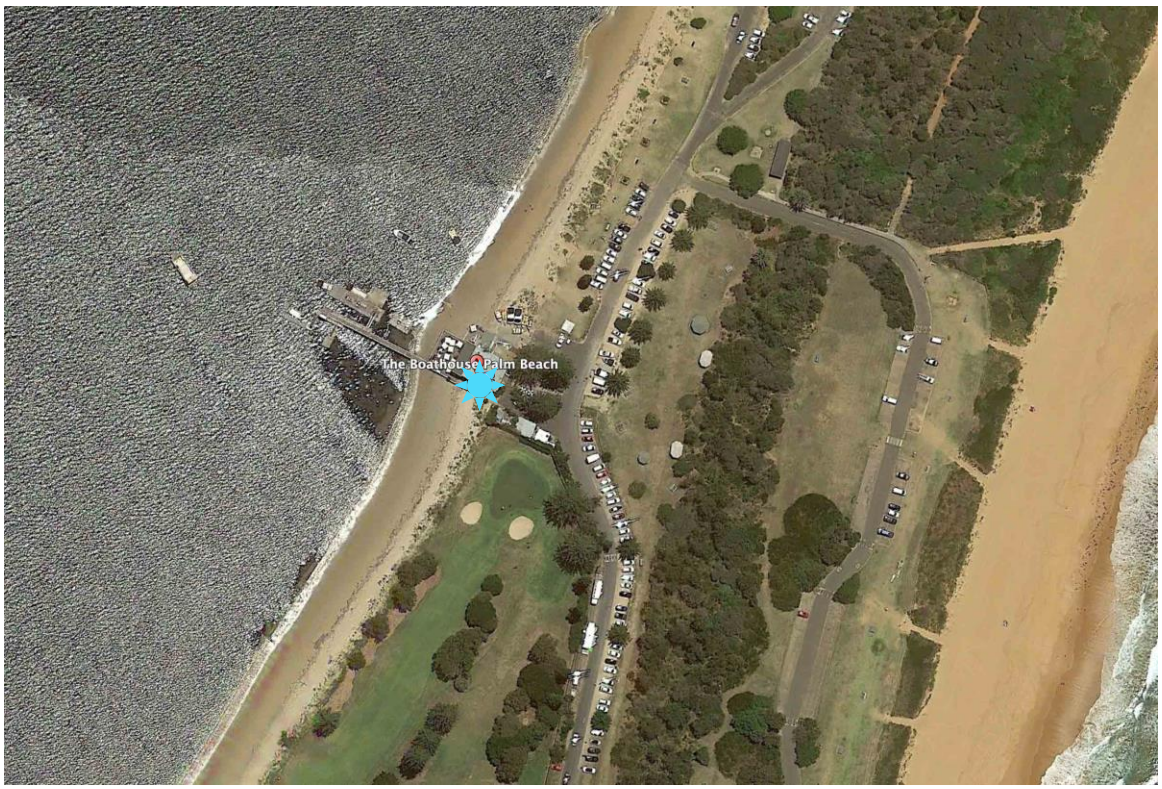
Barrenjoey Boatshed is an existing an **On-Premises Licence (Restaurant)**. **Barrenjoey Boatshed** the premises is looking to include catering services to the existing liquor licence. The main focus is first and foremost the supply and consumption of food.

Barrenjoey Boatshed currently provides alcohol to their customers, who are asking and wish to consume alcohol with their food. The addition of catering services to the existing liquor licence will only enhance the venue's appeal. It will also be an added service to the main focus of the restaurant, which is the consumption of food.

2.0 The Site

The site is at: Governor Phillip Park, Barrenjoey Road, Palm Beach NSW 2108. (refer to **Figure 1&2**).

Figure 1 – Location Plan



Location of existing restaurant

Figure 2 – Front Entry View

Location of existing restaurant

3.0 Security and Safety

The security and safety of employees and the general public are highly valued by the management of the premises.

3.1 Surveillance

3.1.1 CCTV Camera Systems

The premises **DOES** have CCTV surveillance cameras installed.

CCTV surveillance cameras are installed, and are in strategic places such as the counter area / cashiers area / customer dining area / service areas. The system has automated recording technology, longer video storage capacity, video motion detection.

All cameras operate continuously during the premises trading hours. The surveillance tapes / videos are kept for at least 1 month for viewing by the Police if required. The quality of the images filmed will satisfy Police requirements.

Management will ensure the system is maintained in good working order. Management will ensure that the coverage would be operated with due regards to the privacy and civil liberties of all persons within the development and in strict accordance with the *Privacy and Personal Information Protection Act 1998*.

Barrenjoey Boatshed employees will be encouraged to assist with passive surveillance of all areas of the development and in particular all internal areas, by providing efficient reporting systems for any security or safety concerns during the **restaurant's** operating hours.

3.1.2 Intruder Alarm Systems

The premises within which **Barrenjoey Boatshed** currently occupies already has installed an intruder alarm system, which is part of the whole building, including perimeter protection.

This system achieves an added sense of crime prevention and security. The system will allow monitoring of who is accessing what areas, better response to alarms and audit breaches of security in a timely and efficient manner.

The intruder alarm system will be monitored 24 hours a day and security will be able to respond to alarms swiftly. The Intruder Alarm System will be installed and monitored in accordance with Australian Standards 2201.

3.1.3 Lighting

Perimeter street lighting is already provided around the premises to enable clear vision to prevent concealment and shadowing. The standard of lighting will not only reduce the fear of crime in accordance with Australian lighting standards, but also serves to provide clear identification of activity. Any broken light fixtures and bulbs within the premises will be replaced within 24 hours.

In line with National Light Pollution Guidelines and Northern Beaches Council's initiative to reduce light pollution in areas that have been designated an Urban Night Sky Place. The restaurant aims to minimise the lighting within the restaurant, which can be seen from outside.

Lighting will be shielded or located to promote safe navigation and minimise any likely adverse visual impact when viewed from the Pittwater Waterway, any adjoining public land, and adjoining residences. We will attempt to eliminate reflection off the water, where possible.

Adequate lighting will be provided for safe access to waterfront development and safe navigation in and out of commercial and recreational waterfront development, where appropriate. Lighting is to be designed to minimise electricity consumption. Flood lighting of marine facilities is not permitted.

We intend to minimise light spill from the site and have limited outdoor lighting that is designed, well directed and no more than 3,000k.

3.1.4 Clear sight lines

The premises, has been designed to and takes into account the need to maximise clear sight lines. The **restaurant** incorporates the maximum use of natural surveillance and minimises potential obstructions such as physical barriers to ensure these clear sight lines.

3.1.5 Risk Assessment

Although NO security personnel are envisaged at the restaurant. **Barrenjoey Boatshed** will undertake a risk assessment on a continual basis to determine the need for security personnel at the site.

3.1.6 Security Personnel

Although **NO** Security Personnel are required at the premises. If the need were to arise, any security personnel employed at the premises will:

- possess a current security licence and have satisfactorily completed all relevant training associated with a crowd control licence;
- be licensed under the appropriate legislation relating to crowd control;
- conduct themselves in accordance with the industry code of practice;
- maintain a well kept, tidy and professional appearance and be at all times easily recognisable as "security personnel";
- carry a powerful torch and wireless communication system whilst conducting patrols;
- be fully briefed on the restaurant's security protocol;
- be fully briefed on how they should address and caution potentially inebriated or unusually vocal customers in order to minimise the likelihood of disturbing the quiet and good order of the neighbourhood; and
- ask customers making any noise to leave quietly and quickly and ask any customers loitering to move on.

Security Personnel will be required, in a designated log book, to record the time of visit, comment on the state of the current restaurant and document any action undertaken (if required).

3.2 Access Control

As discussed above, the proposed development will utilise an intruder alarm and access control systems to monitor access within the premises.

3.2.1 High Risk Areas

The premises, has been designed so as not to create a hostile environment. Access is will be restricted particularly in relation to nominated “secure areas” such as the kitchen / back of house areas, exits. This will be achieved by the installation of movement detectors and security hardware (locks, etc).

3.2.2 Signage

Clearly identifiable signage will be installed in and around the premises to indicate which areas are open to customers and members of the public and which areas are restricted. Signage and clear sight lines will assist with the anticipated pedestrian flows within the premises.

Signage will be clearly displayed in the front garden area to remind and emphasise public access to the front garden area.

3.3 Space Management

3.3.1 Seating and Design

The premises, takes into account the need to provide seating and other comforts for persons visiting the premises without interfering or disrupting pedestrian flows. This philosophy is designed to encourage increased use of the common areas to reduce the potential for security breaches by natural surveillance.

The front garden area of the restaurant is strictly used for takeaway and public use.

3.3.2 Toilets

Toilets will be clearly sign posted. The toilets are located in areas, which maximise sight lines, are well lit and are in areas, which engender an overall sense of safety to the user, particularly females, children and the elderly.

3.4 Liquor Licence Requirements

3.4.1 On-Premises Licence (Restaurant) liquor licence

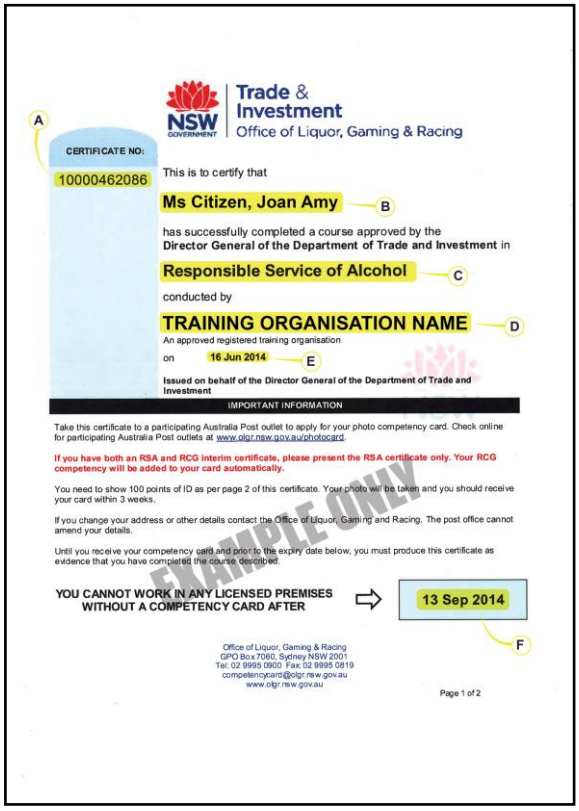
Barrenjoey Boatshed is wishing to add a Catering Service for functions, to the existing On-Premises Licence (Restaurant), which will allow **Barrenjoey Boatshed** to serve liquor ancillary to food and also provide liquor during functions and events. **Barrenjoey Boatshed's** focus is first and foremost the service of providing food.

Food will always be provided whenever liquor is sold. Providing a food dining experience is the Primary Purpose of **Barrenjoey Boatshed**.

3.4.2 Responsible Service of Alcohol

All staff involved in the sale and/or supply of liquor at the premises, **MUST** have completed a NSW ILGA approved Responsible Service of Alcohol course and produce either one of the following, prior to commencing work with **Barrenjoey Boatshed**:

A NSW ILGA Approved Interim Certificate – This Certificate will NOT be accepted in the Kings Cross & Sydney CBD Entertainment Precincts.



NSW GOVERNMENT Trade & Investment
Office of Liquor, Gaming & Racing

A
CERTIFICATE NO:
10000462086

This is to certify that

Ms Citizen, Joan Amy — B

has successfully completed a course approved by the **Director General of the Department of Trade and Investment** in

Responsible Service of Alcohol — C

conducted by

TRAINING ORGANISATION NAME — D
An approved registered training organisation

on 16 Jun 2014 — E

Issued on behalf of the Director General of the Department of Trade and Investment

IMPORTANT INFORMATION

Take this certificate to a participating Australia Post outlet to apply for your photo competency card. Check online for participating Australia Post outlets at www.olgr.nsw.gov.au/photocard.

If you have both an RSA and RCG interim certificate, please present the RSA certificate only. Your RCG competency will be added to your card automatically.

You need to show 100 points of ID as per page 2 of this certificate. Your photo will be taken and you should receive your card within 3 weeks.

If you change your address or other details contact the Office of Liquor, Gaming and Racing. The post office cannot amend your details.

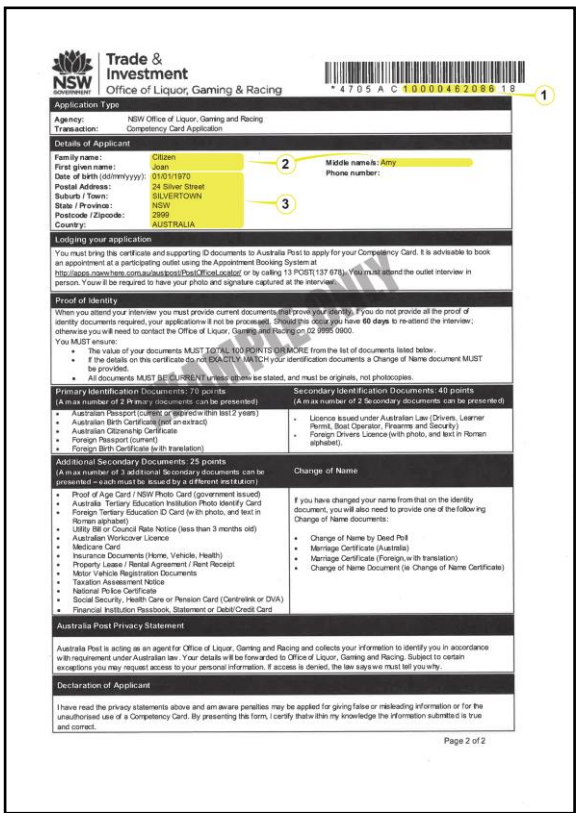
Until you receive your competency card and prior to the expiry date below, you must produce this certificate as evidence that you have completed the course described.

YOU CANNOT WORK IN ANY LICENSED PREMISES WITHOUT A COMPETENCY CARD AFTER ⇨ 13 Sep 2014 — F

Office of Liquor, Gaming & Racing
GPO Box 7060, Sydney NSW 2001
Tel: 02 9995 0900 Fax 02 9995 0819
competencycard@olgr.nsw.gov.au
www.olgr.nsw.gov.au

Page 1 of 2

EXAMPLE ONLY



NSW GOVERNMENT Trade & Investment
Office of Liquor, Gaming & Racing

*4705 A C 10000462086 18 — 1

Application Type
Agency: NSW Office of Liquor, Gaming and Racing
Transaction: Competency Card Application

Details of Applicant
Family name: Citizen — 2
First given name: Joan
Middle name/s: Amy
Date of birth (dd/mm/yyyy): 01/01/1970
Phone number:
Postal Address: 24 Silver Street — 3
Suburb / Town: SILVERTOWN
State / Province: NSW
Postcode / Zipcode: 2999
Country: AUSTRALIA

Lodging your application
You must bring this certificate and supporting ID documents to Australia Post to apply for your Competency Card. It is advisable to book an appointment at a participating outlet using the Appointment Booking System at http://apps.powerhere.com.au/auspost/PostOfficeLocator/ or by calling 13 POST (13 7678). You must attend the outlet interview in person. You will be required to have your photo and signature captured at the interview.

Proof of Identity
When you attend your interview you must provide current documents that prove your identity. If you do not provide all the proof of identity documents required, your application will not be processed. Should this occur you have **60 days** to re-attend the interview; otherwise you will need to contact the Office of Liquor, Gaming and Racing on 02 9995 0900.
You MUST ensure:
- The value of your documents MUST TOTAL 100 POINTS OR MORE from the list of documents listed below.
- If the details on this certificate do not EXACTLY MATCH your identification documents a Change of Name document MUST be provided.
- All documents MUST BE CURRENT unless otherwise stated, and must be originals, not photocopies.

Primary Identification Documents: 70 points
(A max number of 2 Primary documents can be presented)
- Australian Passport (current or expired within last 2 years)
- Australian Birth Certificate (not an extract)
- Australian Citizenship Certificate
- Foreign Passport (current)
- Foreign Birth Certificate (with translation)

Secondary Identification Documents: 40 points
(A max number of 2 Secondary documents can be presented)
- Licence issued under Australian Law (Drivers, Learner Permit, Boat Operator, Firearms and Security)
- Foreign Drivers Licence (with photo, and text in Roman alphabet).

Additional Secondary Documents: 25 points
(A max number of 3 additional Secondary documents can be presented – each must be issued by a different institution)
- Proof of Age Card / NSW Photo Card (government issued)
- Australia Tertiary Education Institution Photo Identity Card
- Foreign Tertiary Education ID Card (with photo, and text in Roman alphabet)
- Utility Bill or Council Rate Notice (less than 3 months old)
- Australian Workcover Licence
- Medicare Card
- Insurance Documents (Home, Vehicle, Health)
- Property Lease / Rental Agreement / Rent Receipt
- Motor Vehicle Registration Documents
- Taxation Assessment Notice
- National Police Certificate
- Social Security, Health Care or Pension Card (Centrelink or DVA)
- Financial Institution Passbook, Statement or Debit/Credit Card

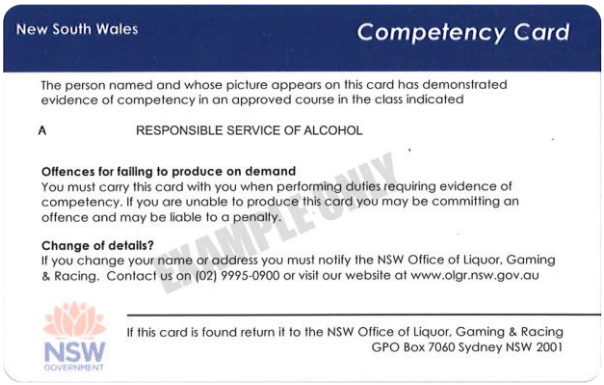
Change of Name
If you have changed your name from that on the identity document, you will also need to provide one of the following Change of Name documents:
- Change of Name by Deed Poll
- Marriage Certificate (Australia)
- Marriage Certificate (Foreign, with translation)
- Change of Name Document (ie Change of Name Certificate)

Australia Post Privacy Statement
Australia Post is acting as an agent for Office of Liquor, Gaming and Racing and collects your information to identify you in accordance with requirement under Australian law. Your details will be forwarded to Office of Liquor, Gaming and Racing. Subject to certain exceptions you may request access to your personal information. If access is denied, the law says we must tell you why.

Declaration of Applicant
I have read the privacy statements above and am aware penalties may be applied for giving false or misleading information or for the unauthorised use of a Competency Card. By presenting this form, I certify that within my knowledge the information submitted is true and correct.

Page 2 of 2

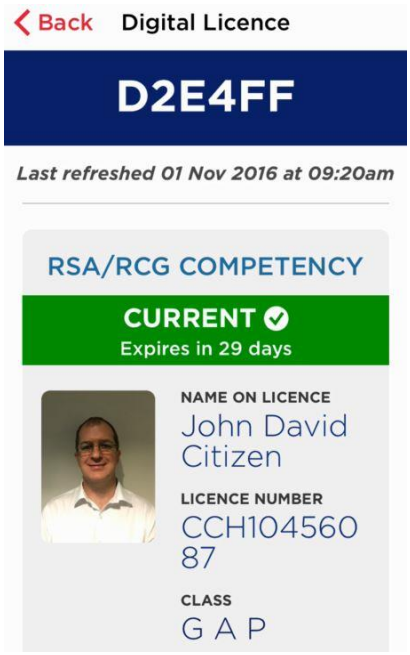
EXAMPLE ONLY



A NSW RSA Competency Card

The NSW RSA Competency Card started on 22 August 2011 and is valid for five (5) years. Unless otherwise suspended or revoked by the NSW ILGA. The card holder, must possess the card within the licensed area and be able to produce it on demand of Police or an OLGR Compliance Officer.

Failure to do so, may result in a fine be issued to the card holder.



A NSW RSA Digital Licence

Liquor & Gaming NSW has partnered with Service NSW to deliver a free and secure digital card for RSA and RCG competency cardholders.

The digital version of the competency card makes it easier to display, update and renew a licence using a smart phone or tablet. It will also make compliance for licensees easier as the digital card will provide a solution to the problem of staff forgetting to bring their competency cards to work.

The digital competency card allows compliances officers to conduct real time inspections on a compatible checker Application, allowing the digital cardholder access their inspection history.

Digital licences Digital licences are free for customers and can be accessed through the Service NSW App from the iTunes Store or Google Play.

The NSW RSA Digital Competency Card is valid for five (5) years. Unless otherwise suspended or revoked by the NSW ILGA. The Digital card holder, must be able to show the Digital Card within the licensed area and be able to produce it on demand of Police or an OLGR Compliance Officer.

Failure to do so, may result in a fine being issued to the digital card holder.

3.4.3 RSA House Policy

These premises, in compliance with the Liquor Act, 2007 and in the interest of its patrons and staff has, adopted the following practices to ensure the responsible service of alcohol. The following House Policy provides a framework to allow for the responsible service of alcohol at all times:

- In order to prevent underage drinking we require proof of age to be provided when requested.
- Persons who are intoxicated will be refused admission to these premises.
- Patrons will be denied service of alcohol if they are considered intoxicated.
- We will educate our staff and patrons as part of our duty of care to ensure that both understand the implications and abide by our responsible service of alcohol policy.
- We will support and actively promote initiatives to minimise drink driving in order to safeguard the well being of our patrons.

It is the intention of these premises to ensure that all persons using the facilities provided do not result in any harm from the service of alcohol by our staff. The following strategies have been adopted to ensure the responsible service of alcohol to all patrons of the premises:

- Implementing, monitoring and modifying this House Policy on an ongoing basis.
- Preventing underage drinking by requiring the productions of approved identification.
- Prevention of intoxication by recognising the signs of intoxication and refusing service to patrons who reach this point. We will deny entry to the premises any patron who is already intoxicated.
- Provide a range of non-alcoholic beverages at all times upon the premises and ensure the same are supplied in conjunction with full strength alcoholic beverages.

The responsible serving practices adopted within our House Policy aim to:

- Underage Drinking
- Intoxication
- Violence and Disruptive Behaviour, and
- Drink Driving

Preventing Underage Drinking

It is the responsibility of every staff member to ensure that they do not allow alcohol to be supplied to person's underage upon the premises. Patrons suspected of being under the age of 18 years are to be asked to provide approved documentary evidence of, proof of age. Failing this they will not be supplied with alcohol.

Within these premises, the only accepted forms of identification (As per the Australian ID Checking Guide) are:

A photographic drivers licence;
A NSW RMS Photo Card; or
A Proof of Age card from another state of Australia
A Passport, A NSW Keypass

All identification produced must be current to be valid. If in any doubt as to the age of the patrons, always check. It is best to be over-cautious than serve a person under the age of 18 years and place the licence in jeopardy through prosecution. If patrons object to providing identification, clearly explain that it is a requirement of the premises and the law. It is each member of staff's responsibility to make sure patrons, are above 18 years of age or they are unable to be served with alcohol.

Preventing Intoxication

The Liquor Act, 2007 makes it an offence to sell or supply liquor to any person who is in a state of intoxication. A state of intoxication is best described where that person, through the intake of intoxicating liquor has lost the normal control of their bodily and mental faculties. These premises will ensure that intoxication is prevented by: -

- Providing non-alcoholic beverages at all times.
- Encouraging patrons to consume non-alcoholic beverages.
- Refusal of service to patrons, showing signs of intoxication.

Preventing Intoxicated, Disruptive or Anti-social Behaviour

It is the policy of these premises to not allow intoxicated, disruptive, violent or anti-social behaviour to occur on or in the vicinity of the premises by patrons having been in attendance at the premises.

Our policy will ensure that this is prevented by: -

- Not allowing any intoxicated person to enter or remain upon the premises.
- It may be necessary for our staff to refuse service because of the legal safety or security reasons to patrons considered to be intoxicated.
- Not to tolerate any conduct of behaviour which management would consider undesirable both inside and outside the premises.
- Patrons are to be requested upon leaving the premises to do so in a quiet and orderly manner, taking due regard to the local residents to ensure the quiet and good order of the neighbourhood is maintained.
- Identifying potential problems and taking steps to alert senior staff and/or prevent them from escalating.

Prevent Drinking and Driving

It is the responsibility of all staff members, out of the concern for patrons well being, that staff will seek to discourage patrons from driving if they appear to be 'over the limit'. This will be supplemented by ensuring that non-alcoholic beverages are available at all times for patrons.

3.5 Hours of Operation

Barrenjoey Boatshed's proposed trading hours are as those of surrounding hospitality venues:

Trading hours (all year round)

Café & Functions

Monday:	07.00 am to 11.00 pm
Tuesday:	07.00 am to 11.00 pm
Wednesday:	07.00 am to 11.00 pm
Thursday:	07.00 am to 11.00 pm
Friday:	07.00 am to 11.00 pm
Saturday:	07.00 am to 11.00 pm
Sunday:	07.00 am to 11.00 pm
Public Holidays:	07.00 am to 11.00 pm

3.6 Capacity

The premises has a capacity in the restaurant of 150 patrons. It is the responsibility of the licensee/managers and/or staff to do regular capacity checks of the premises to ensure the premises complies with and does not exceed patron numbers.

3.7 Ejection of Patrons

The following procedure will apply when involved in the removal of a person from the premises who is, either intoxicated, or disorderly, violent or quarrelsome.

- Verbal communication with the patron will occur to explain the breach of conditions of the liquor licence. You must ask the person to leave if you consider that they are any of the above and refuse service
- Staff will be instructed to contact Police for assistance in removing any customer who exhibits anti-social or violent behavior.
- An Incident Report must be completed following any altercation and/or disturbance involving patrons and staff of the venue stating all the relevant information for reference purposes (refer to **Section 4.4** detailing procedures for completing an Incident Report).
- Management will ensure that the person(s) ejected will safely leave the area of the restaurant of at least 50m by walking with them in order to catch transport home either by Taxi or public/private transport.

3.8 Hold Up Procedure

3.8.1 In the event of an Armed Robbery

The primary advice is to remain as calm as possible. Other advice is as follows:

- activate alarm devices as soon as possible;
- try to remain calm and assess the situation;
- unless otherwise ordered, "continually observe the bandit making a mental note of the bandits appearance";

- pay particular attention to scars, tattoos, firearm or weapon, plus any unusual or prominent features;
- note his / her conversations including any indecent language, accent, nicknames or speech peculiarities;
- look to see if a motor vehicle is being used and note any occupants;
- obey the instructions of the bandit, do not be over co-operative;
- move slowly. Only do this with safety. Advise of any sudden movements you have to make;
- do not put up a fight;
- do not discuss the incident with anyone other than the Police and Senior Management; and
- observe the direction taken after the bandit leaves the premises.

3.9 Money Handling

Only management will be involved in the movement of monies from the premises. All appropriate safety alarms will be installed at the building including back to base security which involves the Intruder Alarm System being linked to the security company.

4.0 Theft

In the event that theft occurs involving a customer, every effort must be made to assist the customer in any way possible, i.e. forms, police report, telephone calls.
All personal information must be recorded on the Incident Report Form in case any items are recovered at a future time.

Incidents involving staff members must also be documented on the Incident Report Form and any necessary policy reports must be completed. A list of all items missing must be recorded.

The theft of any property on the premises must be reported to the police for insurance purposes. All thefts must be documented clearly and concisely on an Incident Report form.

4.1 Weapons

Weapons of any type, i.e. knives, firearms, etc., will not be permitted at any time, unless in the hands of authorised security personnel or Police.

4.2 Operational Procedures

4.3 Communication

Management will hold training days for staff on a regular basis to reinforce safety and security procedures for **Barrenjoey Boatshed**. Employees will be encouraged to report any suspicious activity or persons in and around the area to the Manager and / or Local Police.

4.4 Incident Report

An Incident Report, will be required to be completed on all incidents that necessitate action by an emergency service, Fire Brigade and/or Police. As well, the manager is required to be informed.

4.5 Evacuation Plan and Emergency Closing

A detailed plan of the site will be provided during training and in some circumstances it may become necessary to close the premises; i.e. fire, flood, power failure, bomb scare and other major emergencies. Approval must be sought from the Manager on duty prior to closing.

In the event of a severe East Coast Low, adequate warning would be given by the Bureau of Metrological Service and appropriate plans would be enacted to close the site, and the site would be totally evacuated.

In the event of a king tides severe weather event, the same warning and evacuation process will be enacted.

4.6 Telephones

Telephones are to be pre-programmed with the emergency number '000' and the NSW Police Local Area Command numbers for quick reference by staff. Telephone lines are to be secured to avoid unlawful use or tampering.

4.7 Registering of Complaints

Any complaints received will be documented and followed up by the Management. Management will listen to all complaints received in writing and endeavour to resolve the complaint in a timely manner.

4.8 Unloading/Loading of Service and Delivery Vehicles

The loading and unloading times are restricted to the approved hours as per the Development Application. This will limit any disturbance to patrons in the premises or the amenity of the surrounding area.

4.9 Noise Management

The Management will closely monitor the following noise management procedures:

- The premises will comply with all the Council requirements in relation to preventing noise emanating from the premises.
- Management and/or Staff will ensure that patrons keep noise down upon entering and leaving the premises. In this regard, the Licensee if required may erect signs at the points of exit requesting patrons to leave quietly and in a prompt manner so as not to cause any disturbance to the surrounding neighborhood.
- Amplified music in Barrenjoey Boatshed should be limited to a maximum L10 level of 95dBA at 1 metre from any speaker between 7.00am to 11.00pm;
- Windows and doors of the premises will be shut by closing time to reduce noise levels from the premises.
- **Barrenjoey Boatshed** management should regularly measure the maximum L10 noise level at 1 metre from the speakers with a sound level meter (minimum Type 2 meter capable of measuring L10 noise levels or an equivalent Leq noise level) during a function when amplified music is being played, alternatively, an in-house sound system with a noise limiter (max output limited to an L10 noise level 95 dBA at 1 metre) may be installed;

- External speakers located in the outdoor covered deck area should be orientated to project sound towards the west-south-west or west-north-west, i.e. towards the Pittwater;
- There should be no amplified music at **Barrenjoey Boatshed** between 11.00pm and 7.00am on any given day;
- Patrons should be encouraged not to make an unreasonable level of noise when leaving the premise;
- Management should ensure patrons attending functions park their vehicles in parking Zones 1, 2 and 3 only;
- Management will make all their contact details available to any adjoining residents, if issue's arise during trading hours that require immediate action.
- If necessary regular meetings will be held with concerned residents in relation to noise impact, to help reduce noise impact.

All sound emissions and noise management practices will comply with Council's requirements and the Protection of the Environment (Operations) Act 1997.

Staff and management of the restaurant will reinforce to customers leaving the site, to leave quickly and quietly as possible to minimise the impact on local residents.

Signs will be erected at the points of exit requesting customers leave quietly and in a prompt manner so as not to cause any disturbance to the surrounding neighbourhood.

5.0 Food Premises Management

As a **restaurant**, food safety is paramount. This will be controlled by management and/or a staff member who has completed a NSW Food Authority Food Safety Supervisor course. The licensee/management will:

- Notify their business commencement with NSW food Authority
- Appoint a Food Safety Supervisor if food they prepare and serve is ready-to-eat, potentially hazardous (i.e. needs temperature control) and NOT sold and served in the supplier's original package
- Meet the Food Standards Code requirements
- Prepare for regular inspections by their local council
- Cleaning schedules will be put in place and checklist maintained to ensure the venue complies with codes in relation to food premises.

5.1 Food Standards Code Requirements

The businesses will meet the requirements in the Australian New Zealand Food Standards Code, specifically:

- Standard 3.2.2 (Food Safety Practices and General Requirements)
- Standard 3.2.3 Food Premises and Equipment, and
- Part 1.2 (Labelling and other information requirements)

5.2 Waste Management

A registered waste company will handle the rubbish and waste disposal. The Management/Licensee will prevent patrons removing glasses, opened cans, bottles or alcohol from the premises.

- The collection of waste and recycling will only occur between the already existing hours of collections within the building, to avoid noise disruption to the surrounding area.
- Garbage and recycling will not be placed on the street for collection more than half an hour before scheduled collection time. Bins and containers are to be removed from the street within half an hour of collection.
- Waste will be removed two to three times a week.
- A system will be in place to minimize if not stop any odors from bins. Regular bin cleaning will be conducted via professional bin cleaners.
- Commercial scent neutralizer will be used in the storage area of bins.
- Food & other waste will be kept on the premises and transferred to pick point one hour prior to pick up.
- The transfer of waste from the premises to pick up point will be done as quietly as possible to reduce any noise.
- By using a reputable waste recycling company, such as URM Group Pty Ltd who are an innovative market leader in waste recycling management and are community minded. We intend to minimise our waste going into land fill.

5.3 Cleaning of Premises

Staff will be a crucial part of the overall security and safety system. Vandalism, graffiti and general untidiness (if any) will be attended to once it has come to the management's attention. Vandalism and graffiti (where possible) will be removed within 24 hours. This is an indication of the high priority that is given to the general appearance of **Barrenjoey Boatshed**.

5.4 Cleaning of Surrounding Public Domain

If litter is found to have originated from the **Barrenjoey Boatshed**, the Manager will ensure that this litter is removed as soon as practicable.

5.5 Consultation and Assessment

Barrenjoey Boatshed is committed to ongoing consultation with adjoining property owners, Police and Council to foster a better understanding of relevant security issues and will always be open to hearing any issues or concerns, adjoining property owners, Police or Council may have regarding the operations of **Barrenjoey Boatshed**.

Mechanical Services

THE BOATHOUSE
PALM BEACH NSW 2108

Drawing Schedule

General Notes

1. INFORMATION SHOWN IS FOR TENDER PURPOSE ONLY.
2. THE MECHANICAL TRADE SHALL CO-ORDINATE WITH ALL SERVICES ON SITE PRIOR TO MANUFACTURE AND SITE INSTALLATION.
3. ALL DUCT WORK DIMENSIONS ARE CLEAR AIR WAY SIZES UNLESS NOTED OTHERWISE.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
5. ALL WORK SHALL COMPLY WITH AS/NZ STANDARD + NCC
6. ALL AIR QUANTITIES ARE IN LITRES PER SECOND (L/S) UNLESS NOTED OTHERWISE.
7. THE WHOLE WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH ALL CODES AND REGULATIONS OF ALL RELEVANT GOVERNING AUTHORITIES.
8. THE MECHANICAL CONTRACTOR SHALL PRODUCE COORDINATED WORKSHOP DRAWINGS, WHICH MUST BE COORDINATED WITH BUILDING STRUCTURES AND OTHER TRADES, PRIOR TO CONSTRUCTION WORKS.
9. BALANCING DAMPERS SHALL BE INCLUDED IN BRANCH DUCTS AND AT AIR REGISTERS AS REQUIRED FOR BALANCING OF EACH SYSTEM.
10. EACH FLEXIBLE DUCT CONNECTION SHALL BE COMPLETED WITH SPIGOT BUTTERFLY DAMPER.
11. MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL COMPLY WITH AS 4254.1-2012 AND LATEST BCA .
12. WHERE FLEXIBLE DUCTS PENETRATE BAFFLED ACOUSTIC WAVEBAR IN CEILING SPACE, DUCT SHALL BE STRAIGHTENED AND RIGID CONNECTION SHALL BE INSTALLED WITH WAVEBAR WRAPPED AROUND FLEXIBLE DUCT.
13. ALL FLEXIBLE DUCTS SHALL BE SUPPORTED FROM THE UNDERSIDE OF STRUCTURE ABOVE AT INTERVALS NOT GREATER THAN 1.5M.
14. ALL TEMPERATURE SENSORS AND CONTROL SWITCHES SHALL BE MOUNTED 1500MM ABOVE FLOOR.
15. ACOUSTICALLY SEAL AROUND DUCT AND PIPEWORK WHERE PARTITION WALL EXTEND TO THE UNDERSIDE OF SLAB.
16. ALL AIR AND REFRIGERATION SYSTEMS AND EQUIPMENT SHALL BE TESTED, BALANCED AND COMMISSIONING IN ORDER TO PROVE THAT THEY CONFORM TO THE DESIGN REQUIREMENTS. ALL PRESSURE TESTS, BALANCING AND CONTROLS SET POINTS SHALL BE RECORDED AND SUBMITTED FOR EXAMINATION.
17. ALL TRANSFER AND OFFSET OF DUCTS FROM FIRE RATED SHAFT AND DUCT PASSING THROUGH FIRE RATED WALL SHALL BE FIRE RATED OR PROTECTED BY FIRE DAMPERS.
18. ALL EXHAUST GRILLES ARE TO HAVE ACOUSTIC PLENUMS WITH 25MM INTERNAL INSULATION.
19. ALL FLEXIBLE DUCTWORK SERVING TOILET/LAUNDRY SYSTEMS AND A/C SYSTEMS TO BE EXTERNALLY WRAPPED WITH 25MM FOIL FACED INSULATION.
20. ALL CONDENSING PIPES PENETRATIONS SHALL BE ISOLATED USING A FIRE-RATED MASTIC SEALANT HAVING SPECIFIC GRAVITY OF 1.6G.
21. CEILINGS ABOVE WET AREAS THAT ARE TO ACT AS A RETURN AIR PLENUM ARE TO BE SEALED AIRTIGHT FROM OCCUPIED SPACE (BY BUILDING TRADE)
22. ALL DOORS TO MECHANICALLY EXHAUST VENTILATED WET AREAS TO BE UNDERCUT 25MM (BY BUILDING TRADE)
23. ALL TOILET / PLANTROOM (OR THE LIKE) EXHAUST SYSTEMS SHALL BE INSTALLED WITH SELF-CLOSING DAMPER AND TO NCC REQUIREMENT
24. THE LOCATION OF GRILLES AND DIFFUSERS IN PLASTER CEILING SHOWN ON MECHANICAL DRAWINGS IS INDICATIVE ONLY. FOR EXACT LOCATION REFER TO ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS.
25. ALL FIRE DAMPERS TO HAVE "IN-DUCT" ACCESS PANEL INSTALLED WITHIN CLOSE PROXIMITY.
26. ALL ACCESS PANELS IN THE PLASTER CEILING (FOR FIRE DAMPERS, VCD'S AND EQUIPMENT) TO BE PROVIDED BY THE BUILDING TRADE.

Legend

DUCTWORK

- 400x300 / 1430 — UNINSULATED 400x300 DUCT 1430 LONG
- 50 — 50mm EXTERNALLY INSULATED DUCTWORK
- 50 — 50mm INTERNALLY INSULATED DUCTWORK
- FIRE RATING DUCTWORK
- CIRCULAR SHEET METAL DUCTWORK
- FLEXIBLE DUCTWORK
- DUCT/WALL MOUNTED FIRE DAMPER
- SUPPLY AIR DIFFUSER WITH INTERNALLY INSULATED CUSHION HEAD - 4 WAY BLOW
- EXHAUST OR RETURN AIR EGGCRATE GRILLE
- SIDE BLOW REGISTER
- SYS/REF / AIR QTY — AIR OUTLET/GRILLE REFERENCE
- 500x500 / 250 L/S — GRILLE SIZE / FLOW RATE
- DG — DOOR GRILLE
- UNDERCUT DOOR (BY BUILDER)
- DISTANCE BETWEEN TOP OF THE DUCT & SOFFIT
- >250 / 2750 / RL19.880 — DISTANCE BETWEEN BOTTOM OF DUCT & FLOOR SLAB
- R.L. OF BOTTOM OF DUCT
- AP2 OR AP-2 — DUCT MOUNTED ACCESS PANEL
- CEILING MOUNTED ACCESS PANEL

MISCELLANEOUS

- OAF-01 — OUTSIDE AIR FAN / DESIGNATION No
- SUPPLY AIR
- RETURN/EXHAUST AIR
- NEW MCC/MSSB PANEL
- AP — NEW ACCESS PANEL
- C T H — NEW SENSORS : CARBON MONOXIDE, TEMPERATURE, HUMIDITY INSTALLED AT 1500 AFFL
- C — AIR CONDITIONING UNIT CONTROL PANEL INSTALLED AT 1500 AFFL
- SWITCH FOR FAN OPERATION
- BS — BRANCH SELECTOR BOX

PIPEWORK

- D — CONDENSATE DRAIN
- REFRIGERANT PIPE
- TUNDISH (Elevation)
- D TD — TUNDISH (Plan) - REFER TO HYDRAULIC ENGINEERS PLAN

SCHEMATIC REPRESENTATION

- AXIAL FAN

ABBREVIATIONS

A/C	AIR CONDITIONING
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
ATT	ATTENUATOR
AVE	AVERAGE
BD	BALANCING DAMPER
BE	BLANK END
BO	BLANK OFF
C/E	CLEANER EXHAUST
c/w	COMPLETE WITH
CC	COOLING COIL
Ø	DIAMETER
DG	DOOR GRILLE
DPC	DIFFERENTIAL PRESSURE CONTROLLER
E/A	EXHAUST AIR
EAF	EXHAUST AIR FAN
EDH	ELECTRIC DUCT HEATER
F/A	FRESH AIR
F.A	FROM ABOVE
F.B	FROM BELOW
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FIP	FIRE INDICATOR PANEL
FL	FILTER
FOB	FLAT ON BOTTOM TAPER
FOT	FLAT ON TOP TAPER
FW	FLOOR WASTE
G/E	GARBAGE EXHAUST
GT/E	GARBAGE AND TOILET EXHAUST
H/L	HIGH LEVEL
K/E	KITCHEN EXHAUST
L/L	LOW LEVEL
L/s	LITRES PER SECOND
M	MOTORISED DAMPER
MCP	MECHANICAL CONTROL PANEL
MSSB	MECHANICAL SERVICES SWITCH BOARD
MVCD	MOTORISED VOLUME CONTROL DAMPER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NRD	NON RETURN DAMPER
OAF	OUTSIDE AIR FAN
O/A	OUTSIDE AIR
O/F	OVERFLOW
OBD	OPPOSED BLADE DAMPER
SAF	SUPPLY AIR FAN
SD	SET DOWN
SEF	SMOKE EXHAUST FAN
SU	SET UP
T.A	TO ABOVE
T.B	TO BELOW
T/E	TOILET EXHAUST
TEF	TOILET EXHAUST FAN
TIS	TEMPERATURE INDICATION SENSOR
U/S	UNDERSIDE
UNO	UNLESS NOTED OTHERWISE
VCD	VOLUME CONTROL DAMPER
VSD	VARIABLE SPEED DRIVE
P/A	PRIMARY AIR
P/E	PLANTROOM EXHAUST
PAC	PACKAGED AIR CONDITIONING UNIT
R/A	RETURN AIR
S/A	SUPPLY AIR
S/E	SMOKE EXHAUST

Rev	Date	Dman	Eng	Description
A	06/12/21	JN	JN	ISSUE FOR CONSTRUCTION CERTIFICATE
P2	02/12/21	JN	JN	PRELIMINARY ISSUE
P1	26/11/21	JN	JN	PRELIMINARY ISSUE

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CLIENT
Blue Pacific Constructions

BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
COVER SHEET & LEGEND

Mechanical services
Scale N.T.S (A1) | Checked:
Drawn: JN | Engineer: JN
File:
Project No. 21039 | Drawing No. M01 | Revision A

A1

SCOPE OF WORKS

THE WORK OF THIS CONTRACT SHALL COMPRISE THE SUPPLY, INSTALLATION, COMMISSIONING AND TESTING OF MECHANICAL SYSTEMS AS SPECIFIED HEREIN INCLUDING:

- MECHANICAL CONTRACTOR TO CARRY OUT A DETAILED SITE INSPECTION TO IDENTIFY SITE CONDITIONS.
- PROVIDE ONE (1) AIR-COOLED HEAT PUMP VRV SIDE DISCHARGE SYSTEM COMPRISING TWO (2) WALL MOUNTED UNITS GROUPED INTO ONE (1) CONDENSER. CONDENSER TO BE WALL MOUNTED AT HIGH LEVEL FREE FROM OBSTRUCTION. FAN COIL UNIT'S TEMPERATURE TO BE MONITORED VIA REMOTE TEMPERATURE SENSOR. UNITS SHALL BE CONTROLLED VIA THE PROPRIETARY WALL MOUNTED CONTROLLER CONFIGURED AS A GROUP CONTROLLER LOCATED IN THE SPACE. UNIT TEMPERATURE SET POINT AT 23 DEG C, RUNNING DURING BUSINESS HOURS WITH MANUAL ON/OFF OPERATION.
- PROVIDE ONE (1) AIR-COOLED HEAT PUMP SINGLE SPLIT SYSTEM COMPRISING ONE (1) WALL MOUNTED UNIT AND ONE (1) CONDENSER. CONDENSER TO BE INSTALLED UNDER THE STAIRS FREE FROM OBSTRUCTION. FAN COIL UNIT' TEMPERATURE TO BE MONITORED VIA REMOTE TEMPERATURE SENSOR. UNIT SHALL BE CONTROLLED VIA THE PROPRIETARY WALL MOUNTED CONTROLLER LOCATED IN THE SPACE. UNIT TEMPERATURE SET POINT AT 23 DEG C, RUNNING DURING BUSINESS HOURS WITH MANUAL ON/OFF OPERATION.
- EACH OF THE AIR CONDITIONING SYSTEMS (FCU'S) SHALL BE SUPPLIED WITH:
  - •• DEDICATED WALL MOUNTED TEMPERATURE SENSOR;
  - •• ALL CONTROL AND POWER.
  - •• BLYGOLD COATING TO CONDENSER COILS AND UNIT CASING.
- PROVIDE AND INSTALL TWO (2) INDIVIDUAL TYPE 7 PROPRIETARY COMMERCIAL KITCHEN EXHAUST HOODS ONE (1) TO SERVE THE KITCHEN AND ONE (1) TO SERVE THE DISHWASHER. KITCHEN EXHAUST HOOD LED LIGHTS TO BE INTERLOCKED TO THE KITCHEN LIGHT SWITCH (INTERLOCK BY ELECTRICAL)
- PROVIDE ONE NEW KITCHEN VENTILATION SYSTEM TO SERVE COOKING EQUIPMENT AND DISHWASHER COMPRISING THE FOLLOWING:
  - •• ONE (1) VERTICAL DISCHARGE KITCHEN EXHAUST FAN

  IT IS ENVISAGED THAT THE EXHAUST AIR IS TO BE REPLENISHED VIA DIRECT EVAPORATIVE COOLER.

  ALL KITCHEN EXHAUST DUCTWORK SHALL BE INSTALLED WITH A RISE IN THE DIRECTION OF AIRFLOW OF AT LEAST 1:200. ACCESS PANELS ON DUCT WITH GREASE SEALED GASKET SHALL BE INSTALLED TO THE SIDE OF THE KITCHEN EXHAUST DUCT AT EVERY 3M SEPARATION DISTANCE AND AT ANY BENDS. EXHAUST DUCTWORK SHALL NOT BE CONSTRUCTED WITH CROSS BREAK, THEREFORE ALLOW EXTERNAL STIFFENERS. KEX DUCTWORK TO BE INSTALLED IN ACCORDANCE WITH AS4254, THICKER METAL, PAINTED SEALS ETC.

  GREASE PLUG / DRAIN MUST BE INSTALLED AT EVERY LOW SECTION / POCKET OF THE HORIZONTAL DUCTWORK AND AT THE BOTTOM OF THE RISERS. COORDINATE A DEDICATED DRAIN WASTE WITH THE HYDRAULIC TRADE. GREASE DRAIN SHALL BE OF MIN. 50MM. .

  MELINEX LINING OF DUCT SHALL BE AVOIDED. ALLOW EXTERNAL BOX IN OF DUCT SHOULD THAT BE REQUIRED DUE TO ANY ACOUSTIC CONCERN.

  ALLOW DUCTWORK, VSD/EC FAN FOR COMMISSIONING, FIRE RATING, INSULATION, AND VIBRATION ISOLATION WITH RIS, CONTROL, WIRING, SWITCH GEARS AND ALL ASSOCIATED FITTINGS TO ENABLE THE COMPLETION OF SYSTEM.

  ALL EXTERNALLY MOUNTED VSD SHALL BE PROVIDED WITH A WEATHER-PROOF ENCLOSURE, COMPLETED WITH FAN ASSISTED VENTILATION.

  DUCTWORK SHALL BE INSTALLED 300MM FROM ANY COMBUSTIBLE MATERIAL WITHIN THE SAME FIRE COMPARTMENT OF THE HOOD BEING SERVED OR BE INSULATED TO ACHIEVE -/30/30 FRL.

  ONE FAN SPEED SET TO BE SET. FAN TO BE CONTROLLED BY LOCAL STAINLESS-STEEL PUSH BUTTON MOUNT IN SPACE WITH GREEN LED LOCALLY. FAN SWITCH SHALL BE FITTED WITH PROMINENT WARNING
- PROVIDE TWO (2) NEW TOILET EXHAUST SYSTEMS TO SERVE THE TOILETS COMPRISING ONE (1) ROOF MOUNTED FAN, ONE (1) INLINE MIXED FLOW FAN, ROOF COWL. ASSOCIATED WIRING AND DUCTWORK. FAN TO BE TIME CLOCK TO BUSINESS HOURS. ALLOW ALL ASSOCIATED ITEMS (E.G. DUCTWORK, INSULATION, VIBRATION ISOLATION, SUPPORTS, CONTROL, WIRING AND ETC) TO ENABLE THE COMPLETION OF SYSTEM. DUCTWORK TO INTAKE OF THE FAN SHALL BE INTERNALLY INSULATED TO 50MM, 1.5M FROM THE FAN CONNECTION.
- PROVIDE A NEW DIRECT EVAPORATIVE COOLER FOR KITCHEN MAKE UP. UNIT SHALL BE INTERLOCKED TO THE OPERATION OF THE KITCHEN EXHAUST FAN. UNIT SHALL DISCHARGE DIRECTLY INTO THE KITCHEN C/W DUCT MOUNTED GRILLE. ALLOW A PROPRIETARY CONTROLLER. SHALL OPERATE IN EITHER COOLING OR VENT MODE. ALLOW ALL ASSOCIATED ITEMS (E.G. DUCTWORK, INSULATION, VIBRATION ISOLATION, SUPPORTS, CONTROL, WIRING AND ETC) TO ENABLE THE COMPLETION OF SYSTEM. UNIT SHALL AUTOMATICALLY PUMP DOWN WHEN REQUIREMENTS ARE SATISFIED. ALLOW SELF-CLOSING DAMPER TO SEAL DUCTWORK WHEN SYSTEM IS NOT IN OPERATION.
- PROVIDE ONE NEW NATURAL WIND DRIVEN VENTILATOR SIMILAR TO HURRICANE H300. ALLOW ALL ASSOCIATED ITEMS (E.G. DUCTWORK, VIBRATION ISOLATION, SUPPORTS, CONTROL, AND ETC) TO ENABLE THE COMPLETION OF SYSTEM.
- PROVIDE BLYGOLD COATING TO ALL OUTDOOR EQUIPMENT UNIT CASING.
- PROVIDE A LPG GAS LEAK DETECTION SYSTEM TO THE CYLINDER STORE AS PER THE DANGEROUS GOODS REPORT. IT SHALL BE INSTALLED SO THAT THE SYSTEM WILL AUTOMATICALLY STOP THE FLOW OF GAS IF A GAS DETECTOR SENSES THE PRESENCE OF A CONCENTRATION OF GAS IN AIR OF MORE THAN 25% OF THE LOWER EXPLOSIVE LIMIT (LEL) . AS/NZS 60079.14. GAS DETECTORS SHALL BE INSTALLED—

1. AROUND THE INSTALLATION;
2. AT THE LOADING POINT IF DIRECT FILL IS NOT BEING USED; AND
3. AT THE POINT OF USAGE OF THE UNODOURIZED GAS.

DETECTORS SHALL BE INSTALLED AT THE LOADING BAY END OF THE CYLINDERS NEAR THE GROUND. THE LIGHT SHOULD BE IN AN EASILY VISIBLE LOCATION FOR STAFF AND DELIVERY PERSONNEL.

- PROVIDE AND INSTALL ONE NEW MCC TO CONNECT THE FOLLOWING ITEMS:
  1 NEW AC SYSTEMS
  2 EXISTING AC SYSTEM
  3 ALL FANS
  4 DIRECT EVAPORATIVE COOLER
  5 CONTROL
- TERMINATION OF FIRE TRIP CABLE TO THE MECHANICAL SWITCHBOARD. THE FIRE TRIP SIGNAL SHALL BE OF 24V DRY CONTACT SIGNAL. ALL MECHANICAL EQUIPMENT TO SHUT DOWN UPON RECEIVING FIRE TRIP SIGNAL.COILED REFRIGERANT PIPES ARE PROHIBITED. ALL REFRIGERANT PIPES SHALL BE INSTALLED WITH RIGID COPPER TUBE. PIPE INSULATION SHALL BE "ARMAFLEX'.
- COORDINATE ON SITE WITH OTHER TRADES / BUILDER FOR THE FINAL POSITION OF FAN COIL UNITS / DUCTWORK / EXHAUST FAN DUCTWORK, AND CONDENSER UNITS.
- NEW SHEET METAL DUCTWORK FOR VENTILATION SYSTEM INCLUDING ALL FITTINGS SUCH AS INSULATION, DAMPERS, FLEXIBLE CONNECTION, ACCESS PANELS TO FORM A COMPLETE AIR DISTRIBUTION SYSTEM.
- NEW EGGCRATE GRILLES AND ACCESSORIES, ALL GRILLES TO BE POWDER COATED, COLOR TO MATCH THE NEW CEILING ROUGH IN FLEXIBLE DUCT.
- ACOUSTIC LINNING AND THERMAL INSULATION TO DUCT IN COMPLIANCE WITH BCA SECTION J REQUIREMENTS.
- COORDINATE WITH THE BUILDER FOR ACCESS PANELS IN SET CEILING FOR ADJUSTMENT AND MAINTENANCE OF MECHANICAL SYSTEM.
- COORDINATE WITH THE BUILDER FOR UNDERCUT TO TOILET DOORS.
- PROVISION OF DOOR GRILLES.
- COORDINATE WEATHERPROOF LOUVRES REQUIREMENTS WITH BUILDER.
- ALL LIFTING, LOWERING, HANDLING AND ASSOCIATED SCAFFOLDING FOR ALL EQUIPMENT COVERED BY THIS CONTRACT.
- IDENTIFICATION AND LABELING OF INSTALLATION AS REQUIRED.
- COMMISSIONING, TESTING, DEMONSTRATING AND DOCUMENTING THE PERFORMANCE OF ALL SYSTEMS INSTALLED.
- INSTRUCTION OF MAINTENANCE PERSONNEL IN THE OPERATION OF ALL BUILDING SERVICES.
- PROVISION OF SHOP DRAWINGS, INCLUDING PERMANENT REDUCED SCALE (1:50) DIAGRAM AS SPECIFIED.
- MAINTENANCE DURING DEFECT 12 MONTHS LIABILITY PERIOD.
- OVERFLASHING OF ALL PENETRATIONS THROUGH ROOF. UNDERFLASHING BY BUILDER.
- PROVISION OF CONDENSATE DRAIN PUMPS WHERE REQUIRED.
- PROVISION OF INSTRUCTION MANUALS.
- AS-BUILT DOCUMENT.

1.2 BY OTHERS

THE FOLLOWING WORKS ASSOCIATED WITH THIS CONTRACT SHALL BE CARRIED OUT BY OTHERS AT NO COST TO THE CONTRACTOR, PROVIDED THAT THIS CONTRACTOR SUPPLIES SUFFICIENT DRAWINGS OR DETAILS, AT HIS COST, TO ENABLE THESE VARIOUS WORKS TO BE CARRIED OUT, AND PROVIDED THAT SUCH DETAILS ARE SUPPLIED IN AMPLE TIME FOR THOSE WORKS TO BE CARRIED OUT DURING THE NORMAL PROGRESS OF THE WORK AND/OR IN ACCORDANCE WITH THE PROGRAM FOR THE CONTRACT WORKS.

- BY BUILDER:
  - •• PROVISION AND MAKING GOOD INCLUDING FIRE RATING AROUND ALL OPENINGS IN THE BUILDING STRUCTURE FOR THE PENETRATIONS OF PIPES, DUCTS, GRILLES AND CONDUITS AND ALL CUTTING, PATCHING, FRAMING UP, FURRING IN AND MAKING GOOD ASSOCIATED WITHIN THE BUILDING STRUCTURE, INCLUDING CHASES.
  - •• PROVISION OF TRIMMED OPENINGS IN WALLS AND CEILINGS FOR DUCTING, GRILLES AND CEILING FANS
  - •• PROVISION OF VANDAL PROOF CAGE FOR LOW LEVEL CONDENSER INSTALLATION.
  - •• PROVISION OF OPERABLE DEVICES TO BE USED FOR NATURAL VENTILATION SIZED TO MINIMUM NCC REQUIREMENT.
  - •• PROVISION OF TRIMMED OPENINGS IN THE ROOF COMPLETE WITH UNDERFLASHING.
  - •• COORDINATE ANY SUPPORT BEAM WITH MECHANICAL CONTRACTOR TO FINALIZE DUCT WORK / EQUIPMENT LOCATION.
  - •• INSTALLATION OF DOOR GRILLES.
  - •• PROVISION AND INSTALLATION OF WEATHERPROOF LOUVRES.
  - •• SUITABLE ACCESS FOR MAINTENANCE
  - •• PAINT DUCTWORK EXPOSED ON ROOF
  - •• PROVISION OF AND INSTALLATION OF 600x600 FLUSH MOUNTED ACCESS PANELS IN THE CEILING FOR SERVICE ACCESS TO THE AIR CONDITIONING EQUIPMENT/ FAN EQUIPMENT. ALLOW FOR ADDITIONAL 5 PANELS OVER AND ABOVE THOSE NOTED ON THE DRAWINGS.
- BY FIRE TRADE:
  - •• PROVIDE FAN CONTROL PANEL AT FIP AS PER 1668.1-2015 FOR KITCHEN EXHAUST FAN CONTROL. THE FIRE CONTRACTOR IS TO PROVIDE ON/AUTO/OFF SWITCH, RUN AND FAULT INDICATION ON THE FIP.
  - •• PROVISION OF (1) FIRE TRIP DRY CONTACT SIGNAL WITH MIMIS CABLE FROM THE FIP TO THE NEW MCC , WITH MIN. 3M COILED CABLE. FINAL TERMINATION BY MECHANICAL CONTRACTOR.
  - •• ALL FIRE WIRING TO BE MIMS OR RADOX
- BY ELECTRICAL TRADE:
  - •• PROVISION OF INDEPENDENT BREAKERS IN TENANTS ELECTRICAL DISTRIBUTION BOARD FOR CONNECTION OF SUPPLEMENTARY AIR CONDITIONING UNIT, FANS AND ASSOCIATED CONTROL.
  - •• PROVISION OF AN ISOLATOR SWITCH LOCATED ADJACENT TO EACH FAN, INDOOR AC UNIT . INDOOR SWITCHES SHALL BE IP55. OUTDOOR SWITCH TO BE IP65.
  - •• PROVISION OF GPO LOCATED ADJACENT KITCHEN HOOD FOR CONNECTION OF KITCHEN HOOD LIGHTS . INTERLOCK TO KITCHEN LIGHT SWITCH.

BY HYDRAULIC TRADE:

- •• THE PROVISION OF REQUIRED TUNDISHS TO RECEIVE DISCHARGE FROM AC UNIT CONDENSATE DRAIN
- •• THE PROVISION OF A FLOOR WASTE TO RECEIVE DISCHARGE FROM CONDENSERS.
- •• ONE (1) OFF WATER SUPPLY CONNECTION (15MM) TO SERVE THE INDIRECT EVAPORATIVE COOLER LOCATED ON THE NEW PLATFORM, REQUIRE 20L/MIN OF WATER, WATER INLET PRESSURE NO GREATER THAN 700KPA. FINAL TERMINATION TO THE EVAP COOLER BY MECHANICAL CONTRACTOR.

STANDARDS

PLEASE PROVIDE THE WHOLE INSTALLATION IN COMPLETE COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND BY-LAWS:

- ALL STATUTORY AUTHORITIES
- DANGEROUS GOODS REPORT
- FIRE ENGINEERING REPORT
- NCC 2019 AMENDMENT 1
- LATEST NCC SECTION J REPORT
- WORK COVER AUTHORITY
- COUNCIL DA CONDITIONS
- AS1668.1-2015
- AS1668.2-2012
- AS1668.4
- AS1670
- AS5149
- AS1682
- AS2197
- AS2665
- AS3000
- AS3013
- AS3500
- AS3666
- AS4072
- AS4254
- ALL OTHER STANDARDS REFERENCED BY THE ABOVE

IN CASES WHERE THE STANDARDS ASSOCIATION OF AUSTRALIA HAS NOT YET ISSUED SPECIFICATIONS OR CODES, APPLY THE RELEVANT PUBLICATION ISSUED BY BRITISH STANDARDS INSTITUTION AND/OR REFERENCE TO ASHRAE PUBLICATION.

INSTALLATION REQUIREMENTS

1. MATERIALS AND WORKMANSHIP

THE MATERIALS USED AND THE EQUIPMENT SUPPLIED MUST BE NEW AND OF FIRST QUALITY. THEY MUST BE ENTIRELY SUITABLE FOR THE SERVICE REQUIRED AND MUST COMPLY WITH THE REGULATIONS AND REQUIREMENTS OF ALL RELEVANT AUTHORITIES.
WORK MUST BE CARRIED OUT IN A TRADESMAN LIKE MANNER AND ALL MANUFACTURE MUST BE OF SUCH TOLERANCES TO ENSURE THAT SIMILAR PARTS OF THE EQUIPMENT ARE INTERCHANGEABLE. ONLY FIRST CLASS COMPETENT TRADESMEN MUST BE EMPLOYED ON THE WORK IN THEIR RESPECTIVE TRADES.
UNIFORMITY OF THE TYPE AND MANUFACTURE OF INDIVIDUAL FITTINGS AND ACCESSORIES MUST BE PRESERVED THROUGHOUT THE INSTALLATION.

2. DRAWINGS

THE LOCATION OF ALL ITEMS OF EQUIPMENT SHOWN IS TO BE TAKEN AS INDICATIVE ONLY. THE EXACT POSITIONS MUST BE DETERMINED IN CONJUNCTION WITH THE PRINCIPALS REPRESENTATIVE.

3. RULES AND REGULATIONS

ALL WORK COVERED BY THIS SPECIFICATION MUST BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT EDITION OF THE STANDARDS ASSOCIATION OF AUSTRALIA, ALL RELEVANT AUSTRALIAN STANDARDS AND ALL RELEVANT STATUTORY AUTHORITIES. THE SERVICES MUST BE INSTALLED IN ACCORDANCE WITH PART J OF THE NCC.

4. INSTALLATION TO BE EASILY MAINTAINED

NOTWITHSTANDING ANY APPROVALS GIVEN DURING THE PROGRESS OF THE WORK, ALL EQUIPMENT AND MATERIAL MUST BE INSTALLED IN SUCH A WAY THAT THEY ARE EASILY MAINTAINED WHEN THE INSTALLATION IS COMPLETED. THIS MUST APPLY TO ALL MATERIALS AND EQUIPMENT IN THE INSTALLATION AND IN PARTICULAR TO ALL PERIODICALLY MAINTAINED ITEMS SUCH AS LAMPS, FUSES AND DETECTORS.
WHERE ACCESS PROVIDED IS DEEMED INSUFFICIENT, OR FOR WHATEVER OTHER REASON THE EQUIPMENT AND MATERIALS ARE DIFFICULT TO MAINTAIN, RECTIFY THE WORK AS DIRECTED, AT NO COST.

5. MANUFACTURER'S DIRECTIONS

MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT ARE TO BE SUPPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND COMMISSIONED IN STRICT CONFORMITY WITH MANUFACTURER'S PRINTED DIRECTIONS UNLESS OTHERWISE SPECIFIED. IN ANY CASE, OBTAIN FROM THE SUPPLIER AGREEMENT THAT THE PRODUCT AS USED OR SPECIFIED IS BEING USED OR SPECIFIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND PRACTICE. RETAIN MANUFACTURER'S DIRECTIONS OF SUCH ARTICLES ON SITE FOR THE PRINCIPALS REPRESENTATIVE. DUE TO POSITION OF EXHAUST FAN AT THE TOP OF STACK IT WILL NOT BE EASILY MAINTAINED AND WILL REQUIRE SCAFFOLD SET UP OR CHERRY PICKER

6. PROTECTION

PROTECT ALL PARTS OF THE BUILDING AND THE WORK OF OTHERS FROM DAMAGE WHICH MAY BE CAUSED BY THE CONTRACTOR'S WORKMEN. ANY SUCH DAMAGE MUST BE MADE GOOD AT NO COST.

7. PERFORMANCE GUARANTEE

BY ACCEPTING THE CONTRACT, THE CONTRACTOR WILL BE DEEMED TO HAVE GUARANTEED THE PERFORMANCE OF THE INSTALLATION UNDER NORMAL WORKING CONDITIONS FOR A PERIOD OF TWELVE (12) MONTHS FROM COMPLETION OF THE OVERALL WORKS.
SHOULD THE COMPLETE INSTALLATION OR ANY PART THEREOF PROVE DEFECTIVE OR FAIL TO FULFIL THE REQUIREMENTS OF THESE DOCUMENTS, PERFORMANCE OF THE RELEVANT EQUIPMENT MUST BE CORRECTED AT NO COST OR THE EQUIPMENT WILL BE LIABLE TO REJECTION.
BE RESPONSIBLE FOR THE REPLACEMENT OF ANY PORTION OF THE INSTALLATION SO REJECTED AND FOR ALL COSTS INCURRED THEREBY. THE GUARANTEE PERIOD MUST THEN BE EXTENDED TO COVER TWELVE (12) MONTHS TROUBLE-FREE PERFORMANCE.

8. WIRING AND INSTALLATION METHODS

WHERE WIRING TO EQUIPMENT IS SPECIFIED, ALL NECESSARY TERMINATIONS AND CONNECTIONS FOR ALL POWER AND CONTROL WIRING MUST BE MADE IN AN APPROVED MANNER AND THE EQUIPMENT LEFT READY

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ARCHITECT:
Canvas Architecture & Design
421 Endeavour Drive
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Blue Pacific Constructions

BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
SCOPE OF WORKS

Mechanical services

Scale N.T.S (A1)	Checked:
Drawn: JN Engineer: JN	
File:	

Project No.	Drawing No.	Revision
21039	M02	C

A1

700X700 OUTSIDE AIR DROPPER FROM DIRECT EVAP COOLER ABOVE. FINAL POSITION TO BE COORDINATED WITH EXISTING CONSTRUCTION .

BOAT HIRE TO BE COMPLETELY NATURALLY VENTILATED VIA SLIDING DOORS SIZED TO MIN 5% FLOOR AREA

260x260 TOILET EXHAUST RISER TO ROOF MOUNTED VERTICAL EXHAUST FAN ABOVE

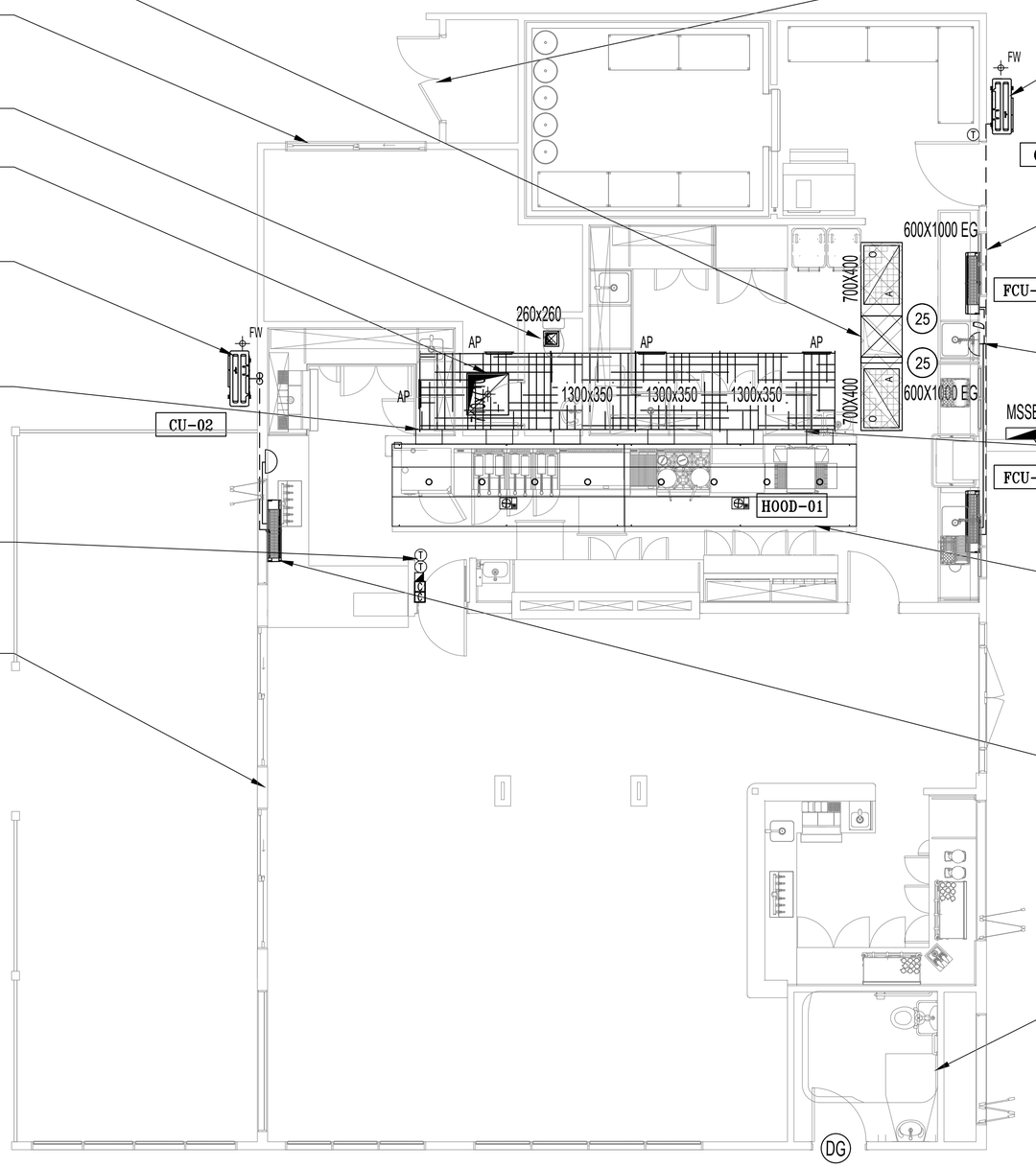
710x710 KITCHEN EXHAUST RISER TO ABOVE. BOTTOM OF RISER TO BE C/W GREASE PLUG AND DRAIN

SINGLE SPLIT CONDENSER INSTALLED UNDER STAIRS IN VANDAL PROOF CAGE

FINAL KITCHEN EXHAUST DUCTWORK HEIGHT TO BE COORDINATED WITH MINIMUM HEAD HEIGHT REQUIRED IN BATHROOM AREA

WALL MOUNTED STAINLESS STEEL ON/OFF SWITCH FOR OPERATION OF FAN C/W GREEN RUN INDICATION LIGHT. FINAL LOCATION TO BE COORDINATED WITH KITCHEN CONSULTANT.

RESTAURANT TO BE COMPLETELY NATURALLY VENTILATED VIA SLIDING DOORS SIZED TO MIN 5% FLOOR AREA



BOAT HIRE STORE TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

OUTDOOR CONDENSER TO BE WALL MOUNTED AT HIGH LEVEL. LOCATION TO BE CONFIRMED ACCEPTABLE BY PCA/BCA AS OUTSIDE CROWN BOUNDARY.

PIPEWORK TO BE RETICULATED WITHIN WALL CAVITY TO OUTDOOR UNIT. ALL EXTERNAL PIPEWORK TO BE INSTALLED WITHIIN GALVANISED TRAY POWEDERCOATED TO MATCH FACADE COLOUR

TYPICAL:
TUNDISH TO BE PROVIDED BY HYDRAULIC TRADE

EVAP COOLER CONTROLLER TO BE INSTALLED IN SWITCHBOARD

PROPRIETARY TYPE 7 WALL MOUNTED KITCHEN HOOD C/W EXHAUST AIR CONNECTION AT THE REAR. CONNECTIONS TO BE C/W SLIDING DAMPERS FOR BALANCING. CONNECTIONS TO BE CUT IN COORDINATION WITH WALL STUD

TYPICAL:
WALL MOUNTED UNIT TO BE INSTALLED AT HIGH LEVEL. ENSURE SWING IS FIXED DOWNWARD TO CLEAR KITCHEN HOOD

TOILET TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

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BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
GROUND FLOOR
PROPOSED LAYOUT
SHEET 1 OF 2

Mechanical services
Scale 1:50 (A1) | Checked:
Drawn: JN | Engineer: JN
File:
Project No. 21039 | Drawing No. M03 | Revision E

A1

TOILET TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

LPG LEAK DETECTION SHALL BE INSTALLED THAT WILL AUTOMATICALLY STOP THE FLOW OF GAS IF A GAS DETECTOR SENSES THE PRESENCE OF A CONCENTRATION OF GAS IN AIR OF MORE THAN 25% OF THE LOWER EXPLOSIVE LIMIT (LEL)

AND AS/NZS 60079.14.
GAS DETECTORS SHALL BE INSTALLED—
(a) AROUND THE INSTALLATION;
(b) AT THE LOADING POINT IF DIRECT FILL IS NOT BEING USED; AND
(c) AT THE POINT OF USAGE OF THE UNODOURIZED GAS.

DETECTORS IS INSTALLED AT THE LOADING BAY END OF THE CYLINDERS NEAR THE GROUND.
THE LIGHT SHOULD BE IN AN EASILY VISIBLE LOCATION FOR STAFF AND DELIVERY PERSONNEL.

BOAT FUEL STORAGE NATURAL VENT TO COMPLY WITH AS1940. VENTILATION TO COMPLY WITH DANGEROUS GOODS REPORT. ONE SIDE C/W 50% MESH OPENINGS IS PROPOSED. DANGEROUS GOODS CONSULTANT TO CONFIRM IF AN ADDITIONAL WIND DRIVEN ROOF VENTILATOR IS ACCEPTABLE

CYLINDERS INSTALLED OUTDOORS FOR COMPLETE NATURAL VENTILATION IN ACCORDANCE WITH AS1596.

ROOF MOUNTED NATURAL VENTILATOR

WC'S TO BE COMPLETELY NATURALLY VENTILATED VIA WEATHERPROOF LOUVRE WITH OPENINGS SIZED TO MIN 5% FLOOR AREA

BOAR HIRE TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DOOR SIZED TO MIN 5% FLOOR AREA

BIN ROOM TO BE COMPLETELY NATURALLY VENTILATED VIA WEATHERPROOF LOUVRE WITH OPENINGS SIZED TO MIN 5% FLOOR AREA

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BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
GROUND FLOOR
PROPOSED LAYOUT
SHEET 2 OF 2

Mechanical services
Scale 1:50 (A1) | Checked:
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File:
Project No. 21039 | Drawing No. M04 | Revision A

A1

260x260 TOILET EXHAUST RISER FROM BELOW TO ROOF MOUNTED VERTICAL EXHAUST FAN

710x710 KITCHEN EXHAUST RISER FROM BELOW TO VERTICAL EXHAUST FAN.

WINDOWS WITHIN 6M OF EXHAUST FAN WILL NEED TO BE FIXED. THIS HAS BEEN CLOUDED. SLIDING DOOR WITHIN 6M OF EXHAUST TO HAVE A FIXED PANEL APPROX 2M LONG TO ACHIEVE 6M SEPARATION

OFFICE TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

TYPICAL:
MAKE UP WATER CONNECTIONS AS PER SCHEDULE TO BE PROVIDED BY HYDRAULIC CONTRACTOR C/W RPZ VALVE. DRAIN TO ALSO BE PROVIDED

INTAKE TO BE MINIMUM 6M FROM KEX DISCHARGE

700X700 OUTSIDE AIR DROPPER FROM DIRECT EVAP COOLER TO KITCHEN BELOW.

STORE TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

410X410 TOILET EXHAUST RISER TO ROOF COWL ABOVE

OFFICE TO BE COMPLETELY NATURALLY VENTILATED VIA OPERABLE DEVICES SIZED TO MIN 5% FLOOR AREA

RAMP (below)

TING

DECK with roof over Deck waterproofed

Stair below

STORE (other than food perishables) 4400 x 2865 mm Timber

LOCKERS/ STAFF CHANGE 4440 x 1550 mm Timber

RESTAURANT OFFICE 94.5m² Timber

SEAPLANE OFFICE 2900 x 2895mm Timber

TEF-01

AP

710x710

Vent extraction

FW

IDC-01

R3.0

NRD

410x410

Shower

35 L/S

UC

NRD

250x250

UC

UC

TEF-02

45 L/S

WC

1500

1500

45 L/S

WC

1500

UC

RAMP (below)

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BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

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THE BOATHOUSE
PALM BEACH

Title:
LEVEL 1
PROPOSED LAYOUT
SHEET 1 OF 2

Mechanical services

Scale 1:50 (A1) | Checked:
Drawn: JN | Engineer: JN
File:

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A1

RALLY
ES SIZED TO

2.63

2.66

APPROXIMATE LICENSED BOUNDARY

2.74

2
DA09

MHWM

SKILLION ROOF (at 6° TO ANCILLARY BUILDING (below)
ANCILLARY BUILDING

VENT-01

APPROX. LICENSED B'DY

2.92

1
DA10

WIND DRIVEN ROOF VENTILATOR SIMILAR TO HURRICANE H300. DANGEROUS GOODS / BCA / FIRE ENGINEERING CONSULTANT TO CONFIRM IF THIS IS ACCEPTABLE AS NATURAL VENTILATION AND NOT MECHANICAL WHICH HAS ADDITIONAL REQUIREMENTS.

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BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

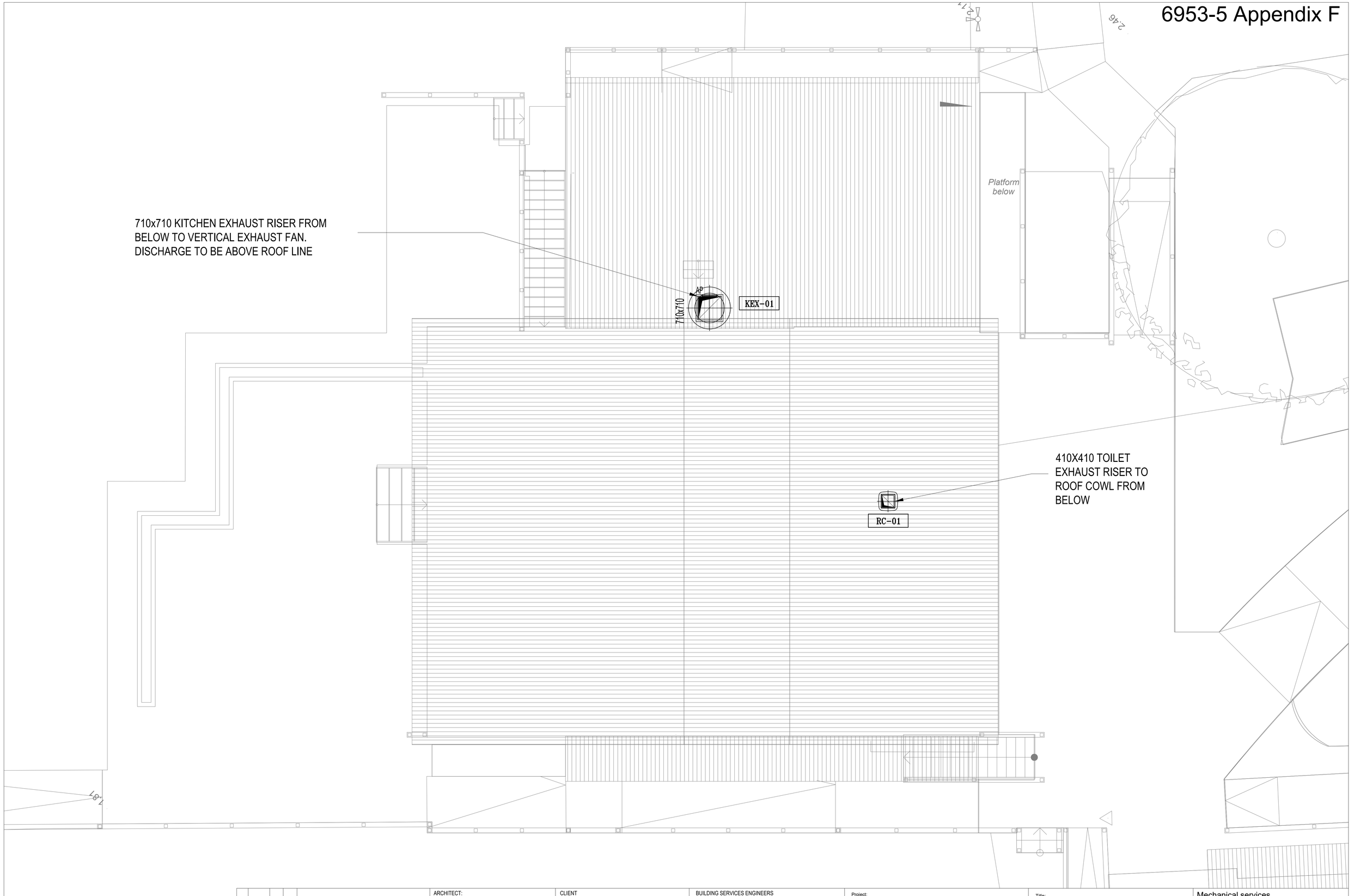
Title:
LEVEL 1
PROPOSED LAYOUT
SHEET 2 OF 2

Mechanical services

Scale 1:50 (A1)	Checked:
Drawn: JN Engineer: JN	
File:	

Project No.	Drawing No.	Revision
21039	M06	A

A1



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BUILDING SERVICES ENGINEERS

JCOS BUILDING ENGINEERING

Project:

THE BOATHOUSE
PALM BEACH

Title:

ROOF
PROPOSED LAYOUT

Mechanical services

Scale 1:50 (A1) | Checked:

Drawn: JN | Engineer: JN

File:

Project No.	Drawing No.	Revision
21039	M07	A

A1

DUCT INSULATION SCHEDULE

ZONE	WITHIN A/C SPACE		WITHIN ROOF SPACE		ON ROOF	
	R VALUE	THICKNESS	R VALUE	THICKNESS	R VALUE	THICKNESS
1,2,3,& 5	1.2	38 mm	2.0	75 mm	3.0	100 mm
4,6 & 7	1.0	38 mm	2.0	75 mm	3.0	100 mm
8	1.6	50 mm	2.4	75 mm	3.4	130 mm

NOTE: BASED ON CSR ULTRATEL 48 Kg /m³

FLEXIBLE DUCT SCHEDULE

AIRFLOW	DIA FLEX
0 - 50	150
51 - 70	180
71 - 100	200
101 - 140	230
141 - 180	250
181 - 250	300
251 - 350	400
351 - 450	350
451 - 525	450

NOTE: WHERE FLEXIBLE DUCT DIAMETER EXCEEDS DUCT HEIGHT OVAL CONNECTORS ARE TO BE USED.

DOOR GRILLE SCHEDULE

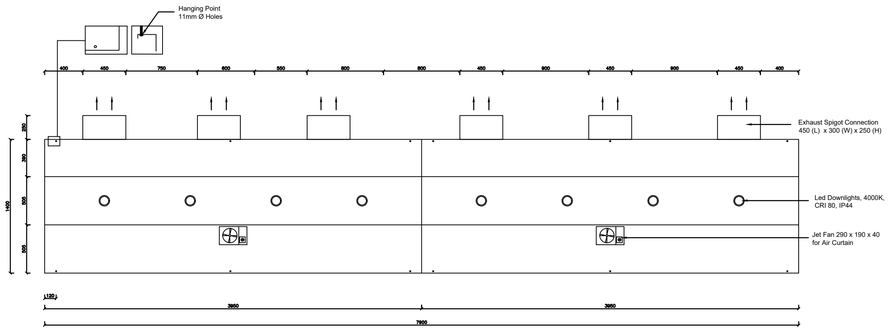
AIRFLOW	SIZE
0 - 110	600 x 150
111 - 150	600 x 200
151 - 190	600 x 250
191 - 300	600 x 400
301 - 450	600 x 600

NOTE: AIR FLOW VELOCITY ACROSS DOOR GRILLE NOT TO EXCEED 1.25m/s FOR ANY SIZE ABOVE THOSE INDICATED.

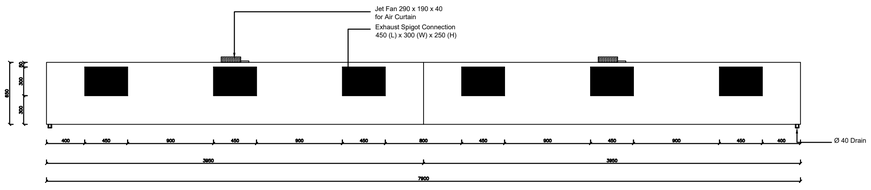
EGG CRATE EXHAUST & RETURN AIR GRILLE SCHEDULE

AIRFLOW	NECK SIZE
0 - 80	200 x 200
81 - 180	300 x 300
181 - 320	400 x 400
321 - 500	500 x 500
501 - 605	550 x 550
606 - 720	600 x 600

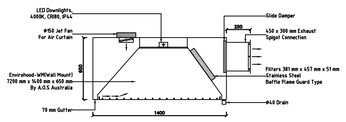
NOTE: FOR AIR QUANTITIES ABOVE 720 l/s REFER TO DRAWINGS AND/OR DO NOT EXCEED 2.5m/s FACE VELOCITY.



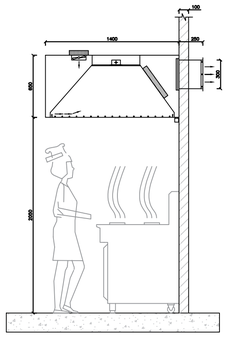
EXHAUST HOOD PLAN VIEW



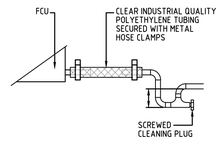
HOOD BACK VIEW
Scale 1:25 @ A3



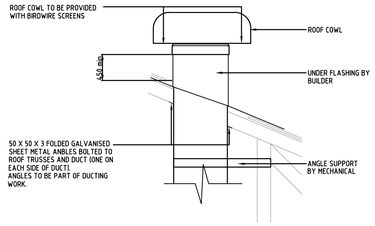
3 SECTION HOOD
Scale 1:20@A3



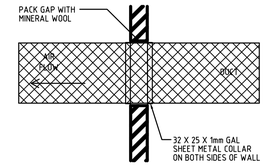
4 SECTION
Scale 1:20@A3



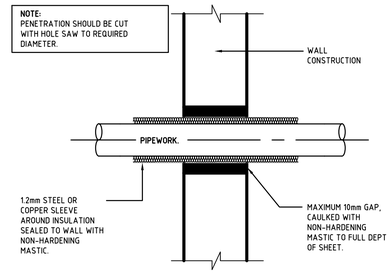
DETAIL OF TYPICAL
DRAIN TRAP
N.T.S.



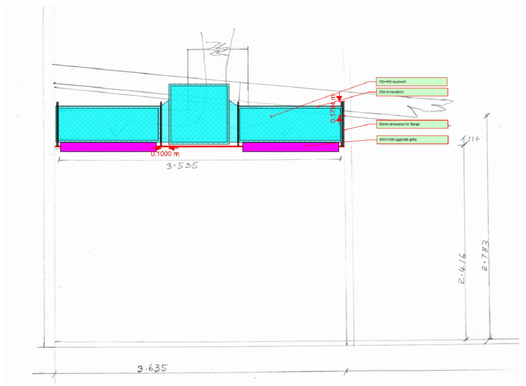
TYPICAL ROOFTOP DUCT PENETRATION &
SUPPORT DETAIL
N.T.S.



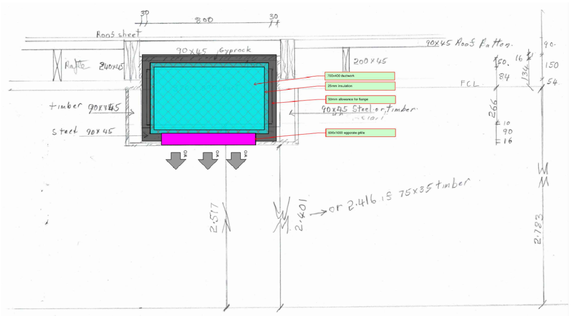
TYPICAL WALL
DUCT PENETRATION
N.T.S.



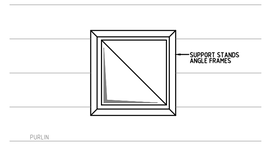
REFRIGERANT PIPE PENETRATION THROUGH WALL



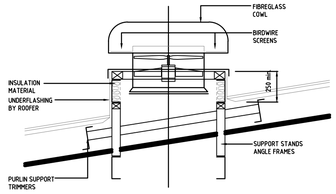
SUPPLY AIR SECTION 1



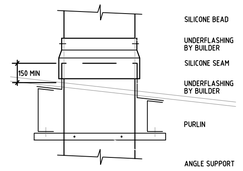
SUPPLY AIR SECTION DETAIL 2



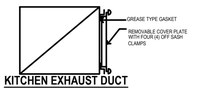
EXHAUST FAN SUPPORT
PLAN
N.T.S.



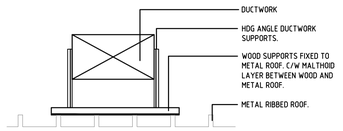
EXHAUST FAN SUPPORT DETAIL
CSRMDF
N.T.S.



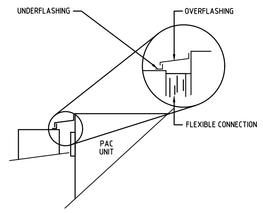
TYPICAL DUCT THROUGH
METAL ROOF DETAIL
N.T.S.



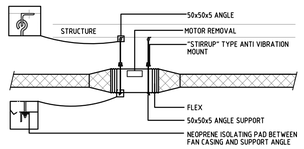
KITCHEN EXHAUST DUCT
ACCESS PANEL DETAIL



ROOFTOP DUCT MOUNTING
DETAIL
N.T.S.



WEATHERPROOF BROW DETAIL
N.T.S.



TYPICAL FAN MOUNTING DETAIL
N.T.S.

Rev	Date	Dman	Eng	Description
D	31/07/23	JN	JN	ISSUE FOR CC
C	24/04/23	JN	JN	ISSUE FOR CC
B	24/02/23	JN	JN	ISSUE FOR CONSTRUCTION CERTIFICATE
A	06/12/21	JN	JN	ISSUE FOR CONSTRUCTION CERTIFICATE
P2	02/12/21	JN	JN	PRELIMINARY ISSUE
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CLIENT
Blue Pacific Constructions

BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
DETAIL SHEET

Mechanical services
Scale NTS (A1) Checked:
Drawn: JN Engineer: JN
File:
Project No. 21039 Drawing No. M08 Revision D

A1

VRV FAN COIL UNITS

Summer				Winter				
OAT	33	DB		OAT	3.5	DB	Summer	38 °C
	23.6	WB			2.0	WB	Winter	1 °C
RAT	22.5	DB		RAT	21	DB		
	16.34066	WB			15.05102	WB		

AREA SERVED	FCU NO.	Total cap. (kW)	Sens.cap. (kW)	Airflow setting	Supply air (l/s)	Return air (l/s)	O/A (l/s)	Cooling			Heating				ext static pa	Refrigerant Type	Condenser	UNIT Type	Note	Base selection Daikin	Weight kg	PHASES	kW	FLA	MCA	Sound data (dB) (Hz)							
								Ent db oC	Ent wb oC	Lvg db oC	kW	Ent db oC	Ent wb oC	Lvg db oC												63	125	250	500	1k	2k	4k	8k
GF																																
Kitchen	FCU-G.1	6.30	4.00	H	316	316	0	22.5	16.3	12.0	2.00	21.0	15.1	26.2	180	R410a	VRV-01	Wall mounted unit		FXAQ63PVE	14	1	0.043	0.5	0.6	43	39	43	43	42	41	35	24
Kitchen	FCU-G.2	6.30	4.00	H	316	316	0	22.5	16.3	12.0	2.00	21.0	15.1	26.2	180	R410a	VRV-01	Wall mounted unit		FXAQ63PVE	14	1	0.043	0.5	0.6	43	39	43	43	42	41	35	24

Sensible and latent capacity are to be meet in the coil selection.
All motors shall be selected so as not to overload when the external static is 15% greater than specified.
All external statics are estimated only
All capacities are to be met at refrigerant length and connection ratio

OUTDOOR VRV UNITS

OAT	33	DB °C	Summer	38	DB °C
RAT	22.5	DB °C	Winter	0.5	DB °C

AREA SERVED	CU NO.	Total cooling cap. (kW)	Cond Air	Cond Static Pa	Heating Type	Heating capacity (kW)	No. of Stages	Refrigerant Type	UNIT Type	Base selection	Note	Sound data (dB) (Hz)								Weight KG	PHASES	FLA	MCA
												63	125	250	500	1k	2k	4k	8k				
gf																							
Ground Floor	CU-02	0.00	as required	78	R/C	0	Variable	R410a	Heat Pump	RXYMQ5AV4A		59	56	55	50	49	46	41	39	82	1	18.8	27

Condensers are to be selected for duty at 38°C capable of operating up to 43°C and -15°C in winter
Coils to be corrosion passivated.
Connection ration to be 100%

FAN SELECTION

AREA SERVED	Number	Fan Type	Mounting Orientation	Mode of Operation	System Total (l/s)	External Static (Pa)	Minimum Diameter	Maximum fan speed RPM	Discharge velocity m/s	Minimum Motor kW	FLA A	Efficiency %	BCA W/L	Motor Type	No. Phases	Speed control	Smoke Fan	Soud level @ 3m dBA	Weight	Filter Type	Remark	Base Selection Fantech
GF																						
kitchen exhaust	KEX-01	Vertical exhaust	-	Operated by on/off switch	3424	400	630	1455	10.98	5.09	11	47%	1.49	415	3	FIXED	N	66	140		VSD for comissioning	HUD634
1F																						
Toilet exhaust	TEF-01	Vertical exhaust	-	timeclocked to business hours	25	50	250	924	0.51	0.01	1.26	23%	0.40	240	1	FIXED	N	48	5			CEEC25V
Toilet exhaust	TEF-02	in-line mixed flow	Horizontal	timeclocked to business hours	125	150	200	2139	3.98	0.11	0.75	40%	0.88	240	1	FIXED	N	46	4.9			TD-800/200ECO
Roof cowls																						
TEF-02	RC-01	Roof cowl	-	-	125	20	350x350 Duct size														410x410 Roof opening size	MRV2
Wind driven ventilator																						
Fuel Store	VENT-01	Wind driven ventilator			112																	Hurricane H300

The plate axial fans are to be inclusive of wall tube and external louvre.
with infinately variable speed controls from 55 to 100%
2 speed motors shall operate at 50%/100%
Inlcude additional 10% duty in selection

OAT	33	DB	OAT	3.5	DB	Summer	38 °C
	23.6	WB		2.0	WB	Winter	1 °C
RAT	22.5	DB	RAT	21	DB		
	16.34066	WB		15.051	WB		

SPLIT SYSTEMS

AREA SERVED	AC NO.	Total cap. (kW)	Sens. cap. (kW)	Supply air (l/s)	Return air (l/s)	O/A (l/s)	Ent db oC	Ent wb oC	Lvg db oC	Heating Type	Heating				Static Pa	No. of Stages	Cond Num	UNIT Type	Voltage	No. Phases	FLA (Total)	MCA (System)	Remark 1	Remark 2	Base selection Daikin
											kW	Ent db oC	Ent wb oC	Lvg db oC										
Kitchen																									
Kitchen	FCU-03	8.8	6.0	379	379	0	22.5	16.3	9.3	R/C	3.00	21.0	15.1	27.5	-	1	CU-01	Wall mounted	240	1	13.84	19.5			FTXS95LVMA / RXS95LVMA

Condensers are to be selected for duty at 38°C capable of operating up to 43°C and -15°C in winter

DIRECT EVAPORATIVE COOLER

Summer design conditions
OAT 40.2 DB
24.02 WB

AREA SERVED	IDC NO.	No. Off	Supply air (l/s)	Inlet conditions			Water Consumption (L / hr)	Supply Fan AQ (L / s)	Fan Ext static Pa	Voltage	Power Input (kW)	RLA amps	Water Supply Connection	Water Supply Rate	Remark 1	Remark 2	Remark 3	Base selection Seeley
				DB oC	RH %	Equivalent wb oC												
KITCHEN	DC-1	1	3080	40	23%	24.1	1080	3080	150	240-1-50	2.2	4.37236	15mm	100 - 800 kPa @ 20 L/Min		Interlocked to operation of KEF-01	Side discharge	RPA400

Kitchen hood

Hood Number	Cooking Line	Type	Model	Hood Size (mm)			Sections	Installation height	Exhaust airflow (l/s)	Static Pressure (Pa)	No. of Exhaust Damper	Exhaust Damper size mm	MUA (l/s)
				L	W	D							
Hood-01	Main Kitchen equipment	Wall mount	AOS ENVIROHOOD WM	7900	1400	650	2	Between 2000mm to 2100mm	3424	220	6	450x300x150	0

Notes to be considered for installation of above kitchen hoods:
1. MUA to be provided from the space itself.
2. Kitchen exhaust hood will be partially installed to protrude into the ceiling void.
3. Additional filtration equipment may be required depends on the sensitivity of the discharge point
6. Kitchen hood LED lights to be interlocked to the kitchen light switch.

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BEACON HILL NSW 2100

CLIENT
Blue Pacific Constructions

BUILDING SERVICES ENGINEERS
JCOS BUILDING ENGINEERING

Project:
THE BOATHOUSE
PALM BEACH

Title:
EQUIPMENT SCHEDULES

Mechanical services
Scale (A1) Checked:
Drawn: Engineer:
File:
Project No. 21039 Drawing No. M09 Revision C

A1