

**DEVELOPMENT CONSENT AUTHORITY
DARWIN DIVISION**

NORTHERN TERRITORY PLANNING SCHEME

ADDENDUM

AGENDA ITEM: **3** **MEETING DATE:** 07/08/2026 **FILE:** PA2026/0196

APPLICATION PURPOSE: Hotel/motel (108 suites) in a 6 storey building

SUBJECT SITE: Lot 7495 (39) Stokes Hill Road, Darwin City,
Town of Darwin

ZONE: CB (Central Business)

SITE AREA: 4080 m²

APPLICANT Sheridan Consulting
Director – Joseph Sheridan

**PERSONS ON WHOSE
BEHALF THE
APPLICATION IS MADE** Ashford Architects
Randal Ashford

LANDOWNER The Pumphouse Gang Pty Ltd
Owner/CEO – Amanda Challen

**ANY PERSON WITH AN
AGREEMENT TO ACQUIRE
AN INTEREST IN THE
LAND** None

1. ISSUE

On 31 July 2026, supplementary submissions were received from Helen Garnett of the Larrakia Cultural Centre Limited, Mark Motlop of the Larrakia Development Corporation and Olivia Freeman of the Northern Land Council on behalf of Helen Secretary and Bill Risk. Each submission has been summarised below.

Helen Garnett of the Larrakia Cultural Centre Limited (**Bookmark A1**) maintains their opposition to the proposed six-storey hotel at 39 Stokes Hill Road and advises that, apart from the addition of an extra pedestrian connection from the waterside walkway to Stokes Hill, its previously raised concerns remain unresolved. A key issue raised is the accuracy of the applicant's viewshed assessment. Ms Garnett argues that the amended material distributed by Development Assessment Services (DAS) incorrectly states that the proposed hotel is the same height as, and will not exceed, the Larrakia Cultural Centre. Ms Garnett contends that architectural drawings demonstrate the hotel is higher than the Larrakia Cultural Centre and that the circulated viewshed information is therefore misleading. Ms Garnett considers this issue particularly serious because of the potential impact on views associated with a significant Larrakia sacred site and the cultural importance of the recently approved Larrakia Cultural Centre. Ms Garnett also expresses concern

that the proponents have shown insufficient regard for Larrakia people as traditional owners and neighbouring stakeholders and states that no consultation occurred

Mark Motlop of the Larrakia Development Corporation (**Bookmark A2**) reiterates their opposition to the application, and emphasises that the viewshed response is factually incorrect, and is misleading to the public. Mr Motlop reiterates concerns relating to the maximum height of the development, and the subsequent disregard the application has for Larrakia traditional owners.

Olivia Freeman of the Northern Land Council on behalf of Helen Secretary and Bill Risk (**Bookmark A3**) reiterates and expands upon earlier objections to the proposed hotel development. The submission argues that the amended plans fail to adequately address the project's impact on natural, social, cultural and heritage values as required under section 51(1)(r) of the *Planning Act 1999*. In particular, the submission contends that the assessment has focused too narrowly on views from Stokes Hill and has failed to recognise broader culturally significant sightlines and views across Darwin Harbour, including those intentionally incorporated into the design of the Larrakia Cultural Centre. The submission stresses that the Larrakia Cultural Centre was specifically designed to maintain visual and spiritual connections to the sea, harbour, sacred sites and associated Larrakia dreamings, and as such, constructing a six-storey hotel immediately adjacent to the Larrakia Cultural Centre would obstruct those sightlines, undermine the Centre's purpose and diminish important cultural values.

The submission also argues that the comparison between the Larrakia Cultural Centre and the proposed hotel is inappropriate because the Cultural Centre was deliberately designed with separated wings and open bridge links that preserve views and cultural connections, whereas the hotel would create a substantial built form or visual wall. The submission therefore maintains that approval of the proposal would be inconsistent with the Development Consent Authority's obligations to consider and protect cultural and heritage values.

In addition, the submissions reiterates its position that the developer should obtain a current Aboriginal Areas Protection Authority (AAPA) Authority Certificate before assessment is finalised. The submission further criticises what it describes as a longstanding lack of meaningful consultation with Larrakia people, arguing that traditional owners have largely been restricted to commenting on already-developed proposals rather than being involved in project conception and design. The submission suggests that alternative nearby locations and reduced building heights may have avoided interference with culturally significant sites and dreamings if consultation had occurred earlier. As a result, the NLC requests that the application either be refused or deferred until an Authority Certificate is obtained and meaningful engagement with the Larrakia people has been undertaken.

The primary themes raised in these supplementary submissions is considered to have been addressed in the DAS report to the DCA.

2. RECOMMENDATION

That the Authority notes the additional submissions.

No changes are proposed to the recommendation in the original report to the Authority.

AUTHORISED:



**A/MANAGER – URBAN PLANNING
DEVELOPMENT ASSESSMENT SERVICES**



Larrakia
Cultural
Centre

All Of Us. Together.

Friday 31 July 2026

Development Assessment Services
Department of Lands, Planning and Environment
Northern Territory Government
Floor 1, Energy House, 18-20 Cavenagh Street,
Darwin City, 0800.

By Email: Das.NTG@nt.gov.au; Kaleb.Thomas@nt.gov.au

Dear Kaleb,

RE: DEVELOPMENT APPLICATION – PROPOSED 6 STOREY HOTEL LOT 7495 TOWN OF DARWIN 39 STOKES HILL ROAD, DARWIN WATERFRONT – AMENDED PLANS AND VIEWSHED REPORT

Thank you for providing the additional information regarding application PA2026/0196, which is for a hotel/motel (108 suites) in a 6 storey building at Lot 7495 (39) Stokes Hill Road, Darwin City, Town of Darwin.

While we note an extra connection from the waterside walkway back to Stokes Hill has been added, in the amended plan, which in part addresses one of our earlier concerns, all other concerns listed in our first response remain as the minimum list. We will be represented at the hearing on Friday August 7 by June D’Rozario.

We are extremely surprised and disappointed that, notwithstanding clear and accurate Viewshed reports being provided to DAS by respondents before the slightly amended plans for application PA2026/0196 were distributed on July 17, that erroneous information appears to have been distributed to all respondents to the application. The proposed building exceeds the height of the Larrakia Cultural Centre as clearly shown in the respective architect drawings, the revised Application PA2026/0196, claiming otherwise. We can only ask why DAS issued this information knowing that the content was false and consider it very manipulative of the proponent to insist that you issue this document even with the inaccuracies being brought to their attention. We are attaching the accurate plans, previously provided to DAS as well as the proponents claim.

As a significant matter of concern relates to the height of the proposed hotel and hence its impact on a very significant Larrakia sacred site, the cultural significance of which is represented in the new Larrakia Cultural Centre, the insistence of issuing this false report demonstrates disregard by the proponents for Larrakia both as proposed



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neighbours and the traditional owners of the land where the development is proposed. There was no consultation.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Helen M Garnett', with a long, sweeping horizontal line extending to the right.

Helen M Garnett PSM CM FAICD FTSE
Chair,
Larrakia Cultural Centre Limited

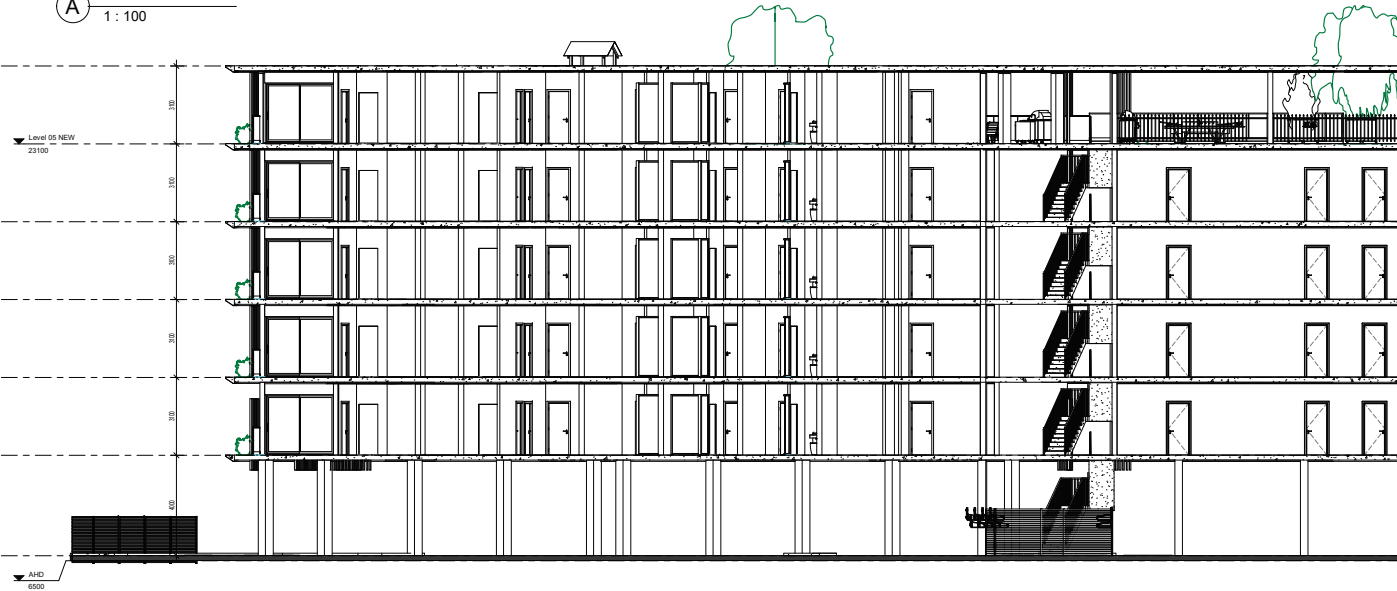
VIEW SHED DIAGRAMS RESPONSE

The design team has prepared this document in response to the submissions received on Cultural or heritage values: s 51(1)(r) of the Planning Act. Specifically the impact to the current view shed from the sacred site towards the Darwin Harbour. As the the proposed motel is exactly the same height as the Larrakia Cultural Centre, the building will actually be behind the Western 'Wing' of the bird shaped building. We have overlayed the outline of the new Larrakia Cultural centre building to the diagrams to show the building extends beyond the view cone from the sacred site. These diagrams show that the proposed building will have no impact, or create any further obstructions and impedements to the current viewsheds.





A SECTION A
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B SECTION B
1 : 100

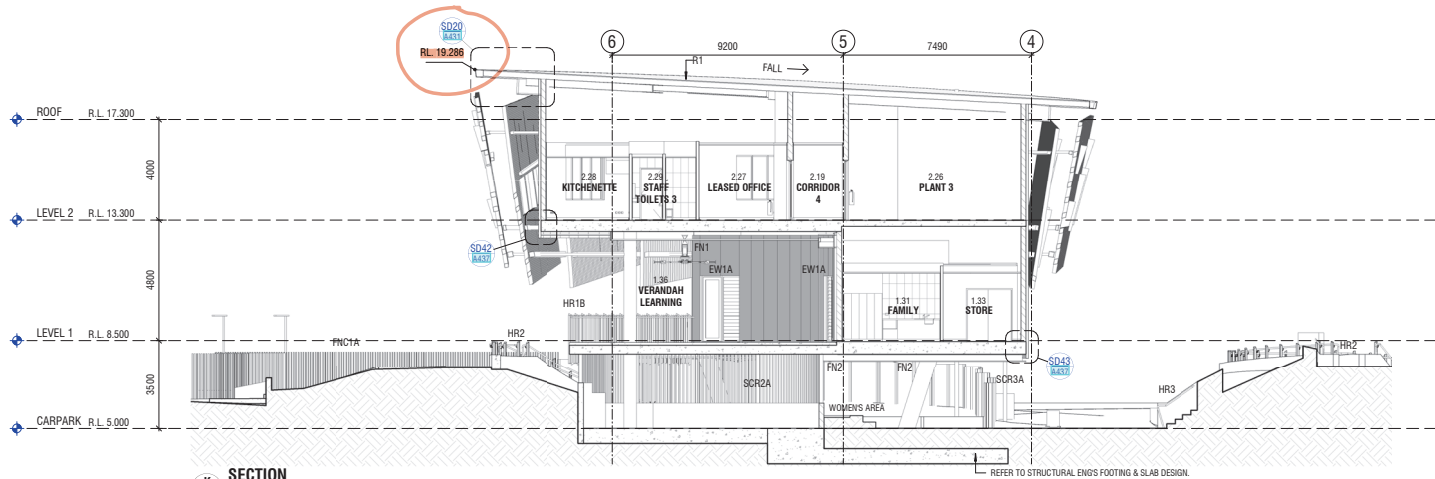
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AMENDMENTS					

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ARCHITECTS**

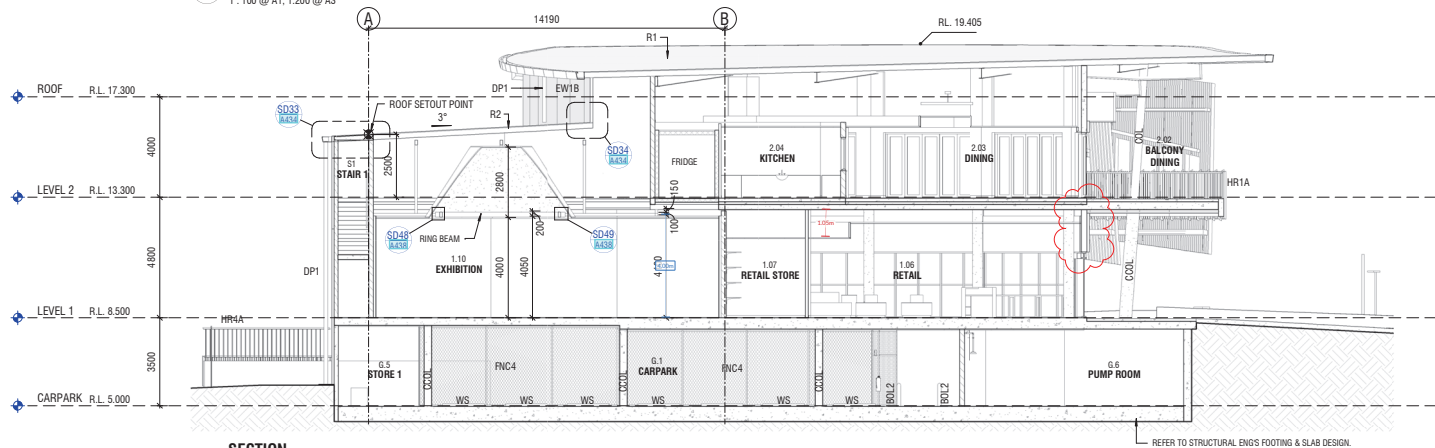
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STRUCTURAL: NAME	BUILDING CERTIFICATION: NAME
CIVIL: NAME	SUPERVISOR: NAME
MECHANICAL: NAME	GEOTECHNICAL: NAME
ELECTRICAL: NAME	ACOUSTICS: NAME
HYDRAULIC: NAME	

PROPOS
LOT 749
PROJ

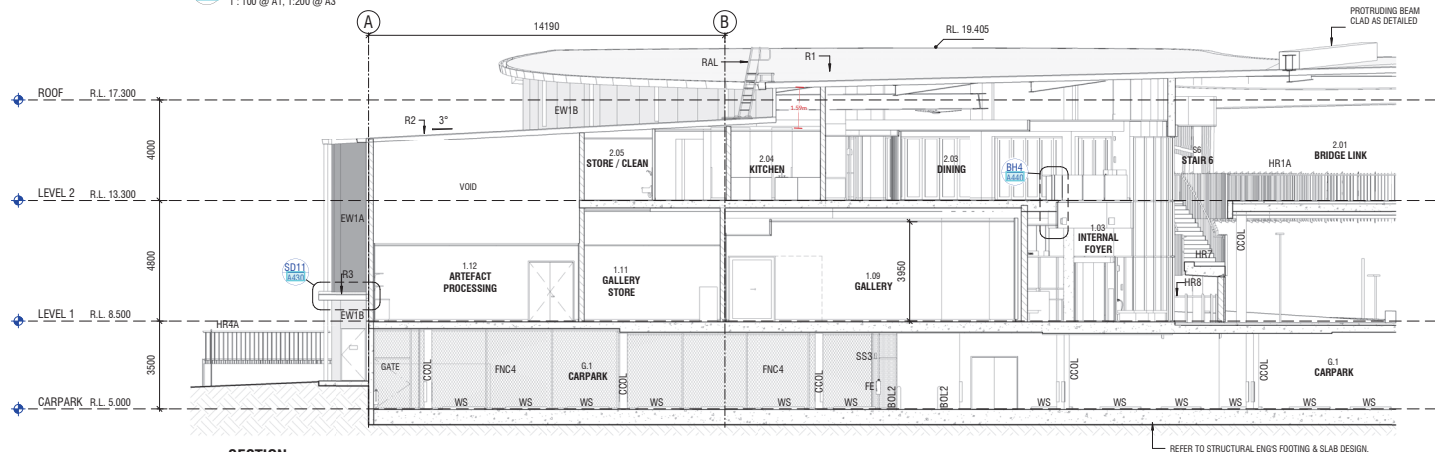
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SECTION K
1:100 @ A1, 1:200 @ A3



SECTION L
1:100 @ A1, 1:200 @ A3



SECTION M
1:100 @ A1, 1:200 @ A3

NOTES:
SCREENS HAVE BEEN HIDDEN TO SHOW ELEVATION BEHIND.
HEIGHT OF STRUCTURES MUST NOT EXCEED 20m AHD

KEYNOTE LEGEND	
Key Value	Keynote Text
BOL2	BOLLARD TYPE 2 - REMOVEABLE
COL	CONCRETE COLUMN
COL	STEEL COLUMN
DP1	150mm Ø DOWNPIPE
EW1A	FIBREGLAD CEMENT CLADDING COLOUR A
EW1B	FIBREGLAD CEMENT CLADDING COLOUR B
FE	FIRE EXTINGUISHER
FN1	FAN TYPE 1
FN2	FAN TYPE 2
FNC1A	FENCE TYPE 1 - 1.8m HIGH FLAT PLATE, PAINT FINISH
FNC2	FAN TYPE 2
FNC4	CHAINMESH FENCE - BLK PVC
HR1A	HANDRAIL TYPE 1A
HR1B	HANDRAIL TYPE 1B
HR2	HANDRAIL TYPE 2
HR3	HANDRAIL TYPE 3
HR4A	HANDRAIL TYPE 4A
HR7	HANDRAIL TYPE 7
HR8	HANDRAIL TYPE 8
R1	ROOF TYPE 1 - COLORBOND ULTRA ALP-LUCK
R2	ROOF TYPE 2 - COLORBOND ULTRA KINGSLIP
R3	ROOF TYPE 3 - COLORBOND ULTRA SPANDOCK
RAL	ROOF ACCESS LADDER
SCR2A	SCREEN TYPE 2A - ALUMINIUM BATTEN SCREEN
SCR3A	SCREEN TYPE 3A - PERFMESH ART SCREEN
SS3	SIGNAGE TYPE 3 - FIRE EXTINGUISHER
WS	WHEEL STOP VEHICLE

17	VARIOUS COORDINATION UPDATES 01	22.07.2025
16	VARIOUS COORDINATION UPDATES 04	16.04.2025
15	VARIOUS COORDINATION UPDATES 03	26.07.2025
14	VARIOUS COORDINATION UPDATES 02	07.11.2024
13	VARIOUS COORDINATION UPDATES 00	03.08.2024
12	CONTRACTOR CHANGES 02	13.08.2024
11	CONTRACTOR CHANGES 01	31.05.2024
10	ISSUED FOR CONSTRUCTION	03.05.2024
ISSUE	REVISION	DATE

ARCHITECTS:
ROSSI ARCHITECTS IN COLLABORATION WITH
SUSAN DUGDALE & ASSOCIATES

LANDSCAPE ARCHITECT:
URBAN PLACE DESIGN

EXHIBITION / WAYFINDING:
FREEMAN RYAN DESIGN

CIVIL / MECHANICAL / STRUCTURAL:
WALLBRIDGE GILBERT AZTEC

ELECTRICAL / MECHANICAL:
NTBS CONSULTING ENGINEERS

BUILDING CERTIFICATION / ESD / HYDRAULIC / WEI FIRE:
WSP

RA+SDA

ROSSI ARCHITECTS
IN COLLABORATION WITH
SUSAN DUGDALE & ASSOCIATES

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Project
LARRAKIA
CULTURAL CENTRE

29 STOKES HILL ROAD, DARWIN WATERFRONT
PRECINCT, NORTHERN TERRITORY

CLIENT
LARRAKIA DEVELOPMENT CORPORATION

SHEET TITLE
SECTIONS K - M

DRAWN	RA/SDA	CHECKED	MM/RK	DATE	22.07.2025
PROJECT No.	RA-21-101	SHEET SIZE	A1		
SHEET No.	A213	AMEND	17		

ISSUED FOR CONSTRUCTION

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Friday 31 July 2026

Development Assessment Services
Department of Lands, Planning and Environment
Northern Territory Government
Floor 1, Energy House, 18-20 Cavenagh Street,
Darwin City

**RE: DEVELOPMENT APPLICATION – PROPOSED 6 STOREY HOTEL LOT 7495 TOWN OF DARWIN 39
STOKES HILL ROAD, DARWIN WATERFRONT – AMENDED PLANS AND VIEWSHED REPORT**

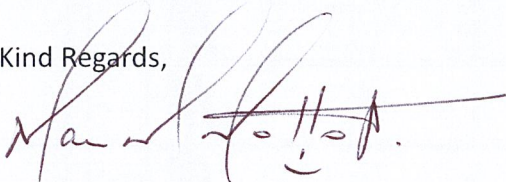
Larrakia Development Corporation acknowledges additional information provided in relation to the application PA2026/0196, which is for a hotel/motel (108 suites) in a 6 storey building at Lot 7495 (39) Stokes Hill Road, Darwin City, Town of Darwin.

As already raised directly with the department and acknowledged, we are very concerned that despite our attempts to work with the Department to ensure correct documentation is available to responders, the Viewshed report which has gone out to all respondents to the application, still contains the original factually incorrect information. This is concerning to us, misleading to the public at large and extremely manipulative of the proponent to insist on still issuing this document even with the inaccuracies being brought to their attention. I attach the Viewshed Report clearly showing the inaccuracies.

As the matter of concern relates to the building height and impact on a Larrakia sacred site the insistence of issuing this false report demonstrates a staggering level of disregard for Larrakia as the traditional owners where the development is taking place and one of their key immediate neighbours.

The addition of an extra connection from the waterside walkway back to Stokes Hill Road addresses simplistically one concern previously raised. All other elements of our earlier response remain unchanged for consideration of Development Assessment Services.

Kind Regards,



Mark Motlop
Chairperson
Larrakia Development Corporation



A SECTION A
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B SECTION B
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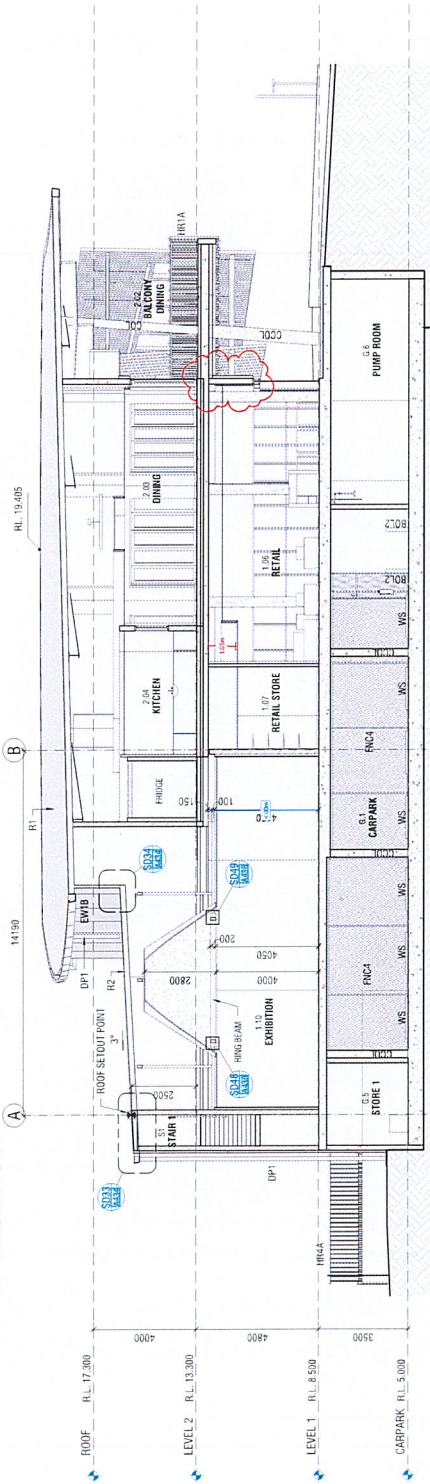
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LANDSCAPE NAME	INTERIORS NAME	PROPOS LOT 749
STRUCTURAL NAME	BUILDING CERTIFICATION NAME	PROJ
CIVIL NAME	SURVEYOR NAME	
MECHANICAL NAME	GEOTECHNICAL NAME	
ELECTRICAL NAME	ACOUSTICS NAME	
HYDRAULIC NAME		

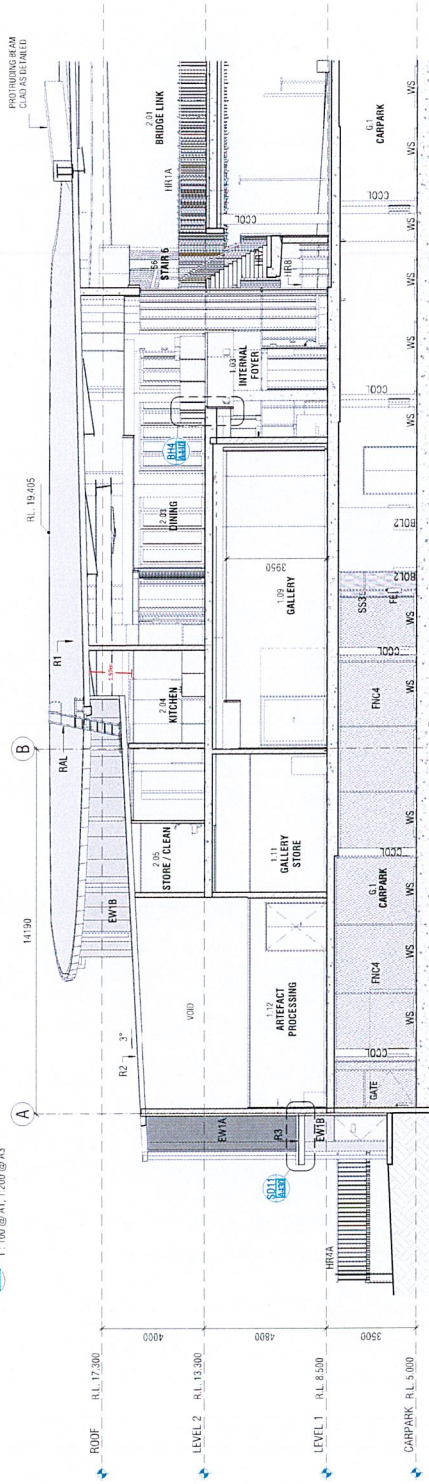
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No.	DESCRIPTION	DATE	DRAWN	CHECKED
	AMENDMENTS			

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ARCHITECTS
20 NOT SCALE
PROJECT MANAGER

SECTION
K
A050
1:100 @ A1, 1:200 @ A3



SECTION
L
1050



SECTION M

**ROSSI ARCHITECTS IN COLLABORATION WITH
USAN DUGDALE & ASSOCIATES**

RA+
SDA

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9 STOKES HILL ROAD, DARWIN WATERFRONT
PRECINCT, NORTHERN TERRITORY

CLIENT
ARRAKIA DEVELOPMENT CORPORATION

SECTION K - M

DRAWN	CHECKED	DATE
RA/SDA	MM/RRK	22.07.2025
PROJECT No.		SHEET SIZE
		A1

HEET NO.	A213	AME NO.	17
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**NORTHERN
LAND COUNCIL**

Our Land, Our Sea, Our Life

31 July 2026

Our ref: NLC - 592353385

Development Consent Authority (Darwin division)

By email: das.ntg@nt.gov.au

Dear Members of the Development Consent Authority,

PA2026/0196 - Development Application - Proposed Hotel Development, Stokes Hill Road, Darwin

1. Introduction

- 1.1. We refer to the email from the Development Consent Authority (**DCA**) on 17 July 2026 enclosing **amended plans** and the further email of the same date attaching the **viewshed response** which appears to be prepared by the **applicant** of the proposed development on Stokes Hill Road (the **Proposed Development**).
- 1.2. This letter provides further submissions in response to the amended plans and the viewshed response made by Senior Larrakia Traditional Owners, Ms Helen Secretary and Mr Bill Risk OAM, who in turn act on behalf of the Larrakia people. We request that these submissions be read together with the submissions provided by the NLC on 26 June 2026 (**June submissions**).¹
- 1.3. Defined terms in the June submissions have the same meaning as these further submissions.
- 1.4. The June submissions identified the following issues which remain unresolved despite the amended plans:
 - (a) Impact on natural, social, cultural or heritage values in accordance with s 51(1)(r) of the *Planning Act*; and,
 - (b) Failure to obtain an Authority Certificate from AAPA.
- 1.5. In the absence of the above matters being satisfactorily addressed in the Amended Plans or the viewshed response, Ms Secretary and Mr Risk maintain their opposition to the Proposed Development on behalf of the Larrakia people.

2. Impact on natural, social, cultural or heritage values: s 51(1)(r) of the *Planning Act*

- 2.1. The amended plans fail to address the Proposed Development's impact on natural, social, cultural or heritage values in accordance with s 51(1)(r) of the *Planning Act*.

¹ On 3 July 2026, the NLC sent an email to Development Assessment Services confirming that the June submissions were also on behalf of Bill Risk.

Darwin

Head Office:

29 Julius St, Berrimah, NT, 0828

Tel:

(08) 8920 5100

Email:

reception@nlc.org.au

Website:

www.nlc.org.au



- 2.2. It is important to make clear that, while the June submissions make particular reference to Stokes Hill, the concerns raised by the Larrakia have never been confined to a particular vantage point.
- 2.3. For the DCA and developers to properly address s 51(1)(r) of the *Planning Act*, it must understand that the Larrakia people's concerns have consistently extended to the obstruction of culturally significant views and sightlines, including those experienced from the Larrakia Cultural Centre. I am instructed that the Larrakia Cultural Centre is intended to be able to look out at the Tawny Frogmouth Dreaming. For further context about this dreaming, please see paragraphs 4.7 - 4.10 of the June Submissions. I am also instructed that the Larrakia Cultural Centre will have statues of frogs that will look out at the harbour so that they can protect the area. I am also instructed that this is one of the primary reasons that the Larrakia Cultural Centre was placed in this area.
- 2.4. It appears that the viewshed response intends to mitigate the visual obstruction of the Proposed Development upon Larrakia sites and dreamings when viewed from Stokes Hill. The justification advanced for the amendment is that the height of the Proposed Development is consistent with that of the Larrakia Cultural Centre and is therefore to be capable of addressing the impacts on natural, social, cultural or heritage values.
- 2.5. Such justification fails to adequately consider the distinct purpose, functions and contextual significance between the two structures, particularly the unique the cultural significance and heritage values associated with the Larrakia Cultural Centre.
- 2.6. As raised in June Submissions, the Larrakia Cultural Centre is a purpose-built facility designed to celebrate Larrakia history and living culture.
- 2.7. We refer to the **enclosed** Section 46 **Planning Act Report** for Lots 5251, 7493, 7558, 10882 Town of Darwin - 29-33 Stokes Hill Road, Darwin City dated May 2021, being the application for development consent for the Larrakia Cultural Centre.
- 2.8. As can be seen in the Planning Act Report, a fundamental pillar of the Larrakia Cultural Centre's architectural and landscape design is its "connection to the sea".² In particular, the Larrakia Cultural Centre was specifically engineered to provide "framed views of the surrounding landscape" and features "generous balcony spaces facing the sea view" to serve as viewing platforms for activities in the ceremonial performance space.³
- 2.9. Importantly, the Planning Act Report explicitly recognises and reinforces that it is "culturally very important that [the Larrakia Cultural Centre] [has] a connection to the sea".⁴
- 2.10. The amended plans reveal that the proposed hotel's total height has been increased by 0.6m, reaching a roofline of 26.2m AHD (RL), with total vertical massing extending even higher when including rooftop plant enclosures. Unlike a solid commercial hotel, the Larrakia Cultural Centre was designed with two separate wings and open bridges to ensure that visual sightlines to the harbour and sacred sites remain unblocked.

² Planning Act Report, page 1.

³ Planning Act Report, page 9.

⁴ Planning Act Report, page 11.



- 2.11. As Lot 7495 sits immediately adjacent to the Larrakia Cultural Centre, a 6-storey hotel will create a substantial visual "wall" that directly obstructs the framed views to the water that were integrated into the Larrakia Cultural Centre's design. By blocking these primary sightlines, the hotel severs the spiritual and physical connection to the saltwater that is central to the purpose of the Larrakia Cultural Centre.
- 2.12. Therefore, the applicant's assertion in the viewshed response that the hotel's height is consistent with the Larrakia Cultural Centre disregards the Larrakia Cultural Centre's role as a community landmark intended to enhance cultural connectivity.⁵ We refer to and repeat paragraphs 5.8 – 5.13 of the June submissions in this regard.
- 2.13. Pursuant to s 51(1)(r) of the *Planning Act*, the DCA must consider the potential impact on cultural and heritage values. Granting approval for a development that crowds out and obscures a purpose-built Indigenous cultural centre would be a direct breach of the DCA's duty to protect these values.

3. Failure to obtain an Authority Certificate from AAPA

- 3.1. The NLC maintains, as it has consistently submitted, that obtaining an Authority Certificate from AAPA remains an essential and necessary step for any developer. Please see paragraphs 7.1 to 7.7 of the June submissions for further details.
- 3.2. Accordingly, the DCA must not finalise assessment of the application until it has confirmed whether the applicant has obtained an Authority Certificate. This is particularly the case given the cultural sensitivity of the broader Darwin Harbour and Stokes Hill Wharf precinct as detailed in section 4 of the June submissions.

4. Lack of consultation with the Larrakia people

- 4.1. The concerns consistently raised by the Larrakia people and reflected in application under the ATSIHP Act filed on 20 November 2025, the June submissions and these further submissions, arise as a product of the longstanding failure of developers and the DCA to engage in meaningful consultation with the Larrakia people.
- 4.2. The Larrakia people are afforded little opportunity to influence the conception of the proposals and are instead confined to responding to predetermined plans within the constraints of statutory notification periods. The Amended Plans and viewshed response fail to remedy the issues raised in the June submissions. Unilateral decisions to amend the plans do not address the underlying concerns of the Larrakia people.
- 4.6. As set out at paragraph 5.8 of the June Submissions, Mr Risk has instructed that alternative locations in the vicinity of the Proposed Development would be appropriate for the Proposed Development. Subject to appropriate height restrictions, these locations would avoid interference with Larrakia dreamings and sites. Had the developers and the DCA engaged in

⁵ Page 1 of the viewshed response.



meaningful consultation with the Larrakia people from the inception of the Proposed Development, these alternative areas could have been identified.

- 4.7 For these reasons we request that the DCA engages with the Larrakia people about this proposed development, see paragraph 5.2(b) below.
- 4.8 We also encourage the DCA to engage with the Larrakia people prior to further applications in the area. It is in the best interests of both developers and the DCA to prioritise engagement with the Larrakia people from the outset and throughout the development process, rather than preparing and materially amending development proposals in the absence of such consultation.

5. Requested decision

- 5.1. As stated in section 8 of the June submissions, Mr Risk and Ms Secretary request that the DCA refuse the Proponent's application in relation to the Proposed Development in its current form due to the lack compliance with s 51 of the *Planning Act* and cl 1.10 of the NTPS.
- 5.2. In the alternative, Mr Risk and Ms Secretary requests that the DCA defer any further consideration of the Proposed Development until the Proponent:
- (a) provides evidence of a registered Authority Certificate issued by AAPA (which must be obtained in 2026 and specifically for the Proposed Development); and
 - (b) engages with the Larrakia people about the Proposed Development and implements the outcomes of such consultations into its development plans.

OF

Olivia Freeman

Lawyer, Northern Land Council

Section 46 Planning Act Report

Lots 5251, 7493, 7558, 10882 Town of Darwin - 29-33 Stokes Hill Road, Darwin City

Application for development consent



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1 FORMAL MATTERS

The application is made under section 46(1) of the Planning Act.

For the purpose of s 46(3)(aa), the application is made by June D’Rozario & Associates Pty Ltd on behalf of Larrakia Development Corporation, with the consent of Crown Land Estate, the owner of the land subject to this application.

Larrakia Development Corporation has entered into an agreement to acquire an estate or interest in the application site. There are no other interests prescribed by regulation.

2 BRIEF DESCRIPTION OF THE PROPOSAL

The application is for consent to develop Lots 5251, 7493, 7558 and Part Lot 10882 for the Larrakia Cultural Centre, comprising a gallery and exhibition centre, conference rooms, art studios and learning spaces, offices, and restaurant and bar. A detailed description of the facilities to be included in the building is set out in Tables 1 and 2 in Section 4.1 of this statement.

The proposal will integrate architecture and landscaping, blending unique forms which represent significant cultural motifs, to deliver a memorable experience for visitors and participants. The building will be set in landscaped surrounds, representing the variety of natural landscapes found in Larrakia country, and will include a small amphitheatre and outdoor ceremonial and performance space.

The design of the proposal emphasises connection to the sea, tropical building form and features, cultural symbolism and materials, and energy efficiency.

The proposal will include parking for 40 cars, loading dock, a bus drop-off bay, and end of trip facilities for cyclists.

The proposal is shown in the drawings sets, prepared by Rossi Architects + Susan Dugdale & Associates, and Urban Place Design, Landscape Architects.

3 LAND DESCRIPTION

The application site comprises four contiguous lots, located at 29-33 Stokes Hill Road, as shown in the locality diagram in Figure 1. The location is adjacent to a sacred site, significant to Larrakia people, and is between the sacred site and the sea.

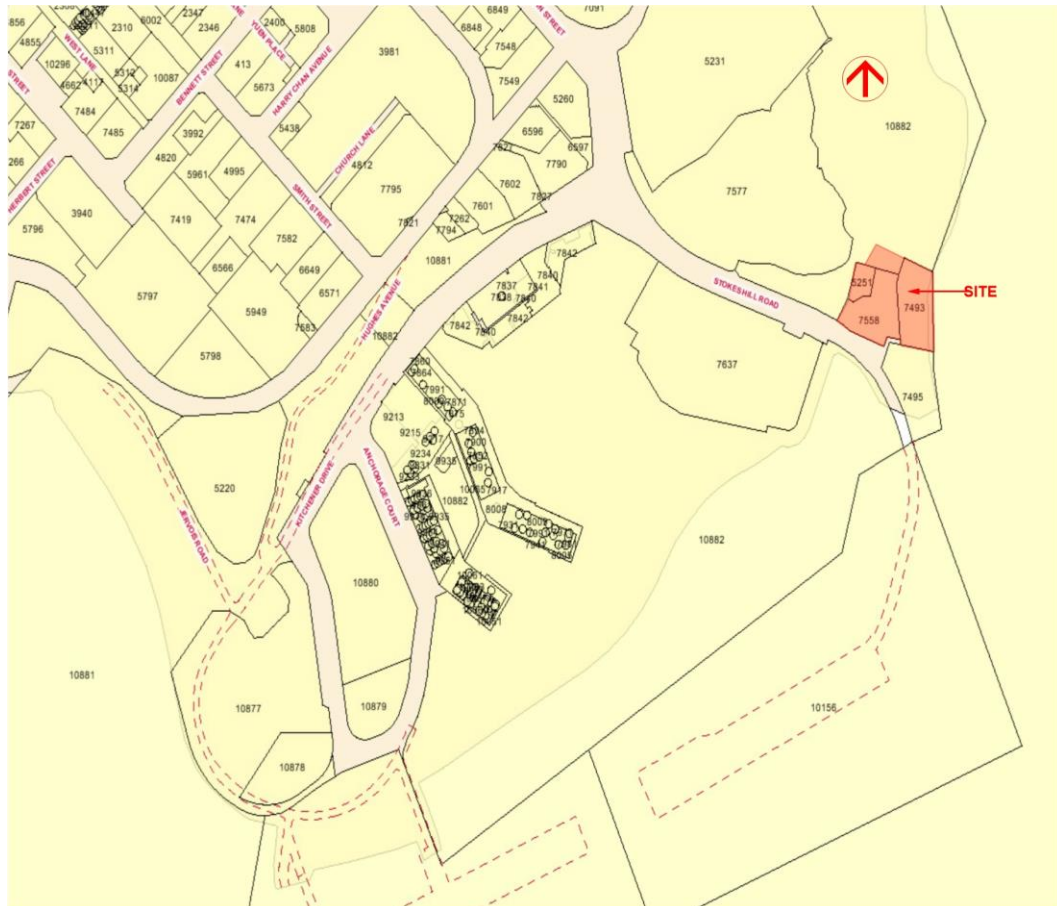


Figure 1: Locality Diagram

The lots comprising the site have a combined area of 7,753 m², made up as follows -

- Lot 5251 723 m²
- Lot 7493 3,190 m²
- Lot 7558 3,070 m²
- Part Lot 10882 770 m²

Minor reconfiguration of Lot 5251 and Part Lot 10882 will result in the application site having an area of 7,696 m². The proposed boundaries of the application site are shown in the Proposed Consolidation Plan at Annexure 1.

The application site has a boundary to Stokes Hill Road of 22.35 m.

Stokes Hill Road has a variable reserve width, but width is approximately 21 m adjoining the site

There are several easements registered on the site, including for energy supply, water, and sewerage, and a right of way.

Most of the site is at an elevation of about 6.0 m AHD. The eastern boundary of Lot 7493 extends past the water line and is edged by a protective rock wall.

Storm surge mapping shows that the eastern edge of Lot 7493 is in the Primary Storm Surge Area (PSSA). This is to be expected, as this part of the lot is below the waterline. Nearly all of Lot 7493 and more than half of the southern section of Lot 7558 is in the Secondary Storm Surge Area (SSSA). The extent of the site in PSSA and SSSA is shown in Figures 2a and 2b.

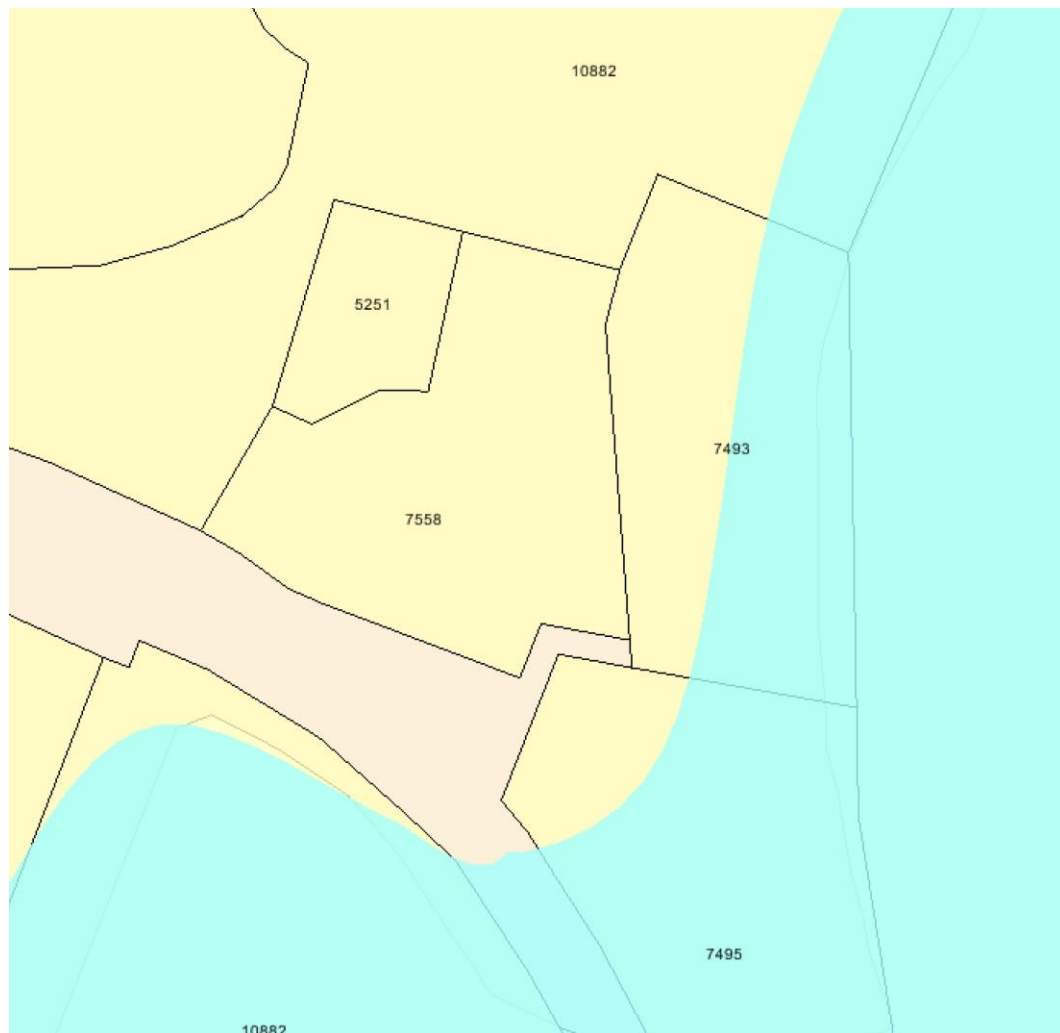


Figure 2a: Extent of primary storm surge

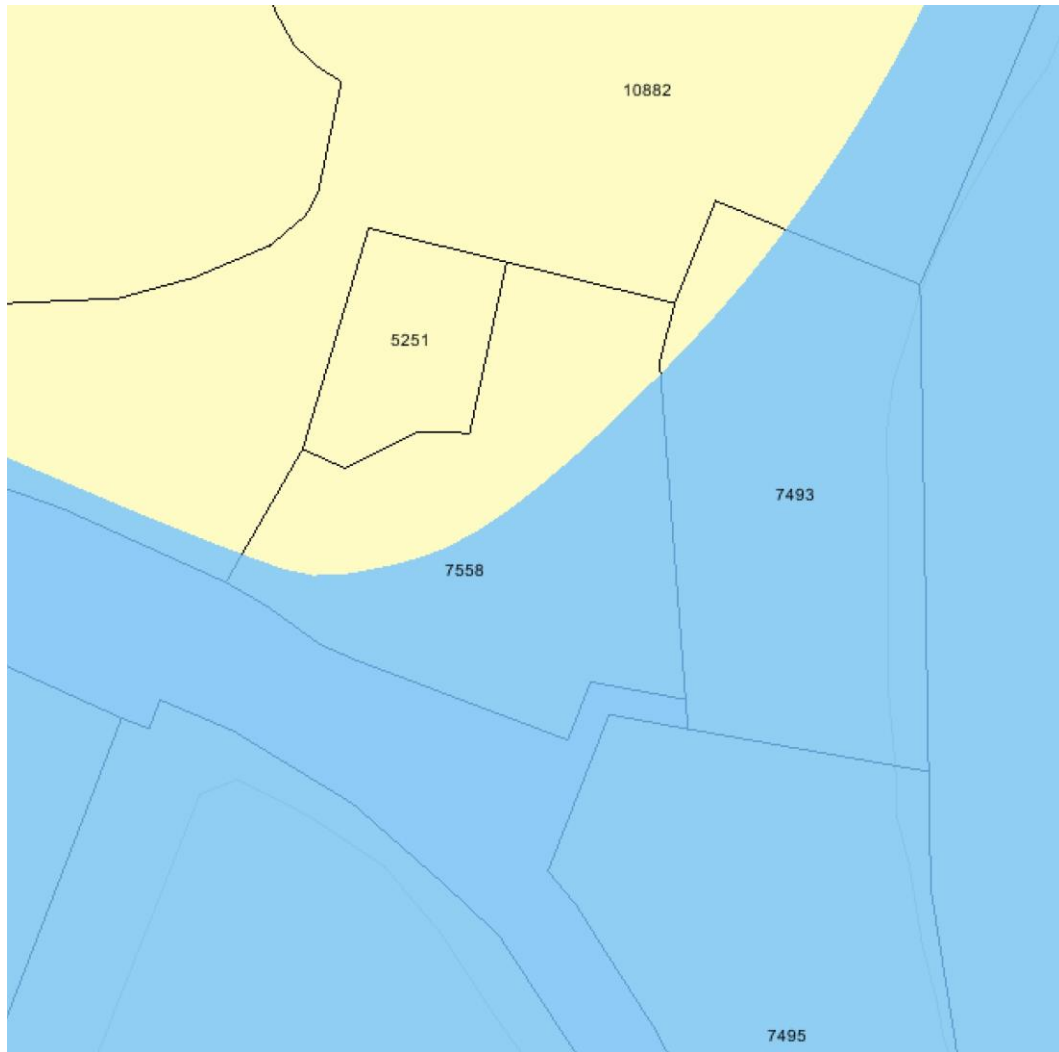


Figure 2b: Extent of secondary storm surge

Improvements on the site include premises occupied by Indo Pacific Marine in a large iron building, a historic pumphouse of stone and iron construction, various outbuildings and service yards, and a sealed parking area. The existing condition of the site is shown in the image in Figure 3.

The Indo Pacific Marine building is to be demolished as part of development works. The historic pumphouse is a listed heritage building, and is to be retained on the site.



Figure 3: Current site condition

The application site adjoins the Darwin Waterfront Precinct, and the site is in near proximity to the Convention Centre and Stokes Hill Wharf.

The site is close to a public transport route, with Route 14 providing an hourly service between Darwin Interchange and the Waterfront Precinct between 8:00 am and 9:00 pm.

Stokes Hill Road is a no-through road, which terminates at Stokes Hill Wharf. Reserve width adjoining the application site varies between approximately 18 m and 30 m, but narrows to approximately 12.5 m south of the site.

The application site is zoned for CB (Central Business), and all the land surrounding the site is zoned similarly.

The land on the northern boundary of the application site is used as an open storage yard. The land to the west of the site is a hill, which is a listed sacred site. At the base of the hill is an open sealed car park, accessed from Stokes Hill Road. Lot 7495, near the south-eastern corner of the site, is also an open sealed car park.

The land opposite the south-western corner of the site is developed as the Convention Centre.

The wider locality is characterised by an assemblage of development associated with the Waterfront Precinct, including retail, restaurants, entertainment, water-based recreation, parks and outdoor performance spaces.

The pattern of development around the site is shown in the aerial image in Figure 4.



Figure 4: Aerial image of the locality

4 DETAILS OF THE PROPOSAL

The proposal represents a long-held ambition by Larrakia people to establish a purpose-built cultural centre to celebrate their history and living culture, maintain their language and cultural traditions for future generations, and maintain and establish strong links with other indigenous people.

As part of the preservation of Larrakia culture, the centre will include creative spaces for artists and craftspeople, and retail space from which their art works can be sold.

4.1 Architecture

The building will be of three levels, and contain two distinct wings joined by bridges at the upper levels.

Key cultural symbols underpinning the design of the proposal include a ceremonial space, incorporation of avian motifs in the building's design, and a welcome to country journey through the site's landscaping, which reflects the diversity of natural vegetation found in Larrakia country.

The avian motifs incorporated in the design of the building include the roof form as an abstract representation of a hovering bird, and the feather representations used in balustrades and screening elements. See Figure 5.



Figure 5: Avian motifs in the design of the building

The building will be recognisable for its design inspired by nature. See the images in Figures 6 and 7.



Figure 6: View from southern pathway



Figure 7: View from sea edge

The building will be oriented to maximise views over the harbour and capture sea breezes. Link bridges at the two upper levels between the separate wings will allow breezes to flow through the building. This floor plan configuration, together with the wide roof overhang and feathered screens are passive design features, that, in addition to presenting a culturally and visually impactful building, will also reduce energy consumption.

The main entry to the building will be at Level 1, and is reached by a bridge and ramp from ground level. The path to the entry will give framed views of the surrounding landscape before presenting the visitor with a dramatic double-height arrival space.

Generous balcony spaces facing the sea view will provide outdoor dining and learning opportunities, as well as viewing platforms for activities in the ceremonial performance space.

The building will contain floor space as detailed in the Tables 1 and 2 below. Table 1 contains descriptions of floor space that is assessable for the purpose of determining the number of car parking spaces to be provided. Table 2 lists non-assessable floor space.

Table 1: Assessable floor space

Room no	Type	Area, sq m
1.03	Ticketing office	17
1.05	Retail	42
1.06	Kiosk	13
1.07	Gallery	88
1.08	Exhibition	202
1.11	Art handling	19
1.14	Family	19
1.19	LCC Office	90
1.20	Security	8
1.21	Art Studio	51
1.22	Art teaching	44
1.23	Verandah learning	82
1.24	Classroom	37
1.25	Classroom	37
1.26	Classroom	35
2.02	Dining	210
2.03	Dining	214
2.04	Kitchen	114
2.06	Restaurant office	7
2.09	Bar	52
2.11	Cocktail lounge	56
2.16	Breakout	33
2.17	Conference	43
2.18	Conference	43
2.19	Conference	43
2.29	Office	94
Total		1693

Table 2: Non-assessable floor space

Room no	Type	Area, sq m
1.01	Breezeway	387
1.02	Foyer	98
1.04	Cloak room	10
1.09	Gallery store	16
1.10	Artefact store	58
1.12	Corridor	43
1.13	Server	15
1.15	Universal access toilet	8
1.16	Staff toilets	14
1.17	Staff room	36
1.18	Store	5
1.27	Female toilets	28
1.28	Male toilets	25
1.29	Universal access toilet	7
1.30	Services/store	11
1.31	Corridor	34
1.32	Cleaner's store	4
1.33	Corridor	34
2.00	Plant room	55
2.01	Bridge link	181
2.05	Kitchen cleaner	4
2.06	Corridor	34
2.08	Staff toilets	11
2.10	Cool room	12
2.12	Universal access toilet	6
2.13	WC/Store	2
2.14	Airlock	3
2.15	Plant room	88
2.20	Kitchenette	6
2.21	Conference store	11
2.22	Conference store	17
2.23	Airlock	10
2.24	Corridor	38
2.25	Universal access toilet	7
2.26	Female toilets	28
2.27	Male toilets	23
2.28	Plant room	98
2.31	Staff toilets	8
2.32	Kitchenette	10
2.33	Corridor	17
Total		1502

4.2 Landscaping

A key feature of the landscaping is the ceremonial space between the building and the water's edge.

It is culturally very important that this space have a connection to the sea.

The ceremonial space will consist of a circular space and an amphitheatre. The circular space adjacent to the amphitheatre will be the venue for important ceremonies to be performed.

The amphitheatre will host major ceremonies, and also cultural performances and concerts.

Site landscaping is designed to represent the natural landscapes of Larrakia land, including Eucalypt forest, monsoon vine forest, grass plains, and coastal vegetation.

There will be various activity nodes interspersed between these distinct landscape communities, starting with an information node and welcome to country at the entry. From the entry place, a ramp to the main entry to the building through Eucalypts will include a platform giving a view to the sacred site. At Level 1, there will be a number of framed views to the water and the sacred site.

Along another path on the southern side of the building, there will be art, play, and meeting spaces for visitors to learn about the traditions of the Larrakia people.

The monsoon vine forest will include freshwater features.

Paths through the landscape zones are intended to provide visitors with an interactive experience and exploration of natural vegetation communities found on Larrakia land.

4.3 Universal accessibility

The building and landscaping have been designed to be enjoyed and accessible to people of all abilities. Universal accessibility features include -

- Lifts to all levels
- Ramps to the main entry of the building and at all outdoor places where there are changes in levels
- Universally accessible toilets
- Parking for disabled people

4.4 Parking and access

Vehicle access will be from a sealed service road on the western side of the parcel. The existing access is to be incorporated in a proposed access easement in favour of the application site, as shown in the drawing at Annexure 1.

The proposal will include 40 car parking bays, including two accessible bays, as well as a bus drop-off bay in Stokes Hill Road.

5 MATTERS TO BE TAKEN INTO ACCOUNT

Section 46 (3) sets out the matters to be addressed in a development application. Section 51 sets out the matters to be considered by the consent authority.

An assessment of how the proposed development will comply with a Planning Scheme that applies to the land - s. 46(3)(a) and s. 51(1)(a);

The land is zoned CB (Central Business) under the NT Planning Scheme.

The purposes for which the building and premises will be used fall within the definitions of “exhibition centre”, “place of assembly”, and “food premises - restaurant”.

“Exhibition centre” is defined as: “premises used for the display, or display and sale, of materials of an artistic, cultural or historical nature including a museum. The use can also include where ancillary café/take away and office”.

“Place of assembly” is defined as: “the use of premises for the gathering of people to attend functions whether or not for commercial purposes including convention facilities, or auditoriums. The use can include ancillary bar-small, café/take away, office and shop”.

“Food premises-restaurant” is defined as “premises (other than a bar-public, bar-small, shop, or part of a hotel/motel), used for the preparation, sale and service of food and drinks for consumption primarily on the premises where seating is provided, and may include the ancillary provision of take-way food.”

Level of assessment

All these uses are merit assessable in Zone CB, and would normally be subject to clause 1.10.3 of the Planning Scheme. However, the land is subject to storm surge; consequently, the LSSS (Land Subject to Storm Surge) Overlay applies to the proposal.

By clause 3.7, the use or development of land subject to LSSS requires consent. This provision triggers clause 3.1.4(b), which converts the level of assessment to impact assessable.

An impact assessable application must take into account -

- (a) The relevant requirements of Part 5;
- (b) Overlays and associated requirements that apply to the land;
- (c) The zone purpose and outcomes in Part 4; and
- (d) The relevant Strategic Framework.

Requirements of Part 5

The proposed development is subject to clauses 5.2.3.3, 5.2.4, 5.2.5, 5.2.6, 5.3.7, 5.5.3, 5.5.11, and 5.8.4.

Clause 5.2.3.3 - Urban design requirements in Central Darwin

This clause requires 75% of the site boundary to comprise active street frontage.

There will be no vehicle access from Stokes Hill Road, although there will be a bus drop-off bay abutting the road boundary. Within the site, the entire alignment is part of the landscape area, including arrival court, meeting places, and pathways to the ceremonial place.

Accordingly, the proposal meets the requirement of this clause.

Clause 5.2.4.1 - Vehicle parking

The parking ratio for all the components of the proposed development is 2 spaces/100 m² of net floor area.

Assessable floor space is disposed as shown in the Table 1.

Total assessable floor space in the building is 1,693 m².

The outdoor ceremonial performance space is characterised as a place of assembly, and has an area of approximately 520 m². Accordingly, the assessable area for parking purposes is 2,213 m², resulting in a parking requirement of 44.26 bays.

The proposal includes 40 bays.

Clause 5.2.4.3 allows the consent authority to consent to a development with fewer car parking spaces in circumstances listed in the table to this clause.

The application requests a reduction in the calculated number of parking spaces through the application of Item 2(b) in the table to this clause. The proposed development is within 200 m walking distance of existing publicly accessible car parks on the land abutting the western boundary of the site, and at the Convention Centre basement car park. These public car parks have a combined total of 370 bays, which is considerably more than the 100 bays required by Item 2(b).

If Item 2(b) is applied, the allowable reduction of 10% (or 4.43 bays) of the calculated number would result in a parking requirement of 40 bays, which is the number included in the proposal.

Clause 5.2.4.4 - Parking layout

The layout of the parking areas will comply with this clause as follows –

- (a) Parking areas will be level,
- (b) Parking areas will be sealed and drained.
- (c) Each bay will be independently accessible.
- (d) There will be only one access point to the parking area, and it will be from an existing accessway that is not a public road.
- (e) All vehicles will be able to enter and exit the site in forward gear.
- (f) Sight lines for drivers entering and leaving the site will be maximised by locating the vehicle crossover near the northern boundary of the site, with maximum separation from the intersection of the service accessway and Stokes Hill Road.
- (g) The parking area is more than 28 m from Stokes Hill Road and will be densely landscaped, as shown on the landscape drawings.
- (h) All parking bays will have minimum dimensions of 5.5 m x 2.5 m.
- (i) The width of driveways and parking aisles will be 6.0 m.
- (j) End bays will have a 1.0 m extension of the adjacent parking aisle.

Clause 5.2.5 - Loading bays

This clause requires one loading bay for every 2,000 m² of floor space used as exhibition centre, place of assembly, office or food premises-restaurant.

Floor space of this type is 2,213 m², if the outdoor ceremonial space is included, and 1,693 m² if it is not.

The proposal includes two loading bays, one under cover (marked G4 on the car park drawing), and one open bay adjacent to the service node near the northern boundary of the site.

Clause 5.2.6 – Landscaping

The landscaping proposal is shown in the Landscape Drawings set. Landscaping is an integral part of the proposal and is intended to convey the variety of natural landscapes and vegetation found on Larrakia land. Accordingly, it has been designed with as much attention to cultural symbolism and harmony with nature as the building.

The landscaping proposal answers the requirements of this clause as follows -

- (a) Landscaping is focused on the front setback, to set the tone of what a visitor may expect in the cultural centre, and in the space between the building and the sea edge.
- (b) Landscaping reflects the native vegetation communities found on Larrakia land, and is therefore water efficient and appropriate to local climate.
- (c) There is no landscape strategy for the area. The landscape proposal will enhance the existing streetscape in the immediate vicinity of the site, as it will replace a large area of open car parking with a purpose-designed landscape theme.
- (d) There is no significant vegetation on the site. As noted under (c), the landscape proposal will enhance the amenity of the site and the streetscape in the immediate vicinity.
- (e) Site landscaping will contribute to energy conservation of the building, by including shade trees and filtered light.
- (f) The layout and choice of plants will permit surveillance of public and communal areas. Pathways, ramps and viewing platforms in various parts of the site will offer views to the adjoining street, as well as to the ceremonial and meeting areas.

- (g) There will be extensive areas of deep soil, which will facilitate on-site stormwater filtration.

Clause 5.3.7 – End of trip facilities

This clause requires end of trip facilities as set out in the table to this clause.

The proposal requires 6 bicycle spaces, and one shower.

A staff shower and change room is located at Level 1 (Room 1.16).

The end of trip facilities answer the requirements in clause 5.3.7.3 as follows –

- (a) Bicycle storage is in a convenient and safe location, near the entrance to the car park. Bicycles will have adequate security, behind the security gate to the car park, with racks to which they can be secured.
- (b) Rack storage is appropriate, as there is no residential component in the development.
- (c) E-bike charging facility is not required as bicycle storage is short term. An e-bike and scooter stand is provided in the service road, adjacent to the Steam Pump House,
- (d) No steps are required to access the storage rack.
- (e) The location of the bicycle storage area is under cover.
- (f) The selection of bicycle racks from the manufacturer will ensure that bicycles can be secured without damage.
- (g) The bicycle storage area is not located in pedestrian movement paths.
- (h) The bicycle storage area will be easily accessible from the service accessway and driveway to the car park.
- (i) The bicycle storage area is not located near parking bays or parking aisles, and are unlikely to be damaged by manoeuvring vehicles.
- (j) The bicycle storage area is intended primarily for staff, and as close as practicable to the cyclists' destination, which is the staff lift lobby.
- (k) Lighting of the car park entrance and the car will be incorporated in the design.
- (l) The design of the bicycle storage area will be consistent with the design of the development.

Clause 5.5.3 – Commercial and Other Developments

Building design addresses the matters in clause 5.5.3 as follows –

1. The proposal has considered community safety principles by –
 - Providing for activity at various times of day and evenings
 - Designing the building to provide outlook from indoor spaces
 - Designing the building to provide outlook from balconies
 - Providing for a high degree of visibility of outdoor activities
2. The proposal will preserve vistas to natural landscape features and places of cultural significance. It has been designed with the backdrop of the sacred site hill in mind, and visual connection to the sea.

The curvature of Stokes Hill Road allows vistas to Stokes Hill Wharf, and large parts of the Waterfront Precinct.

3. The proposal will be a new cultural landmark, and will be sympathetic to the Convention Centre building.

The proposal includes retention of the Steam Pump House building, and will enhance visitation and appreciation of this heritage item.

4. Except for plant and storage rooms, there is extensive fenestration on all faces of the building.
5. Landscaping, dramatic building form with unusual textural elements, and pedestrian scale of the building all contribute to variety at street level. Passive surveillance of public spaces is addressed under 1 above.
6. The design of the building incorporates passive climate control measures, including large double-height breezeways, wide roof eaves, large balconies, feather screens, and roof-top solar arrays
7. The proponent has commissioned an acoustic study, a copy of which is at Annexure 2. The study considers NT EPA's Noise Management Framework Guideline, and assesses noise transmission from the proposed development as well as measures to contain noise from the development.

Nearby sensitive residential receptors are identified and acoustic performance criteria are specified in accordance with EPA's Guideline.

For outdoor events, EPA Guideline is 55dBA during the hours 07:00 to 23:30. For the period 23:30 to 07:00, noise from outdoor events is not to be audible in any habitable room of residential premises.

8. All building plant and services will be housed in plant rooms, which are integrated in the design of the building.
9. There will be minimal reflection from building surfaces. External walls and glazed surfaces will be shaded by wide eaves and screens.

10. Pedestrian movement is largely separated from vehicle movement, by the location of the vehicle crossover in the service road, and the pedestrian entry being from an arrival court in Stokes Hill Road.
11. The proposal is designed to be accessible for people of all abilities. Pedestrian links to other buildings and public spaces is by existing public footpaths and pedestrian refuge islands.
12. The deep setback of the building from the street edge does not make it possible to extend a pedestrian awning over the public footpath.
13. Loading facilities are outlined under clause 5.2.6. The loading docks are in an area of the site where other building services, such as the bin enclosure, are located.
14. Refer to the Landscape Drawings and commentary in section 4.2 of this statement.
15. The proposal is a public facility, and will contain toilets and family room for visitors and participants in its cultural and learning activities.
16. Bicycle facilities are addressed under clause 5.3.7.

Clause 5.5.11 – Food Premises

The proposal addresses the requirements of this clause as follows –

3. The proposed restaurant is unlikely to cause loss of amenity to adjoining or nearby property. It is removed from other buildings, and will be compatible with the surrounding development, which is part of a major convention and entertainment precinct.
4. Not applicable
5. Lighting will be documented as part of the detailed design process. It will not affect residential amenity, as there are no residential premises in the vicinity of the site.
6. Refer to the Acoustic Report at Annexure 2. Noise emissions from activities conducted on the site are unlikely to affect the amenity of the locality, as the nature of the precinct is consistent with the intended use of the site, and there is no residential development around the site. Sound levels will be consistent with those from concerts and gatherings held on the Waterfront lawns. Sound from ceremonial performances will be of short duration.

As noted under clause 5.5.3.7, the proposal will comply with EPA's Noise Management Framework Guideline.

7. Not applicable.
8. A waste storage and collection area is provided in the service node near the northern boundary. It is not near any neighbour.

9. Not applicable.

10. Not applicable.

Clause 5.8.4 – Exhibition centre, and place of assembly

As noted in other parts of this statement, in relation to Part 5 requirements, the application site is removed from residential premises, and is situated in a precinct that is the centre of the Waterfront exhibition, convention and entertainment precinct.

The hours of operation of components of the development are -

- Exhibition and Gallery Monday to Sunday 10:00 to 16:00
- Restaurant Wednesday to Thursday 12:00 to 21:00
Friday to Saturday 12:00 to 23:00
Sunday 08:00 to 14:00
- Shop Monday to Sunday 10:00 to 16:00
- Kiosk Monday to Friday 07:00 to 14:00
Saturday to Sunday 10:00 to 16:00
- Classrooms/Meeting Rooms Monday to Friday 10:00 to 16:00
Monday to Friday 18:00 to 20:00
- Conference centre Monday to Friday 08:00 to 17:00
Some evenings/weekends, if required

The number of events likely to be hosted each year is 42, comprised of -

- Opening nights for new exhibitions 4
- Events associated with conferences at Convention Centre 10
- Corporate launches 4
- Industry awards 6
- NAIDOC Week events 5
- Darwin Fringe Festival 4
- Aboriginal Art Fair 1
- Darwin Festival 4
- Reconciliation Week 4

The maximum patron capacity is likely to occur only on a few key events each year, such as the opening ceremonies of NAIDOC and Reconciliation Weeks. On these occasions, capacity attendance will be in the order of 800 persons, comprised of -

▪ Audience, including at amphitheatre, balconies, viewing platforms	500
▪ Performers	100
▪ Event staff	50
▪ Indoor dining area	150

The typical peak usage will be much lower, estimated at 430-450 persons, based on the capacity of conference rooms, and the expected number of attendees at events. Typical peak usage is estimated as follows -

▪ Restaurant/weddings	200
▪ Festival events	200
▪ Staff	30

Parking for events can be accommodated in existing public car parks in the Waterfront precinct, and in the Esplanade and other nearby streets, as is the case with events and festivals at the Waterfront lawns.

Strategic framework and Overlays

The application site is within the area covered by the Central Darwin Area Plan.

The site is within Focus Area B - Darwin Waterfront.

The land is affected by storm surge, and is in the Secondary Storm Surge Area (SSSA). Commercial development is acceptable in the SSSA. The proposal does not include residential development, or strategic services such as power generation, or any of the uses described in clause 3.7.7.

Objective 12.6 of the Central Darwin Area Plan is that prospective development considers and responds to storm surge levels. The acceptable response is to set the lowest floor at a minimum of 6.5 m AHD. The lowest room floor level, not including the undercroft car park, is 6.5 m AHD

Any proposed amendments to the Planning Scheme - s 51(1)(b);

An assessment of how the proposed development will comply with an interim development control order, if any, applying to the land - s 46(3)(b) and s 51(1)(c); and

A matter that the Minister has, under section 85, directed it to consider in relation to development applications generally - s 51(1)(f)

There are no proposed Planning Scheme amendments, interim development control orders or ministerial directions relevant to this land.

A statement specifying whether the proposed development is required to be referred to the EPA, and whether it has been referred to the EPA - s 46(3)(c);

An environment protection objective as defined in s 4(1) of the *Waste Management and Pollution Control Act* that is relevant to the land to which this application relates - s 51(1)(d); and

Any beneficial uses, quality standards, criteria, or objectives, that are declared under section 73 of the *Water Act* - s 51(1)(s)

It is not expected that the proposal will require referral to the EPA under the Environment Protection Act, as the proposal is unlikely to be judged as having the potential for significant environmental impacts. The proposal has not been referred to the EPA.

By s 18 of the *Waste Management and Pollution Control Act*, any beneficial use, quality standard, criterion or objective declared under s 73 of the *Water Act* is an environmental protection objective.

The land is within the area for which a declaration for beneficial uses is current for Darwin Harbour Region.

The declared beneficial uses for saline waters between Charles Point and Gunn Point are aquaculture, environment, and cultural.

The declared beneficial uses for natural waterways are agriculture, environment, cultural, and rural stock and domestic.

Under the declared beneficial uses and objectives, water quality objectives are those specified in *Water Quality Objectives for the Darwin Harbour Region Background Document*, and *ANZECC Guidelines for Fresh and Marine Water Quality*.

The proposal will include stormwater drainage works, and erosion and sedimentation control works during construction and operations, and these will be required under conditions of any development permit issued as a result of this

application. It is unlikely that the proposal will adversely affect the declared beneficial uses.

There are no other environmental protection objectives that are relevant to this land.

Any submission made under section 49 in relation to the development application - s 51(1)(e)

It is expected that the proposal will be referred to the relevant persons and authorities and that submissions from these parties will become known after the proposal has been notified in accordance with Section 47.

Any issues raised from public notification of the proposal will be dealt with prior to or at the meeting of the Development Consent Authority at which this application will be considered.

The merits of the proposed development as demonstrated in the application - s 46(3)(d) and s 51(1)(h); and

The potential impact on the existing and future amenity of the area in which the land is situated- s 46(3)(h) and s 51(1)(n)

The proposal is consistent with the applicable provisions of the NT Planning Scheme.

The proposal is consistent with the existing and future character of the Waterfront precinct, and will complement existing exhibition, conference, and entertainment facilities in the Waterfront precinct.

The proposal has been designed with sensitivity to its location, natural attributes and cultural meaning, and will contribute to the conservation of Larrakia material culture, and its appreciation by the wider community.

The architectural and landscape expression will present a dramatic visual experience, and enliven the visual amenity of the precinct.

The building is designed with passive climate control features, and a distinctly tropical ambience.

The proposal has considered the effects of noise on residents in the locality, and will include measures to mitigate noise effects.

The proposal's parking requirements for events can be accommodated in public parking areas in and near the Waterfront precinct.

It is submitted that the proposal will make an outstandingly positive contribution to the amenity of its locality.

The capability of the land to which the proposed development relates to support the proposed development and the effect of the development on the land and on other land, the physical characteristics of which may be affected by the development - s 51(1)(j)

The land is zoned for and is suitable for the proposed development.

There are no physical constraints that limit the development of the site in the manner applied for.

The proposed development will not affect the physical characteristics of any other land.

The public facilities or public open space available in the area in which the land is situated and the requirement, if any, for the facilities, or land suitable for public recreation, to be provided by the developer - s 46(3)(f) and s 51(1)(k)

The application site is in very close proximity to large open spaces and recreation facilities of outstanding quality in the Waterfront Precinct, including a wave pool, swimming lagoon, scenic walkways, and manicured lawns used for public recreation.

(m) the public utilities or infrastructure provided in the area in which the land is situated, the requirement for public facilities and services to be connected to the land and the requirement, if any, for those facilities, infrastructure or land to be provided by the developer for that purpose - s 46(3)(g) and s 51(1)(m)

The site is serviced by all necessary urban infrastructure, or is capable of being serviced by necessary infrastructure.

The proponent expects to upgrade existing services and provide required services to the development as conditions of development consent.

An assessment of the benefit or detriment to the public interest - s 46(3)(j) and s 51(1)(p)

The proposal will contribute to the conservation and maintenance of Larrakia culture and language, and to the cultural enrichment of the wider community.

The proposal will add to the exhibition and small conference venues available in Darwin, and will provide a purpose-built venue for indigenous artists and craftspeople.

The proposal will improve the presentation of the Steam Pump House, and its enjoyment by visitors.

The proposal is designed to be accessible to people of all physical abilities, and includes parking for disabled people, universal toilets, elevators to all floors, and ramps throughout the outdoor spaces.

In the case of a proposed subdivision of land on which a building is situated - whether the building will cease to comply with the *Building Act* if the proposed development were to proceed - s 46(3)(k) and s 51(1)(q)

The proposal will require consolidation of the lots comprising the application site. This is to be done by a separate application, at which time the continued compliance with the Building Act resulting from retention of the pumphouse building will be assessed.

Any potential impact on natural, social, cultural or heritage values - s 51(1)(r)

The Steam Pump House on Lot 5251 is a declared Heritage Place. Its statement of significance is:

“Historically the Steam Pump is significant as it was a vital component of the Royal Australian Navy's major refuelling base for its northern operations. The construction of this oil fuel installation, together with the transfer of a Garrison to defend the installation, was the beginning of the major expansion of Darwin as a defence base. This military build-up was central to Darwin's development from a small outpost into a thriving city. The build-up also had a wider significance within Australia as it represented a divergence from Imperial Defence Policy. Technically the Steam Pump House is significant as internally it is complete including the original steam driven oil pumps, which are early examples of steam technology.”

The Steam Pump House is to be retained on the site. As part of a new cultural precinct, its heritage value is likely to be enhanced, experienced and enjoyed by a greater number of people.

Other matters it thinks fit - s 51(1)(t)

There are no other matters that have not been dealt with under other heads of consideration.

JUNE D'ROZARIO

Annexures

- 1 Lot consolidation plan
- 2 Acoustic Report

IVD:AJB
56833/6/1
1 June 2021

Rossi Architects
2/8 Parap Place
PARAP NT 0820

Attention: Mr R Kourounis

Dear Sir

**LARRAKIA CULTURAL CENTRE
CONCEPT DESIGN REPORT
ACOUSTIC SERVICES**

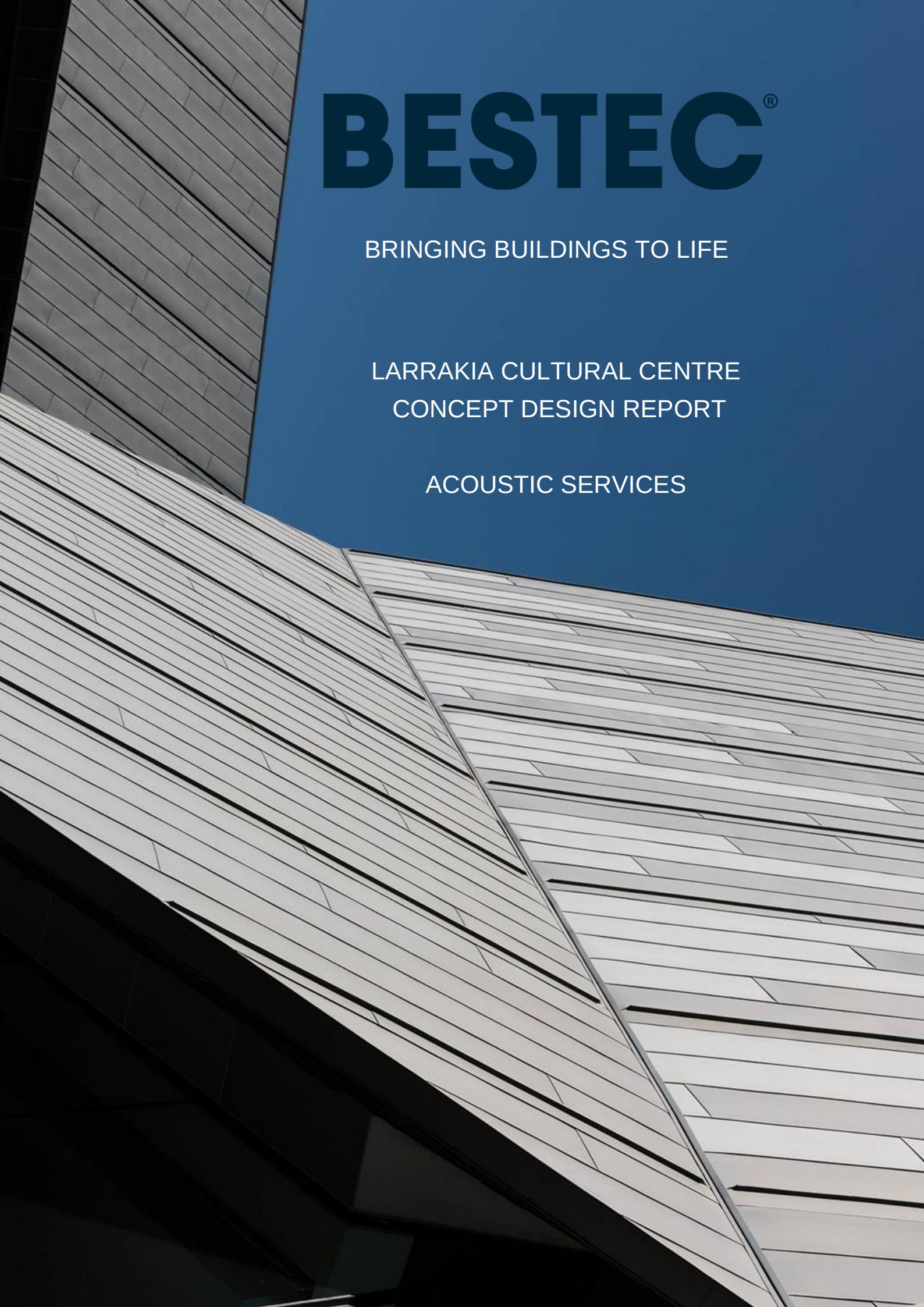
As requested, we enclose a copy of our acoustic design report for the above project.

We trust that the report provides sufficient information for your immediate purpose and we would be most pleased to further discuss any aspect upon your request.

Yours faithfully
BESTEC PTY LTD



**IVAILO DIMITROV
ASSOCIATE / PRINCIPAL ACOUSTIC CONSULTANT**



BESTEC[®]

BRINGING BUILDINGS TO LIFE

LARRAKIA CULTURAL CENTRE
CONCEPT DESIGN REPORT

ACOUSTIC SERVICES

REPORT ISSUE REGISTER

REVISION	DATE	REVISION DESCRIPTION
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Introduction

BESTEC Pty Ltd has been engaged to provide acoustic engineering services during the design and construction stages of the Larrakia Cultural Centre on Stokes Hill Road, Darwin. This document presents the proposed acoustic design criteria and concept recommendations for acoustic treatment to achieve the selected design criteria. For explanation of acoustic terms within this document, please refer to the glossary of acoustic terminology attached to this document (Appendix B).

Executive Summary

In summary:

- A noise survey was conducted on site to establish the existing noise levels and major noise sources in the vicinity of the proposed development.
- Appropriate acoustic design criteria were nominated.
- The external noise intrusion was assessed and appropriate concept design recommendations for minimum required construction of the building envelope were provided.
- The proposed building layout was reviewed appropriate concept design recommendations for minimum required construction of the internal building elements separating critical spaces were provided.
- General recommendations for control of airborne and structure borne noise and vibration resulting from operation of engineering services plant were provided..

References

The following documents have been referenced within the preparation of this report:

- [1] NT Planning Scheme 2020.
- [2] NT EPA Northern Territory Noise Management Framework Guideline, v.0.1, September 2018.
- [3] AS/NZS 2107:2016 "Acoustics – Recommended design sound levels and reverberation times for building interiors".
- [4] AS ISO 140.4–2006 "Acoustics – Measurement of sound insulation in buildings and of building elements. Part 4: Field measurements of airborne sound insulation between rooms".
- [5] AS 2670-2001 "Evaluation of human exposure to whole body vibration, Part 2: Continuous and shock induced vibration in buildings (1 to 80Hz).
- [6] DIN 4150 "Structural vibration, Part 3: Effect of vibration on structures".
- [7] BS 7385-2:1993 "Evaluation and measurement of vibration in buildings – Part 2: Guide to damage levels from ground borne vibration".
- [8] Sketch Plans by Rossi Architects + Susan Dugdale & Associates, dated 30 April 2021.

Site Description

The site of the proposed cultural centre is located on land zoned for construction of the new development is situated at Stokes Hill Wharf precinct adjacent to the Chinute Chinute sacred site (Figure 1). The land, where



Figure 1: Proposed development site and surroundings

the proposed development will be constructed is zoned Central Business (CB) in the Northern Territory Planning Scheme [1] with the following boundaries:

- North – vacant land;
- East and South – Darwin harbour precinct;
- South-West - Darwin Waterfront precinct
- West – Stokes Hill (Chinute Chinute sacred site)

Proposed Development and Conditions

A new cultural centre is proposed to be constructed on the site, comprising:

- Basement – carpark and bicycle store and engineering services plant.
- Level 1 – welcome forecourt, amphitheatre with ceremony circles, breezeway, gallery, foyer, art studio and teaching, classrooms, LCC administration offices, amenities and engineering services plant.
- Level 2 – café with bar and kitchen, conference rooms, breakout space, leased office, amenities and engineering services plant.

Noise Survey

An environmental noise survey was conducted on 26 February 2021 using a Bruel and Kjaer Hand-held Analyser Type 2270 Sound Level Meter (Serial Number: 3006966) fitted with a Bruel and Kjaer microphone Type 4189 (SN 2919442).

The following noise descriptors were measured over 15-minute intervals:

- A-weighted equivalent continuous sound pressure levels ($L_{Aeq, 15min}$), dB re 20 μ Pa;
- A-weighted maximum sound pressure levels (L_{Amax}), dB re 20 μ Pa;

The survey locations are indicated below (refer to Figure 2):

- Location 1 – approximately where the new drop-off zone is proposed;
- Location 2 – at the eastern boundary of the development (existing carpark);
- Location 3 – between the heritage pump house (to be retained) and the proposed cultural centre;



Figure 2: Noise survey locations

The measurements were conducted between 17:00 and 18:00. The measured sound pressure levels are summarized in Table 1.

Location	Time	L _{Aeq} , dB(A)	L _{Amax} , dB(A)	L _{A10} , dB(A)	L _{A90} , dB(A)	Notes
L1	17:10	52	63	52	41	Noise from Stokes Hill Wharf, Darwin Convention Centre loading area and cars passing by along Stokes Hill Road
L2	17:30	56	67	57	44	Noise from Stokes Hill Wharf, The Jetty restaurant mechanical services plant and cars passing by along Stokes Hill Road
L3	17:55	49	61	51	45	Noise from occasional cars pass-by along Stokes Hill Road

Table 1: Summary of the attended noise survey

Design Criteria

Environmental Noise

The criteria for environmental noise emitted from the proposed development are defined by the project specific assigned noise level that should not be exceeded. The project specific assigned noise level depends on type of building, land use (Zone), intrusiveness noise level and amenity noise level at noise-sensitive lands (receivers).

Based on the NT Planning Scheme [2], the proposed Larrakia Cultural Centre is located on land zoned Central Business. The Central Business Zone is essentially a mixed use zone accommodating different types of developments, such as: commercial, community, recreational and residential.

As the proposed development is not a residential building, the relevant environmental noise criteria are determined based on the NT EPA Northern Territory Noise Management Framework Guideline [2], Section 3.2 Commercial and Industrial Noise.

The nearest noise-sensitive receivers are (refer Figure 1):

- Adina Apartment Hotel Darwin Waterfront (1);
- Bridgeport Apartments on 9 Esplanade (2);
- Darwin Waterfront Stage 2 (3).

The project specific assigned noise level is determined based on the intrusiveness noise level and the amenity noise level.

- Intrusiveness - the NT EPA Guidelines state that the intrusiveness noise level at the noise sensitive receivers should not exceed the existing background noise levels at the noise-sensitive receivers by more than 5 dBA. The background noise levels (L_{A90}) the Adina Apartments and Bridgeport Apartments were previously measured during another project. Given the similar location and development layouts (multistorey residential developments with commercial tenancies on ground floor), we consider that the background noise levels at Darwin Waterfront Stage 2 will be similar to the background noise levels at Adina apartments. The background noise levels (L_{A90}), on which the intrusiveness noise level at each of the noise sensitive receivers was calculated were measured at 23:30 on 4 October 2012 and are summarized below.

- Adina Apartment Hotel – 47dBA;
- Bridgeport Apartments on 9 Esplanade – 43dBA;
- Darwin Waterfront Stage 2 – 47dBA.

Therefore, the intrusiveness noise levels (L_{Aeq,15min}) for each noise sensitive receiver become:

- Adina Apartment Hotel – 52dBA;
- Bridgeport Apartments on 9 Esplanade – 48dBA;
- Darwin Waterfront Stage 2 – 52dBA.
- Amenity - the recommended maximum assigned amenity noise levels (L_{Aeq,15min}) at the nearest noise sensitive receivers are determined in accordance with [2], Table 3.5 and are summarised in Table 2 below.

Name	Receptor	Noise Amenity Area	Time of day	$L_{Aeq,15min}$ dB(A)
Darwin Waterfront Stage 2 and Bridgeport Apartments	Residential	Urban	Day (7am-6pm)	55
			Evening (6pm-10pm)	45
			Night (10pm-7am)	40
Adina Apartment Hotel	Hotel	Urban	Day (7am-6pm)	60
			Evening (6pm-10pm)	50
			Night (10pm-7am)	45

Table 2: Maximum assigned amenity noise levels ($L_{A,eq,15 min}$)

Based on the intrusiveness and amenity noise levels for each noise sensitive receiver derived above, the project specific assigned noise levels become:

- Darwin Waterfront Stage 2 and Bridgeport Apartments
 - Daytime (7:00 – 18:00) $L_{Aeq,15min}$ 52 dBA
 - Evening (18:00 – 22:00): $L_{Aeq,15min}$ 45 dBA
 - Night (22:00 – 7:00): $L_{Aeq,15min}$ 40 dBA
- Adina Apartment Hotel
 - Daytime (7:00 – 18:00) $L_{Aeq,15min}$ 60 dBA
 - Evening (18:00 – 22:00): $L_{Aeq,15min}$ 50 dBA
 - Night (22:00 – 7:00): $L_{Aeq,15min}$ 45 dBA

Note that if noise emitted by the proposed development contains any tones, modulation, impulsive or low frequency characteristics, the continuous noise level of the noise source must be adjusted as follows:

- Noise containing 1 characteristic – 5dBA penalty added to source continuous noise level.
- Noise containing 2 characteristics – 8dBA penalty added to source continuous noise level.
- Noise containing 3 or 4 characteristics – 10dBA penalty added to source continuous noise level.

Entertainment Noise

Section 3.4 of the Northern Territory Noise Management Framework Guidelines [1] deals with noise emissions from entertainment venues and sets different criteria for indoor and outdoor venues, which will be relevant to events taking place within the proposed development as well as on the landscaped area in front of the development.

Indoor Events

The project specific assigned noise levels for indoor entertainment venues are based on the measured background noise levels (L_{A90} and L_{OCT90}) at the noise sensitive receiver and the day and time during which the venue is operating.

The definition of day/evening and night periods and the applicable entertainment noise criteria in accordance with the Northern Territory Noise Management Framework Guidelines are presented in Table 3 below.

Day	Operating Period – Day/Evening	Operating Period - Night
Monday - Friday	7am – 11:30pm	11:30pm – 7am
Saturday	8am – 11:30pm	11:30pm – 8am
Sunday	9am – 11:30pm	11:30pm – 9am
Days preceding public holidays	8am – 12pm (midnight)	12pm (midnight) – 8am
New Year's Day	8am – 12pm (midnight)	12:30am (midnight) – 8am
Criteria	Background L_{A90} + 5dBA	Background L_{OC90} + 8dB

Table 3: Day/evening and night operation times and applicable criteria

The applicable criteria are based on the measured background noise levels at the noise sensitive receivers and detailed below:

- Day/Evening time:
 - Adina Apartment Hotel – 52dBA;
 - Bridgeport Apartments on 9 Esplanade – 49dBA;
 - Darwin Waterfront Stage 2 – 52dBA.
- Night time refer Table 4

Description	Location	Octave Band Centre Frequency, Hz							Overall, dB(A)
		63	125	250	500	1000	2000	4000	
Measured Background noise level, L _{OC90}	Adina Apartments Hotel	49	48	47	42	42	40	36	47
	Bridgeport Apartments	50	52	46	33	27	27	28	43
	Darwin Waterfront Stage 2	49	48	47	42	42	40	36	47
	Maximum exceedance	+8	+8	+8	+8	+8	+8	+8	
Project specific assigned noise level, L _{OC90}	Adina Apartments Hotel	57	56	55	50	50	48	44	
	Bridgeport Apartments	58	60	54	41	35	35	36	
	Darwin Waterfront Stage 2	57	56	55	50	50	48	44	

Table 4: Night entertainment noise criteria

Outdoor Events

In regards to outdoor entertainment events (e.g., taking place at the amphitheatre and landscaped area in front of the proposed development), the Northern Territory Noise Management Framework Guidelines sets the following assigned noise levels:

- Day/Evening time - 55dBA when located indoors with doors closed and windows open only if it is the only means for ventilation;
- Night time – the noise from the outdoor venue shall not be audible within any habitable room in any residential premises for the night period.

Building Acoustics

The level of background and transient/intermittent noise, the speech privacy and the room acoustics define the quality of the acoustics within a building. The recommended criteria for each space are shown in Table 5 below. Please refer to each individual section below for interpretation of the criteria.

Type of occupancy/activity	Background Noise L_{Aeq} , dBA	Reverberation Time, sec	Weighted Sound Level Difference, D_w
Gallery/Group Learning	40 – 45	0.7 – 1.0	40
Retail	< 50	Minimise as practical	35
Reception	40 – 45	0.7	N/A
Stores (art handling, artefact, equipment etc.)	45 - 50	N/A	N/A
Family room	40 – 45	0.6	40
LCC Administrative office	35 – 40	0.6 – 0.8	35
Staff lounge	40 – 45	0.8	35
Amenities	50 – 55	N/A	40
End of trip facility	< 50	N/A	40
Classrooms	40 – 45	< 0.6	40
Art Studio/ Teaching	40 – 45	< 0.6	40 ¹ 45 ²
Kitchen	< 50	N/A	35
Plant rooms	–	–	45 ³
Café office	40 – 45	0.6 – 0.8	35
Café/ Event Space	40 – 50	0.85	N/A
Conference breakout	40 – 45	< 1.0	N/A
Conference rooms	35 – 40	0.6 – 0.7	45
Corridors and lobbies	45 – 50	Minimise as practical	N/A
Leased office	40 – 45	0.8	40

Table 5 Proposed building acoustic design criteria.

¹ This criterion is relevant if the spaces are used as Art Studio/ Teaching only.

² If the spaces are to be used for functions, we recommend criterion for very good speech privacy to be used.

³ To be confirmed once the specification of the plant is available.

Background Noise

AS 2107:2016 [3] sets the design criteria for background noise inside building premises in terms of A-weighted equivalent continuous sound pressure level over 15-minute intervals ($L_{Aeq, 15min}$) in accordance with the use of the premises and the location of the building. The recommended background noise levels for the different spaces within the Larrakia Cultural Centre are detailed in Table 5. The subjective responses of individuals to the proposed sound levels for interpretation of the recommendations are detailed Table 6.

Average Sound Pressure Levels (dBA)	Subjective Rating
35 – 40	Audible but unobtrusive
40 – 45	Moderate but unobtrusive
45 – 50	Unobtrusive with low levels of surrounding activities
50 – 55	Unobtrusive with high levels of surrounding activities

Table 6 Subjective ratings for various average sound pressure levels.

Rain noise is considered to be acceptable if it does not exceed the background noise criteria for the particular space by more than 5dBA.

Room Acoustics

AS 2107-2000 [3] sets out the design criteria for reverberation times within occupied spaces. The reverberation time defines the time taken for sound to decay within a space and thus the degree of intelligibility of both unassisted speech and sound reinforcement systems. The criterion for a given space depends on the volume of the space, with Table 7 outlining the subjective impression for spaces with varying volume. Criteria considered appropriate for the various spaces within the development are listed in Table 5.

Reverberation Time (sec)			Subjective Rating
Small (100m3)	Medium (1,000 m3)	Large (10,000m3)	
<0.3	0.3-0.5	0.6-0.8	Dead
0.3-0.5	0.5-0.7	0.8-1.0	Medium dead
0.5-0.7	0.7-1.0	1.0-1.5	Average
0.7-1.0	1.0-1.5	1.5-2.5	Medium live
1.0-2.0	1.5-2.5	2.5-4.5	Live

Table 7 Subjective response to various reverberation times and room volumes.

Speech Privacy

There is no Australian or International Standard for sound insulation between rooms in commercial buildings. Instead, criteria for sound insulation / speech privacy are based on Client's requirements, budget constraints and experience from previous projects. The criteria for speech privacy proposed in Table 5 are presented in terms of Weighted Sound Level Difference as defined by AS ISO 140.4–2006 [4] (D_w), which is related to the sound level difference between two spaces. The criteria are based on our experience in the acoustic design of similar facilities. Table 8 details the subjective response of individuals to the proposed privacy ratings for interpretation of the recommendations.

D_w Rating	Subjective Rating
50-55	Confidential privacy
45-50	Very good privacy. Speech inaudible unless raised
40-45	Good privacy. Speech audible but unintelligible
35-40	Normal privacy. Neighbouring conversations are audible and may be understood
<35	Privacy not required

Table 8 Subjective perceptions for various privacy ratings.

Human Exposure to Whole Body Vibration

AS 2670-2001[5] sets criteria for maximum allowable human exposure to building vibration in accordance with the type of occupancy of the spaces.

For commercial premises, the recommended criteria are:

- Continuous or intermittent vibration (Day/Night time) – vibration velocity not exceeding the combined direction criteria curve 4 on Figure 3.
- Transient vibration excitation with several occurrences per day – vibration velocity not exceeding the combined direction criteria curves 60 - 128 on Figure 3 below.

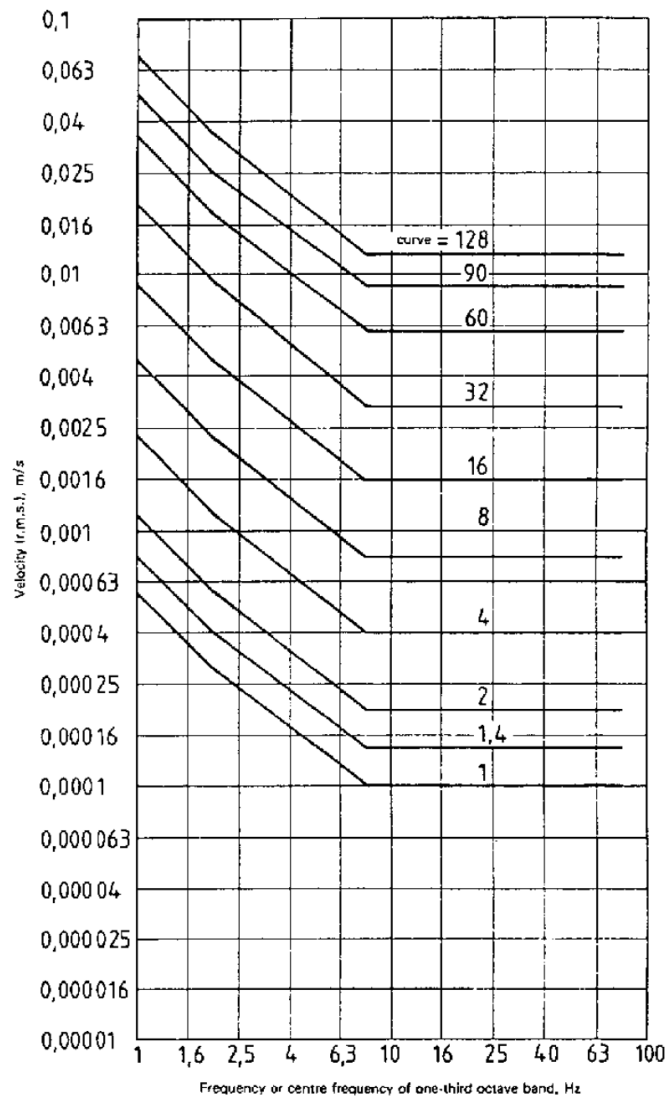


Figure 3: Vibration in buildings – combined direction criteria curves (reproduced from Figure 5a in AS 2670-2001)

Construction Noise and Vibration

Construction Noise

The Northern Territory Noise Management Framework Guidelines impose the following noise limits to construction works with duration of more than 3 weeks as follows:

Residential receivers

Descriptor	Recommended assigned construction noise level, $L_{Aeq,15min}$
Monday to Saturday (7am to 7pm)	RBL + 10dBA, i.e., Adina Apartments Hote - 57dBA
Sundays and public holidays (9am to 6pm)	Bridgeport Apartments – 53dBA Darwin Waterfront Stage 2 – 57dBA
Outside the above hours	RBL + 5dBA, i.e., Adina Apartments Hote - 52dBA Bridgeport Apartments – 48dBA Darwin Waterfront Stage 2 – 52dBA

Noise sensitive receivers other than residential

Land use	Recommended assigned construction noise level, $L_{Aeq,15min}$
Classrooms at schools and other educational institutions	Internal noise level 45dBA
Places of worship	Internal noise level 45dBA
Active recreation areas	External noise level 65dBA
Passive recreation areas	External noise level 60dBA

Commercial and industrial premises

Land use	Recommended assigned construction noise level, $L_{Aeq,15min}$
Industrial premises	External noise level 75dBA
Offices, retail outlets	External noise level 70dBA

Construction Vibration

There are two types of criteria that must be achieved:

- Criteria for structural integrity – as there is no Australian Standard specifying criteria for structural integrity, the vibration velocities associated with construction activities should be limited to the maximum allowable vibration velocity levels nominated by either DIN 4150-3 [6] or BS 7385-2:1993 [7]. As DIN 4150 provides more conservative criteria, we recommend the criteria specified in the Standard and summarised in Table 9 below be used during the construction.

Type of structure	Vibration velocity levels for different frequency ranges in mm/s		
	< 10Hz	10 to 50Hz	50 to 100Hz
Buildings used for commercial purposes, industrial buildings and buildings of similar design (Industrial)	20	20 to 40	40 to 50
Dwellings and buildings of similar design and/or occupancy (Residential)	5	5 to 15	15 to 20
Structures that, because of their particular sensitivity to vibration, cannot be classified under the above two classifications and are of great intrinsic value (e.g. listed buildings under preservation order). (Heritage)	3	3 to 8	8 to 10

Table 9: Acceptable Ground Vibration Levels at Building Foundations as Specified within DIN 4150

- Criteria for human exposure to building vibration – we recommend the criteria for maximum allowable human exposure to building vibration set by AS 2670-2001 [5] be used. Please refer to Section Human Exposure to Whole Body Vibration above and Figure 3.

Assessment and Recommendations

General

Acoustic Sealants

We note that for the acoustic integrity of building elements to be maintained, all gaps and interfaces along the junctions and joints of linings must be sealed with an appropriate acoustic grade sealant. Penetrations for mechanical or electrical services must be properly caulked and sealed around the ductwork and cabling to ensure the intended acoustic rating of the partition is retained.

Appropriate acoustic caulking products include:-

- Bostik Firemastic.
- Bostik Seal-n-flex 2637.
- Pyropanel Multiflex.
- Boral Fyreflex.
- Dow-Corning 790 Silicone.
- Dow-Corning 795 Silicone.
- Sika Sikaflex-11 FC.
- Fosroc Flamex 3.

Cavity Infill

Where a cavity infill is recommended, equivalent alternatives are:-

- Fibreglass – 50mm, 12kg/m³.
- Rockwool – 50mm, 38kg/m³.
- Polyester – 900gsm.

Ceiling Overlay

Where a ceiling overlay is recommended, equivalent alternatives are:-

- Glasswool – 100mm, 12kg/m³.
- Rockwool – 100mm, 38kg/m³.
- Polyester – 100mm, 32kg/m³.

Where higher durability and/or water resistance is required, 6mm compressed fibre cement sheeting could be used in lieu of the 13mm fire-rated plasterboard and 9mm compressed fibre cement sheeting in-lieu of 16mm fire-rated plasterboard.

Noise Intrusion

Traffic and Port Darwin Noise

In order to achieve the nominated criteria for background noise in the spaces, we recommend the following minimum requirements based on the noise levels measured on site and taking into account noise levels previously measured at Port Darwin during the design of Darwin Waterfront (APU's on berthed ships, radios, horn sounds etc.):

- Glazing – 10.38mm laminated glass or as required structurally. Please note that where operable glass walls are indicated (café, art studio/art teaching) the operable glass walls should have Weighted Sound Reduction Index of R_w 35 (minimum requirement) based on laboratory measurement.
- Façade – either:
 - 190mm core filled masonry block; or
 - 150mm precast concrete panel; or
 - Light weight cladding (e.g., 3mm thick aluminum panel, 6mm thick fibre cement cladding etc.) to the external side of structural steel construction and 1 layer of 13mm plasterboard to the external side with cavity infill of 75mm, 14kg/m³ glasswool.
- Roof – conventional steel roof cladding over Anticon 145, R3.6 roof blanket. We recommend additional layer of 13mm plasterboard or fire rated plasterboard be considered above the critical spaces (conference rooms on Level 2 and offices) in order to control rain noise. These requirements will be confirmed once details of the proposed ceiling types are available.

The above recommendations will be re-assessed and further detailed as the building envelope design is being developed.

Sound Insulation

Airborne Sound Insulation / Speech Privacy

The proposed partition layout in accordance with the nominated levels of speech privacy for each space are presented in Appendix A with the proposed partition type constructions described below.

- Normal speech privacy (D_w 35) – yellow line:
 - Partitions:
 - Spaces with no ceiling, ceiling to one side of the partition or perforated/slotted ceiling (one or both sides) - 1 layer of 13mm plasterboard to each side of steel studs extending to the structure above with cavity infill of 50mm, 12kg/m³ glasswool;
 - Spaces with solid ceiling to both sides of the partitions (not perforated/slotted ceiling - flush 13mm plasterboard or ceiling tiles with Ceiling Attenuation Class not less than CAC 35) - 1 layer of 13mm plasterboard to each side of steel studs extending to 100mm above the ceiling level with ceiling overlay of 75mm, 32kg/m³ polyester extending 600mm each side of the partition and cavity infill of 50mm, 12kg/m³ glasswool.
 - Masonry walls – generally any masonry wall with surface mass not less than 120kg/m² will provide sufficient sound transmission loss for Normal speech privacy to be achieved. In order to achieve thermal requirements and/or to provide cavity where engineering infrastructure can be reticulated, 1 layer of 13mm plasterboard can be installed on 16mm furring channels.
 - Internal glazing:
 - Between spaces with normal speech privacy and adjacent trafficable areas - 10.38mm laminated glass;
 - Between adjoining spaces with Normal speech privacy – 12.5mm VLam Hush.
 - Doors – either solid core doors with Weighted Sound Reduction Index of R_w 32 or 10.38mm laminated glass in aluminium frame.
- Good speech privacy (D_w 40) – green line:
 - Partitions:
 - Spaces with no ceiling, ceiling to one side of the partition or perforated/slotted ceiling (one or both sides) – 2 layers of 13mm plasterboard to one side of steel studs and 1 layer of 13mm plasterboard to the other side with all layers extending to the structure above with cavity infill of 50mm, 14kg/m³ glasswool.
 - Spaces with solid ceiling to both sides of the partitions (not perforated/slotted ceiling - flush 13mm plasterboard or ceiling tiles with Ceiling Attenuation Class not less than CAC 35) - 2 layers of 13mm plasterboard to one side of steel studs and 1 layer of 13mm plasterboard to the other side with 1 layer of 13mm plasterboard extending to the structure above with cavity infill of 50mm, 14kg/m³ glasswool.
 - Masonry walls – we recommend 90mm hollow masonry blocks with 1 layer of 13mm plasterboard on 28mm furring channels and cavity infill of 25mm, 12kg/m³ glasswool to each side be used as minimum. Where impact insulation is required, the plasterboard should be installed on resilient mounts.
 - Internal glazing:
 - Between spaces with Good speech privacy and adjacent trafficable areas – 12.5mm VLam Hush;
 - We recommend internal glazing consisting of 6.38mm laminated glass – 25mm air space – 8.38mm laminated glass between rooms with Good speech privacy.
 - Doors - solid core doors with Weighted Sound Reduction Index of R_w 37 or 12.5mm VLam Hush glass in aluminium frame fitted with compressible acoustic seals (Raven RP8Si and RP24).
 - Operable walls – we recommend operable walls with Weighted Sound Reduction Index not less than R_w 45 (based on laboratory test) be used (indicated with green dash-dotted line on the mark-ups in Appendix A). Please note that an acoustic baffle consisting of 1 layer of 13mm

plasterboard to each side of the operable wall track with cavity infill of 50mm, 14kg/m³ glasswool will be required (Figure 4).

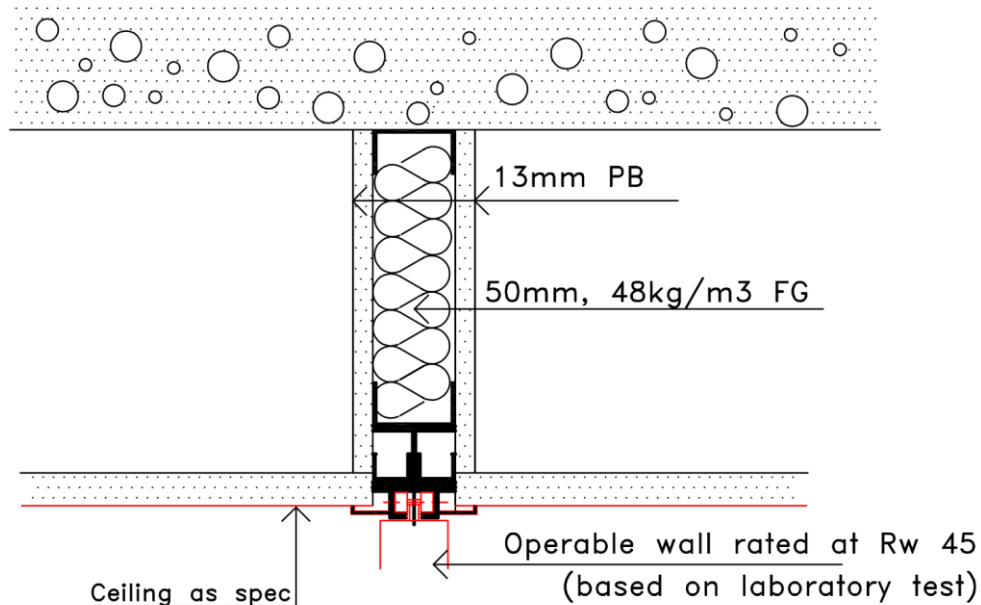


Figure 4: Operable wall (R_w 45) acoustic baffle (typical detail)

- Very Good speech privacy (D_w 45) – red line:
 - Partitions:
 - Spaces with no ceiling, ceiling to one side of the partition or perforated/slotted ceiling (one or both sides) – 2 layers of 13mm plasterboard to each side of steel studs with all layers extending to the structure above with cavity infill of 50mm, 12kg/m³ glasswool.
 - Spaces with solid ceiling to both sides of the partitions (not perforated/slotted ceiling - flush 13mm plasterboard or ceiling tiles with Ceiling Attenuation Class not less than of CAC 35) - 2 layers of 13mm plasterboard to each side of steel studs with 1 layer of 13mm plasterboard each side extending to the structure above with cavity infill of 50mm, 12kg/m³ glasswool.
 - Masonry walls - we recommend 90mm hollow masonry blocks with 1 layer of 13mm plasterboard on 28mm furring channels to each side and cavity infill of 25mm, 12kg/m³ glasswool to each side be used as minimum. Where impact insulation is required, the plasterboard should be installed on resilient mounts at least to one side of the masonry wall.
 - Internal glazing – double glazing consisting of 6.38mm laminated glass – 50mm cavity - 10.38mm laminated glass (Weighted Sound Reduction Index of R_w 47).
 - Doors - proprietary acoustic doors with Weighted Sound Reduction Index of R_w 45.
 - Operable walls – we recommend operable walls with Weighted Sound Reduction Index not less than R_w 53 be used (indicated with orange dash-dotted line on the mark-ups in Appendix A). Please note that an acoustic baffle consisting of 2 layers of 13mm plasterboard to each side of the operable wall track with cavity infill of 50mm, 14kg/m³ glasswool will be required (Figure 5).

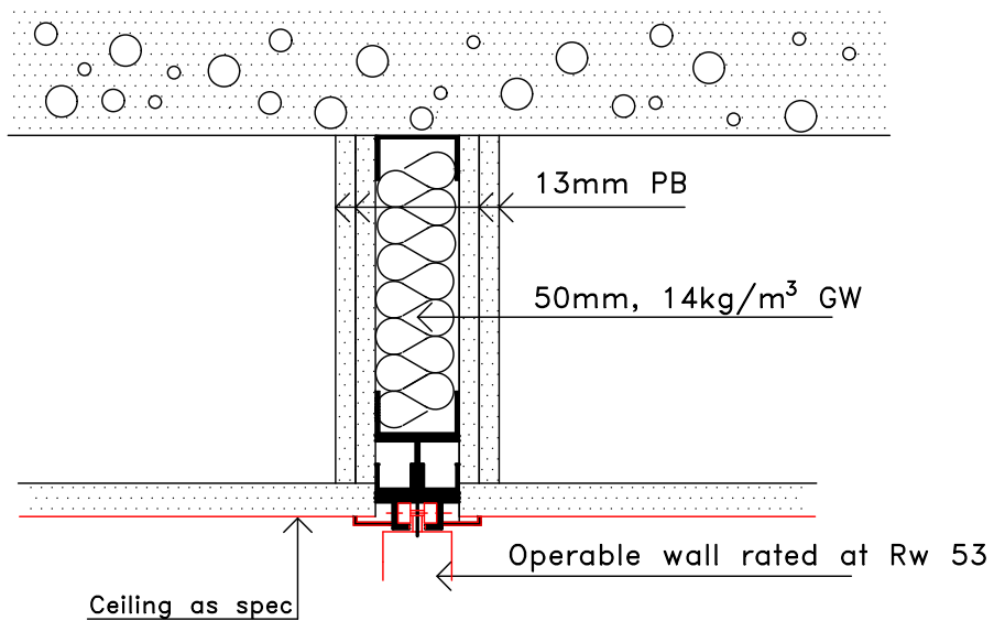


Figure 5: Operable wall (R_w 53) acoustic baffle (typical detail)

In addition to the above recommendations, please note:

- Rooms with sliding doors will achieve only Normal speech privacy across the partition where the sliding door is installed.
- In order to maintain the level of sound insulation/speech privacy between the adjacent rooms, detailed recommendations for acoustic treatment of the junctions between internal partitions and the building structure will be further provided.
- Recommendations on the mechanical services riser walls constructions will be provided once the design of the mechanical services system is sufficiently developed to allow calculation of the breakout noise through the riser walls, however, we expect that 1 layer of 16mm plasterboard would be required as minimum.
- Recommendations on the construction of the plantroom partitions will be provided once selection of the mechanical services plant is available, however, we expect 2 layers of 13mm fire rated plasterboard to each side of 92mm steel studs with cavity infill of 75mm, 14kg/m³ glasswool would be required as minimum.
- The partition separating the plantroom on Level 2 from the office space should be constructed of 2 layers of 13mm fire rated plasterboard to each side of 92mm staggered studs in 150mm track with cavity infill of 75mm, 14kg/m³ glasswool (to be confirmed once the plant selection is available).

Engineering Services Acoustics

Mechanical Services

Airborne Noise

Details of the engineering plant that will be serving the development are currently under development, however, we note that the internal airborne noise associated with the mechanical services plant will be controlled by design of appropriate attenuators, duct lagging and acoustic enclosures.

The environmental noise emissions from the roof mounted plant will be assessed and appropriate engineering noise controls will be designed to ensure the environmental noise criteria at the adjacent noise sensitive receivers are achieved.

Where engineering services infrastructure penetrate acoustically rated partitions, the following acoustic treatment rules apply in order to maintain the acoustic performance of the partitions:

- Metal sheet ducts:
 - If the gap around the sleeve is less than 5mm – apply continuous layer of acoustic sealant;

- If the gap around the sleeve is between 5mm and 25mm – apply backing rod than continuous layer of acoustic sealant;
 - If the gap around the sleeve is larger than 25mm;
 - Pack densely with 50mm, 48kg/m³ glasswool;
 - Apply patch(s) to each side of the penetrated structure – the material and number of layers should be the same as the construction of the structure (e.g., if the penetration is through a partition constructed of 2 layers of 13mm PB to one side of studs and 1 layer of 16mm FRPB to the other side, the patches should be 2 layers of 13mm PB and 1 layer of 16mm FRPB respectively);
 - Ensure minimum 100mm overlap between the patches and the main structure leaving about 5mm gap between the edge of the patch and the infrastructure element penetrating the partition;
 - Seal the gap continuously with acoustic sealant;
 - Caulk the patch perimeter.
- Flexible ducts:
 - Terminate the flexible duct before the penetration point.
 - Install transition metal sheet sleeve at the penetration with sufficient length to ensure minimum 200mm each side of the partition.
 - If the gap around the sleeve is less than 5mm – apply continuous layer of acoustic sealant;
 - If the gap around the sleeve is between 5mm and 25mm – apply backing rod than continuous layer of acoustic sealant;
 - If the gap around the sleeve is larger than 25mm (Figure 6):
 - Pack densely with 50mm, 48kg/m³ glasswool;
 - Apply patch(s) to each side of the penetrated structure – the material and number of layers should be the same as the construction of the structure (e.g., if the penetration is through a partition constructed of 2 layers of 13mm PB to one side of studs and 1 layer of 16mm FRPB to the other side, the patches should be 2 layers of 13mm PB and 1 layer of 16mm FRPB respectively);
 - Ensure minimum 100mm overlap between the patches and the main structure leaving about 5mm gap between the edge of the patch and the infrastructure element penetrating the partition;
 - Seal the gap continuously with acoustic sealant;
 - Caulk the patch perimeter.
 - Connect the flexible ducts each side of the partition.

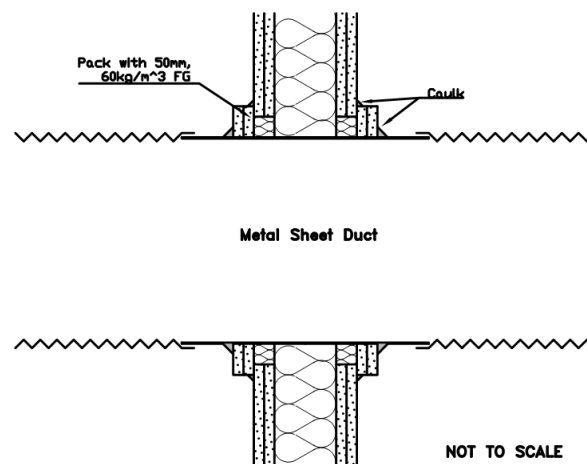


Figure 6: Acoustic treatment of acoustic partition penetration (typical detail)

Structure Borne Noise and Vibration

Detailed assessment of the vibration levels of each plant unit and the resulting structure borne noise will be conducted once the plant selection is available and appropriate vibration isolators designed to ensure the selected criteria for noise and vibration are achieved, however, we provide the following general recommendations for control of vibration and structure borne noise:

- AHU's should be suspended on seismically restrained spring vibration isolators with minimum static deflection of 25mm, unless the fans are not internally suspended (minimum static deflection of 25mm required).
- Chillers should be installed on seismically restrained spring vibration isolators with minimum static deflection of 25mm. The pipes connections to the chillers should be via flexible connections (Victaulic or equivalent). The pipes should be supported on neoprene spring vibration isolating hangers with minimum static deflection equivalent to the static deflection of the chillers for the first 15m of pipe run or 100 diameters (whichever is greater). They can be supported on neoprene hangers for the rest of the run.
- Pumps should be suspended on seismically restrained spring vibration isolators with minimum static deflection of 25mm.

Sound Insulation of Hydraulic Services

If PVC drainage pipes are articulated within a riser adjoining critical space, they should be lagged with Soundlag 4525C or equivalent and enclosed with 1 layer of 13mm fire-rated plasterboard with cavity infill as specified in the General Recommendations (Figure 7).

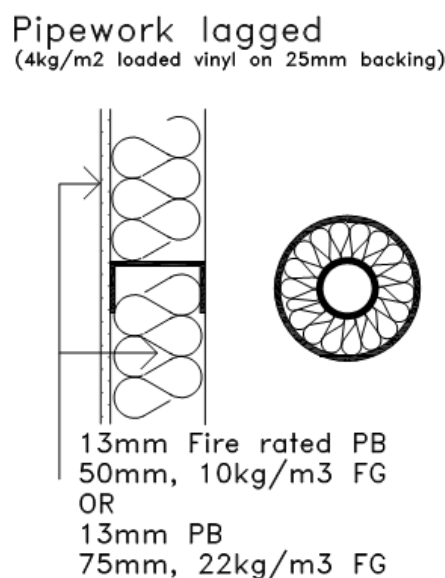


Figure 7: Construction hydraulic services risers adjoining critical spaces

If drainage pipes are reticulated in the ceiling spaces of critical spaces, they should be lagged with Soundlag 4525C or equivalent and ceiling overlay of 75mm, 14kg/m³ glasswool be installed extending 1200mm each side of the pipe.

We recommend reticulation of drainage pipes within spaces with no ceiling or perforated ceiling be avoided.

If acoustically rated drainage pipes (Geberit RAUPIANO, Valsere TriPus, SKOLAN etc.) are used, pipe lagging will not be required, however, the requirements for insulation as detailed above will be applicable.

All pipes reticulated in the ceiling spaces or risers should be supported resiliently to the brackets (using neoprene sleeves) to prevent transmission of flow induced vibration into the building structure, which will be re-radiated as structure borne noise.

No specific acoustic treatment is required to the main copper cold water reticulation, to small bore (less than 40mm) copper reticulation into ceiling spaces or stud walls if the fluid velocity in the pipe is limited to not more than 1.2m/s.

Electrical Services

Airborne Noise

The airborne noise emissions from the emergency generator will be assessed and the building structure enclosing the generator will be acoustically designed to provide sufficient sound transmission loss for the selected design criteria to be achieved. Appropriate intake/discharge attenuators and exhaust mufflers will also be designed to ensure the environmental noise criteria are achieved.

Structure Borne Noise and Vibration

The vibration emissions from the emergency generator will be assessed and appropriate vibration isolators will be designed to ensure the vibration and structure borne noise are controlled.

Fire Services

Airborne Noise

The airborne noise emissions from the fire pump(s) will be assessed and the building structure enclosing the pump sets will be acoustically designed to provide sufficient sound transmission loss for the selected design criteria to be achieved. Appropriate mufflers will also be designed to ensure the environmental noise criteria are achieved.

Structure Borne Noise and Vibration

The vibration emissions from the pumps will be assessed and appropriate vibration isolators will be designed to ensure the vibration and structure borne noise are controlled.

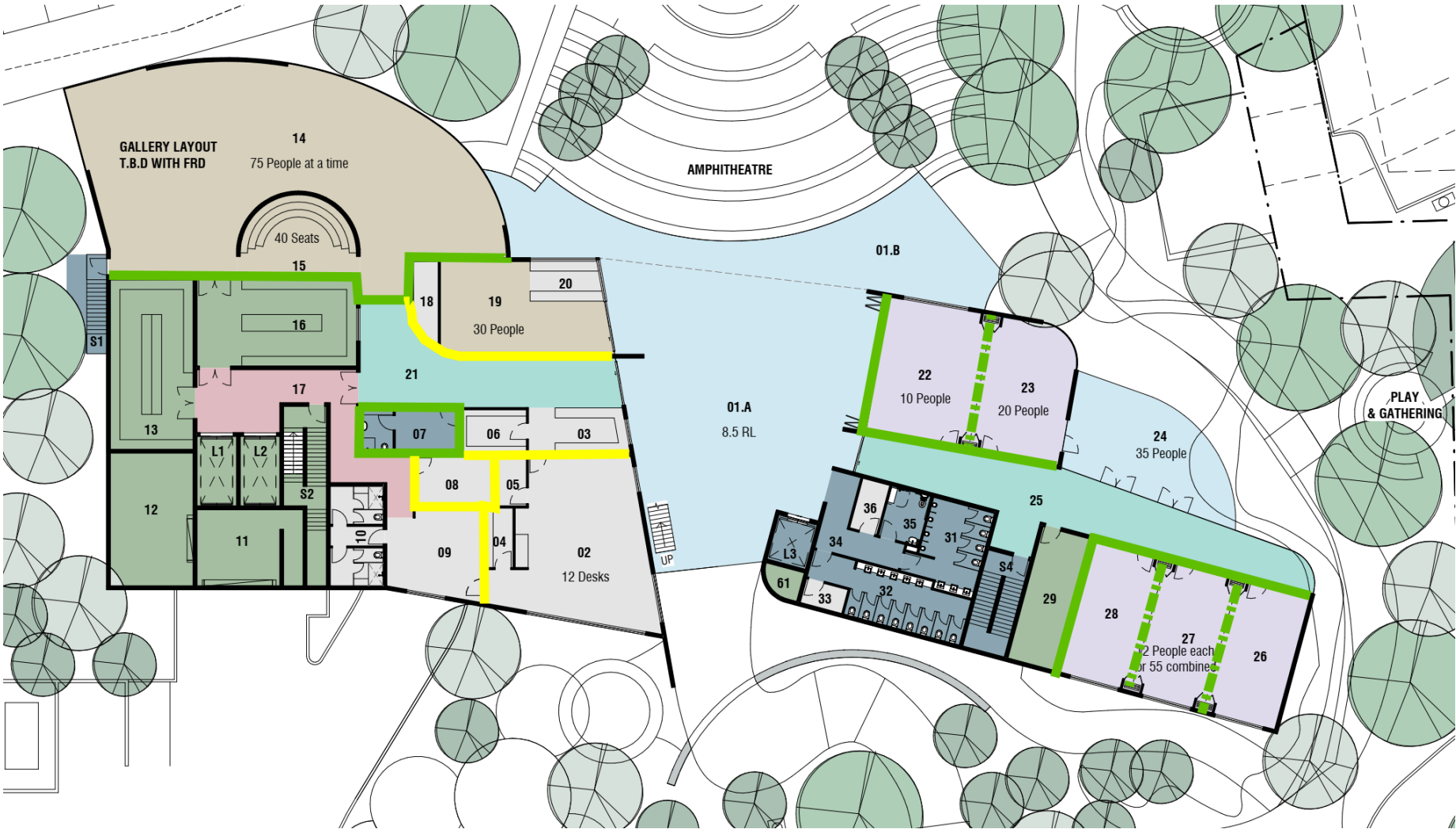
The pipes connections to the fire pumps should be via flexible connections (Victaulic or equivalent). The pipes should be supported on neoprene spring vibration isolating hangers with minimum static deflection equivalent to the static deflection of the chillers for the first 15m of pipe run or 100 diameters (whichever is greater). They can be supported on neoprene hangers for the rest of the run. Penetration of acoustically rated walls/partitions should be acoustically treated as per the recommendation provided in Section

Mechanical Services

Appendix A

PARTITION MARK-UPS

Partition Type	Colour Code
Normal Privacy (D _w 35)	
Good Privacy (D _w 40)	
Very Good Privacy (D _w 45)	
Operable Wall R _w 45 (with acoustic baffle above)	
Operable Wall R _w 53 (with acoustic baffle above)	





Appendix B

GLOSSARY OF ACOUSTIC TERMINOLOGY

dB(A)

Also referred to as dBA. A unit of measurement, decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate human ear response at a loudness level of 40 phons. The table below outlines the subjective rating of different sound pressure levels.

Noise Level (dBA)	Subjective Rating
25-30	Barely audible and very unobtrusive.
30-35	Audible but very unobtrusive.
35-40	Audible but unobtrusive.
40-45	Moderate but unobtrusive.
45-50	Unobtrusive with low levels of surrounding activity.
50-55	Unobtrusive with high levels of surrounding activity.

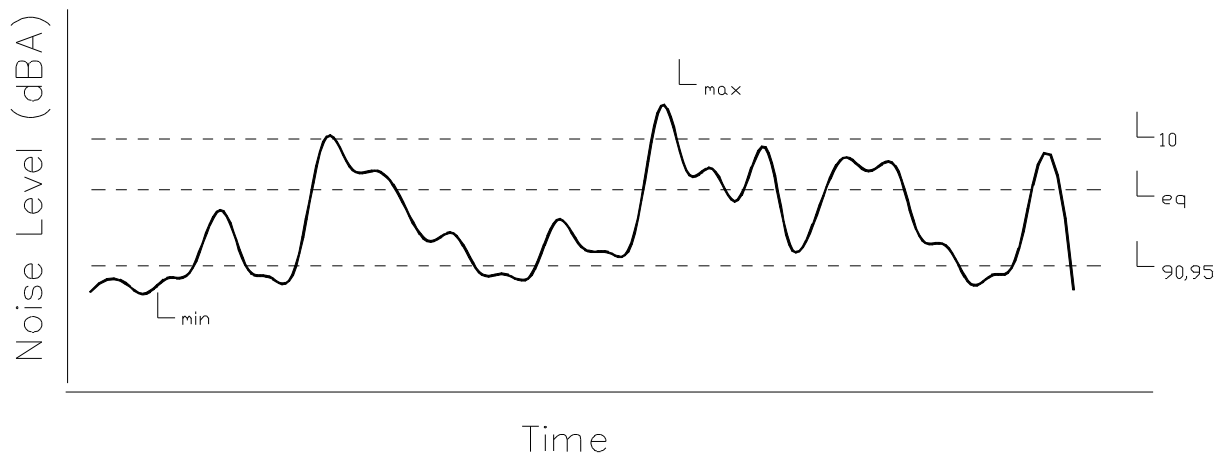
L₁ The noise level which is equalled or exceeded for 1% of the measurement period. L₁ is an indicator of the impulse noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L₁₀ The noise level which is equalled or exceeded for 10% of the measurement period. L₁₀ is an indicator of the mean maximum noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L₉₀, L₉₅ The noise level which is equalled or exceeded for 90% of the measurement period. L₉₀ or L₉₅ is an indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).

L_{eq} The equivalent continuous noise level for the measurement period. L_{eq} is an indicator of the average noise level (usually in dBA).

L_{max} The maximum noise level for the measurement period (usually in dBA).



Note: The subjective reaction or response to changes in noise levels can be summarised as follows: A 3dBA increase in sound pressure level is required for the average human ear to notice a change; a 5dBA increase is quite noticeable and a 10dBA increase is typically perceived as a doubling in loudness.

STC/R_w

Sound Transmission Class or Weighted Sound Reduction Index. Provides a single number rating (from the sound transmission loss or sound reduction index for each frequency band) of the sound insulation performance of a partition. The higher the value, the better the performance of the partition. The subjective impression of different ratings is shown in the table below.

Type of noise source	STC/R _w Rating				
	40	45	50	55	60
Normal Speech	Audible	Just Audible	Not Audible		
Raised speech	Clearly Audible	Audible	Just Audible	Not Audible	
Shouting	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Small television/small entertainment system	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Large television/large hi-fi music system	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Just Audible
DVD with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible
Digital television with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible

FSTC/R_w'

The equivalent of STC/R_w, unit for sound insulation performance of a building element measured in the field.

C_i, C_{tr}

The ratings (R_w, D_{nTw}, L_{nTw}) are weighted in accordance to a spectrum suited to speech. This term modifies the overall rating to account for noise with different spectra, such as traffic (C_{tr}) or footfalls (C_i). The ratings may be written as R_w+C_{tr}, or D_{nTw}/L_{nTw}+C_i.

NNIC/D_{nTw}

Normalised Noise Isolation Class, or Weighted Standardised Sound Level Difference. Provides a single number rating of the sound level difference between two spaces, and incorporates the effects of flanking noise between two spaces. This rating is generally accepted to be about 5 points less than the STC/R_w rating.

IIC/L_{nw}

Impact Insulation Class, or Weighted Normalised Impact Sound Level. L_{nw} = 110 - IIC. The higher the IIC rating, or the lower the L_{nw} rating the better the performance of the building element at insulating impact noise. The table below gives the subjective impression of different ratings:

IIC	L _{nw}	Subjective Rating
40	70	Clearly Audible
45	65	Clearly Audible
50	60	Audible
55	55	Audible
60	50	Just Audible
65	45	Inaudible

FIIC/L_{nTw}'

The equivalent of IIC/L_{nw}, but the performance is for the building element measured in the field.