Meeting attachments

Ordinary Meeting of Council

Wednesday 6 December 2023 6pm

fremantle.wa.gov.au

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CLIENT	: STONEMAN	SURVEYED ON	: 26/2/2021
AUTHORITY	: CITY OF FREMANTLE	PROCESSED BY	: A.G./A.M.
MAP REF	: N/A	SURVEYED BY	: A.G.

IMPORTANT NOTE:
The boundaries depicted on this plan were not re-established as part of this survey, therefore this plan does not guarantee their accuracy. Re-establishment of the cadastral boundaries is recommended for any proposed works on or near existing boundaries. The sole purpose of this plan is for presentation to the W.A.P.C. for process of conditional approval.

SCALE : 1:200
SHEET A3 PORTRAIT

STATISTICS:
No. OF EXISTING LOTS 1
No. OF PROPOSED LOTS 2
TOTAL AREA 850m²

LEGEND
PROPOSED BOUNDARIES
EXISTING BOUNDARIES
ZONING: R25

LICENSED LAND & ENGINEERING SURVEYORS
Unit 4 / 14 Halley Road, BALCATTA, WA, 6021
Telephone: (08) 9344 8885 Fax: (08) 9344 8889
Email: solutions@denada.net.au
ABN: 81 606 090 788

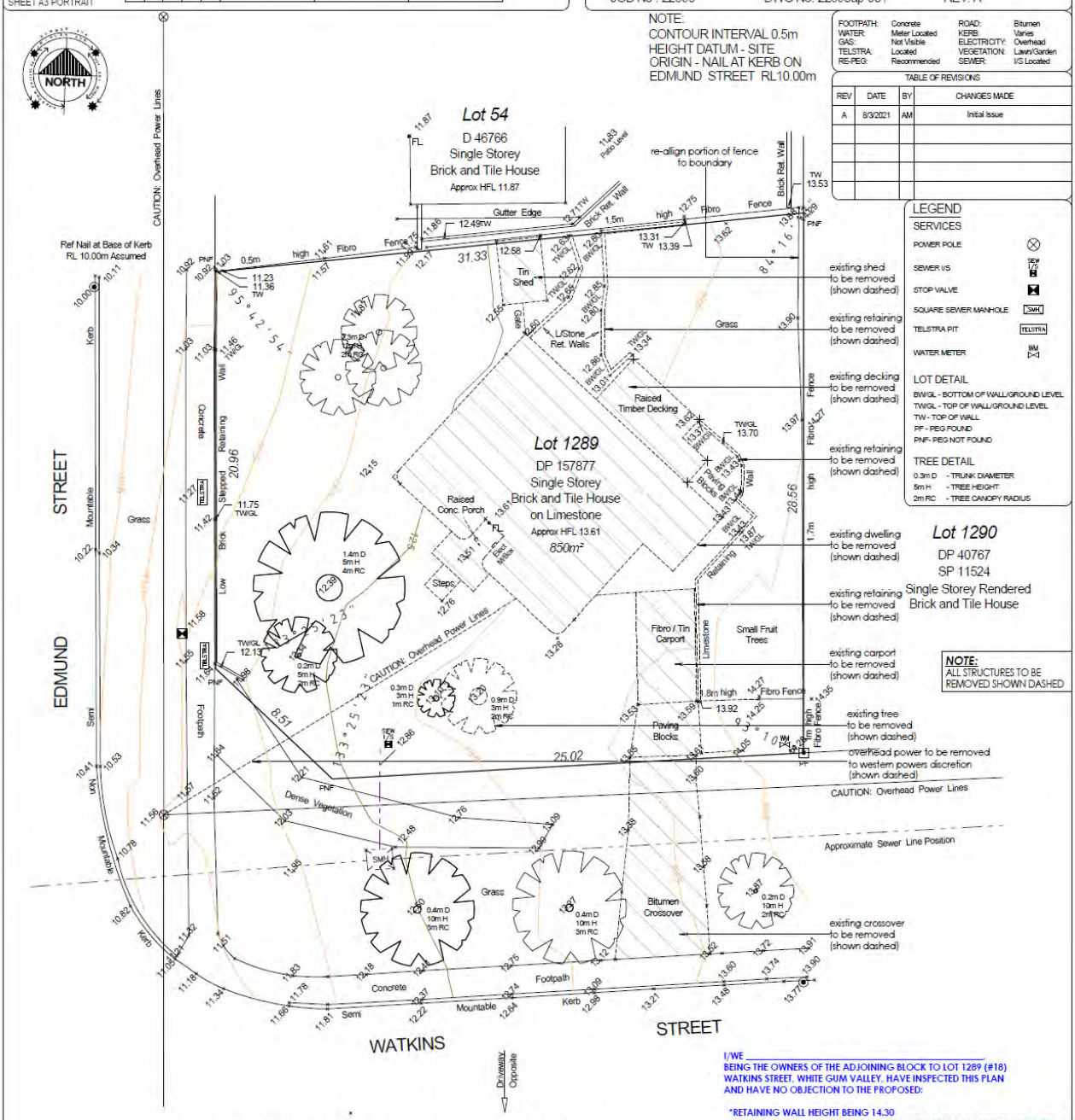
JOB No : 22590 DWG No: 22590ap-001 REV: A

NOTE:
CONTOUR INTERVAL 0.5m
HEIGHT DATUM - SITE
ORIGIN - NAIL AT KERB ON EDMUND STREET RL10.00m

FOOTPATH:	Concrete	ROAD:	Bitumen
WATER:	Meter Located	KERB:	Varies
GAS:	Not Visible	ELECTRICITY:	Overhead
TELSTRA:	Located	VEGETATION:	Lawn/Garden
RE-PEG:	Recommended	SEWER:	I/S Located

TABLE OF REVISIONS

REV	DATE	BY	CHANGES MADE
A	8/3/2021	AM	Initial Issue



LEGEND
SERVICES
POWER POLE
SEWER I/S
STOP VALVE
SQUARE SEWER MANHOLE
TELSTRA PIT
WATER METER
LOT DETAIL
BWGL - BOTTOM OF WALL/GROUND LEVEL
TWGL - TOP OF WALL/GROUND LEVEL
TW - TOP OF WALL
PF - PEG FOUND
PNF- PEG NOT FOUND
TREE DETAIL
0.3m D - TRUNK DIAMETER
5m H - TREE HEIGHT
2m RC - TREE CANOPY RADIUS

NOTE:
ALL STRUCTURES TO BE REMOVED SHOWN DASHED

I/WE
BEING THE OWNERS OF THE ADJOINING BLOCK TO LOT 1289 (#18) WATKINS STREET, WHITE GUM VALLEY, HAVE INSPECTED THIS PLAN AND HAVE NO OBJECTION TO THE PROPOSED:

*RETAINING WALL HEIGHT BEING 14.30
*OVERLOOKING FROM ALFRESCO (WITH 1800H FENCE TO ACT AS SCREENING)

SIGNED...../...../2023

SIGNED...../...../2023

PROPOSED SURVEY STRATA
of Lot 1289 on Deposited Plan 157877 - C/T 1412/908
18 Watkins Street, White Gum Valley

KTR CREATIONS

STONEMAN & TRUSCOTT
#18 WATKINS STREET
WHITE GUM VALLEY
CITY OF FREMANTLE

JOB NUMBER	DRAWING NAME		
2023051	EXISTING SITE PLAN		
START DATE: JUNE 2023	REVISION DESCRIPTION	IN.	DATE
	FINAL CONCEPT DESIGN	KS	20.06.2023
SHEET: 01 of 06 / A3	PLANNING DRAWINGS	TR	25.07.2023
	PLANNING DRAWINGS - REV A	TR	06.11.2023
SCALE: 1:200 / REVISION: A			

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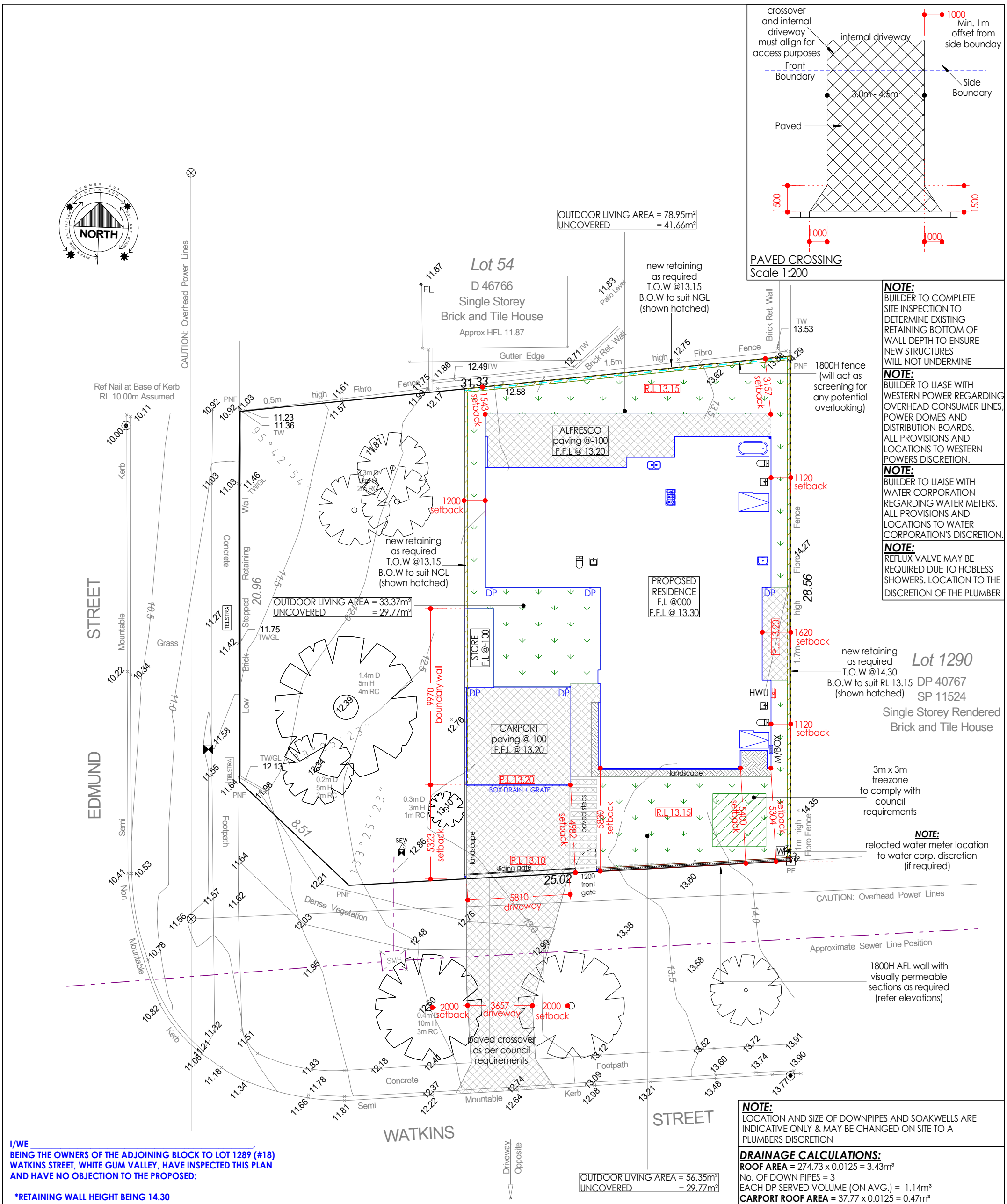

NOTE:
BUILDER TO COMPLETE SITE INSPECTION TO DETERMINE EXISTING RETAINING BOTTOM OF WALL DEPTH TO ENSURE NEW STRUCTURES WILL NOT UNDERMINE

NOTE:
BUILDER TO LIASE WITH WESTERN POWER REGARDING OVERHEAD CONSUMER LINES, POWER DOMES AND DISTRIBUTION BOARDS. ALL PROVISIONS AND LOCATIONS TO WESTERN POWERS DISCRETION.

NOTE:
BUILDER TO LIAISE WITH WATER CORPORATION REGARDING WATER METERS. ALL PROVISIONS AND LOCATIONS TO WATER CORPORATION'S DISCRETION.

NOTE:
REFLUX VALVE MAY BE REQUIRED DUE TO HOBLESS SHOWERS. LOCATION TO THE DISCRETION OF THE PLUMBER

NOTE:
LOCATION AND SIZE OF DOWNPIPES AND SOAKWELLS ARE INDICATIVE ONLY & MAY BE CHANGED ON SITE TO A PLUMBERS DISCRETION

DRAINAGE CALCULATIONS:
ROOF AREA = 274.73 x 0.0125 = 3.43m³
No. OF DOWN PIPES = 3
EACH DP SERVED VOLUME (ON AVG.) = 1.14m³
CARPORT ROOF AREA = 37.77 x 0.0125 = 0.47m³
No. OF DOWN PIPES = 2
EACH DP SERVED VOLUME (ON AVG.) = 0.22m³
DRIVEWAY AREA = 26.42 x 0.0125 = 0.33m³
BOX DRAIN + GRATE SERVED VOLUME = 0.33m³

DIAMETER	DEPTH	VOLUME	DP SERVED	TOTAL VOLUME
1800	1900	2 x 2.29m³ = 4.58m³	5+DRIVEWAY	4.23m³

I/WE _____,
BEING THE OWNERS OF THE ADJOINING BLOCK TO LOT 1289 (#18) WATKINS STREET, WHITE GUM VALLEY, HAVE INSPECTED THIS PLAN AND HAVE NO OBJECTION TO THE PROPOSED:

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***OVERLOOKING FROM ALFRESCO (WITH 1800H FENCE TO ACT AS SCREENING)**

SIGNED...../...../2023

SIGNED...../...../2023

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STONEMAN & TRUSCOTT

#18 WATKINS STREET
WHITE GUM VALLEY
CITY OF FREMANTLE

JOB NUMBER	
2023051	
START DATE JUNE 2023	
SHEET 02 of 06	A3
SCALE 1:200	REVISION A

DRAWING NAME
PROPOSED SITE PLAN

REVISION DESCRIPTION	IN.	DATE
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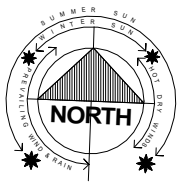

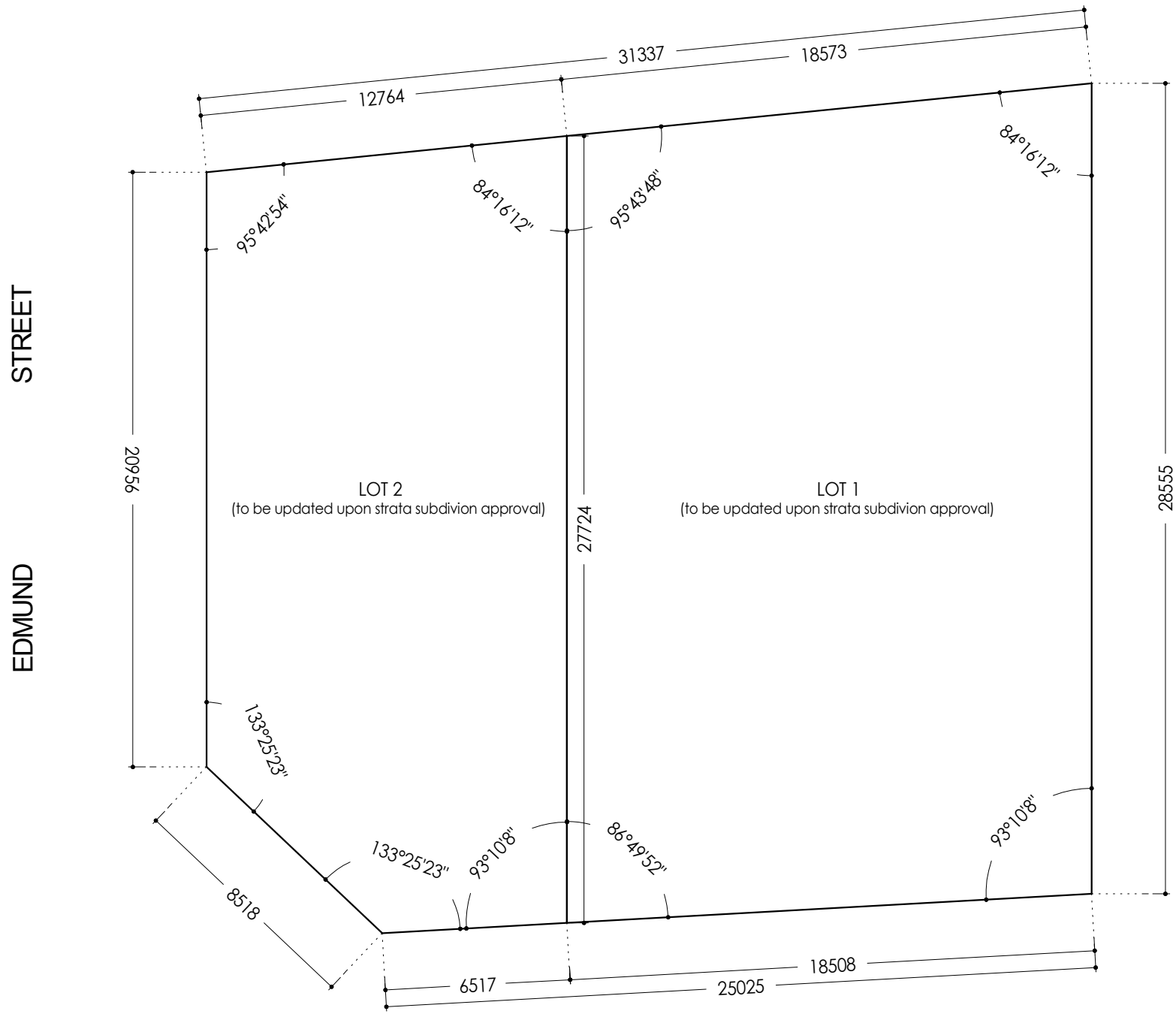

WATKINS STREET

I/WE _____,
BEING THE OWNERS OF THE ADJOINING BLOCK TO LOT 1289 (#18)
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SIGNED...../...../2023

SIGNED...../...../2023

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STONEMAN & TRUSCOTT

#18 WATKINS STREET
WHITE GUM VALLEY
CITY OF FREMANTLE

JOB NUMBER	
2023051	
START DATE	
JUNE 2023	
SHEET 03 of 06	A3
SCALE 1:200	REVISION A

DRAWING NAME
STRATA PLAN

REVISION DESCRIPTION	IN.	DATE
FINAL CONCEPT DESIGN	KS	20.06.2023
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120mm/90mm STUDWORK AS SHOWN

RENDER AND CLADDING AS PER ELEVATIONS

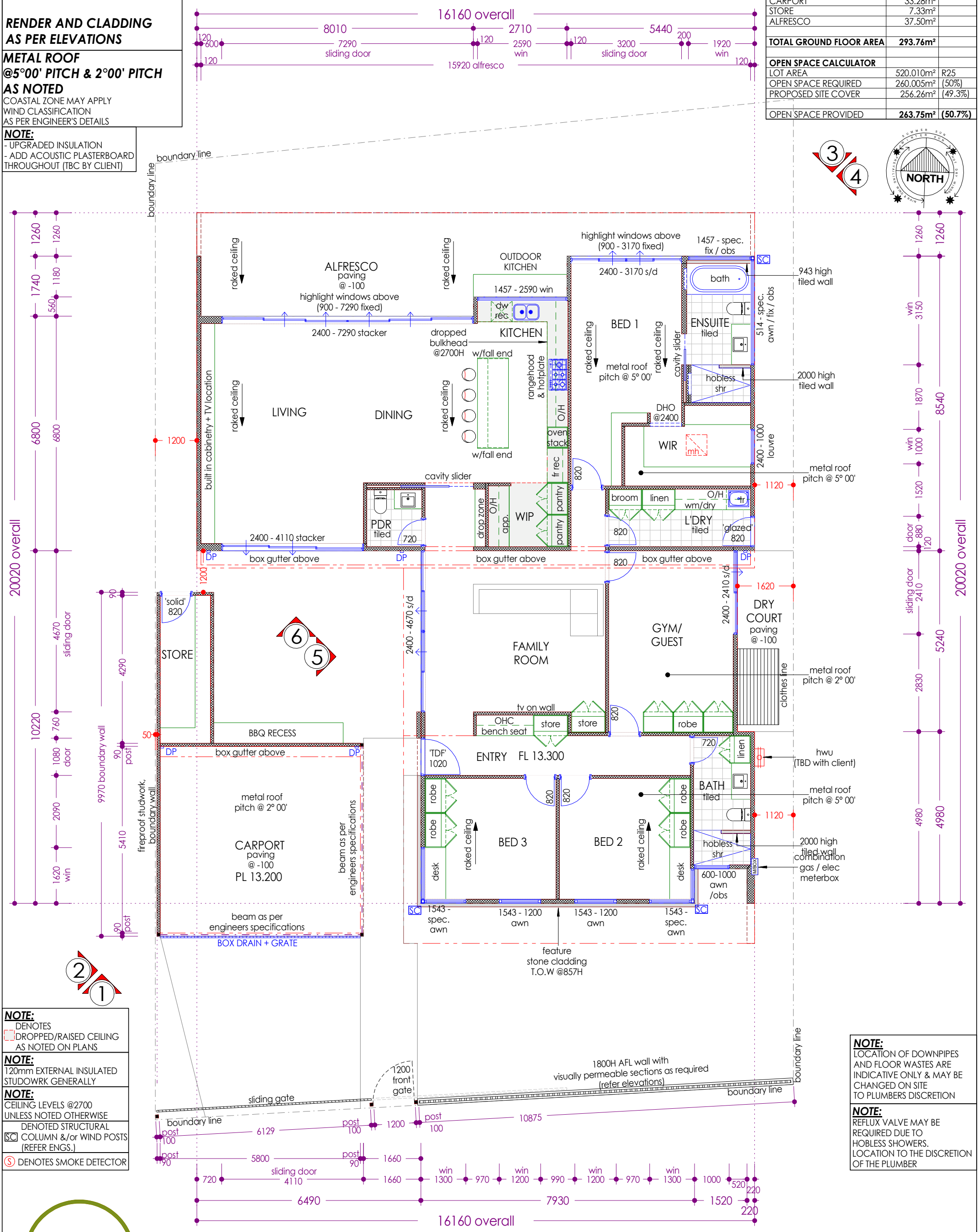
METAL ROOF @5°00' PITCH & 2°00' PITCH AS NOTED

COASTAL ZONE MAY APPLY
WIND CLASSIFICATION
AS PER ENGINEER'S DETAILS

NOTE:
- UPGRADED INSULATION
- ADD ACOUSTIC PLASTERBOARD THROUGHOUT (TBC BY CLIENT)

AREAS

		PERIM.
GROUND FLOOR	215.65m²	
CARPORT	33.28m²	
STORE	7.33m²	
ALFRESCO	37.50m²	
TOTAL GROUND FLOOR AREA	**293.76m²**	
OPEN SPACE CALCULATOR		
LOT AREA	520.010m²	R25
OPEN SPACE REQUIRED	260.005m²	(50%)
PROPOSED SITE COVER	256.26m²	(49.3%)
OPEN SPACE PROVIDED	**263.75m²**	**(50.7%)**



NOTE:
DENOTES DROPPED/RAISED CEILING AS NOTED ON PLANS

NOTE:
120mm EXTERNAL INSULATED STUDOWRK GENERALLY

NOTE:
CEILING LEVELS @2700 UNLESS NOTED OTHERWISE

DENOTED STRUCTURAL COLUMN &/or WIND POSTS (REFER ENGS.)

DENOTES SMOKE DETECTOR

NOTE:
LOCATION OF DOWNPIPES AND FLOOR WASTES ARE INDICATIVE ONLY & MAY BE CHANGED ON SITE TO PLUMBERS DISCRETION

NOTE:
REFLUX VALVE MAY BE REQUIRED DUE TO HOBLESS SHOWERS. LOCATION TO THE DISCRETION OF THE PLUMBER

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#18 WATKINS STREET

WHITE GUM VALLEY

CITY OF FREMANTLE

JOB NUMBER	DRAWING NAME
2023051	GROUND FLOOR PLAN
START DATE: JUNE 2023	
SHEET: 04 of 06	A3
SCALE: 1:100	REVISION: A

REVISION DESCRIPTION	IN.	DATE
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120mm/90mm STUDWORK AS SHOWN

RENDER AND CLADDING AS PER ELEVATIONS

METAL ROOF @5°00' PITCH & 2°00' PITCH AS NOTED

COASTAL ZONE MAY APPLY
WIND CLASSIFICATION
AS PER ENGINEER'S DETAILS

I/WE _____,
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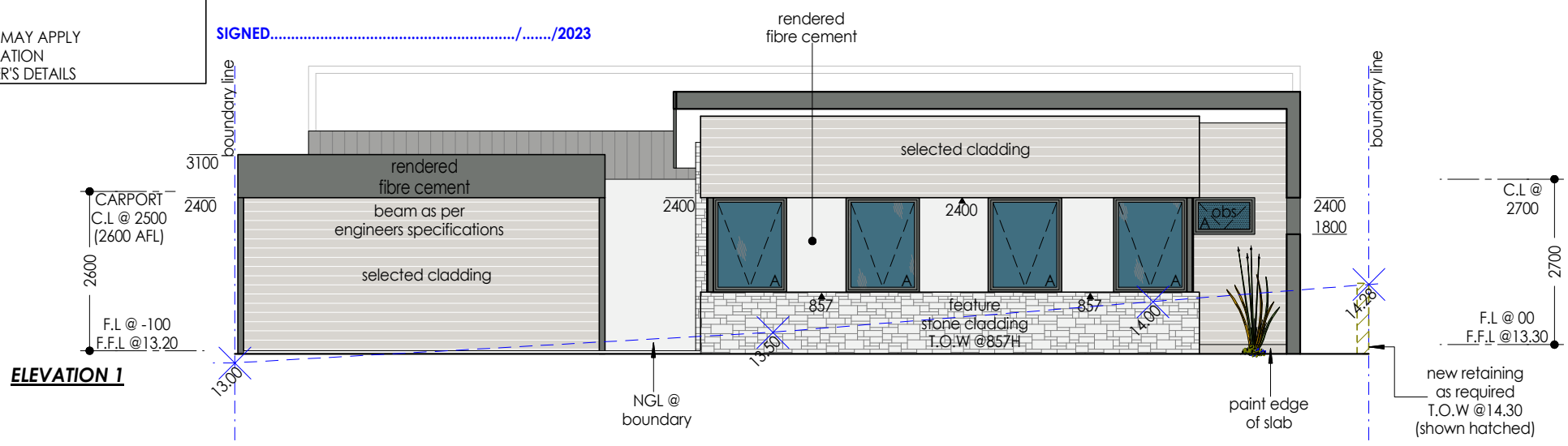
***OVERLOOKING FROM ALFRESCO (WITH 1800H FENCE TO ACT AS SCREENING)**

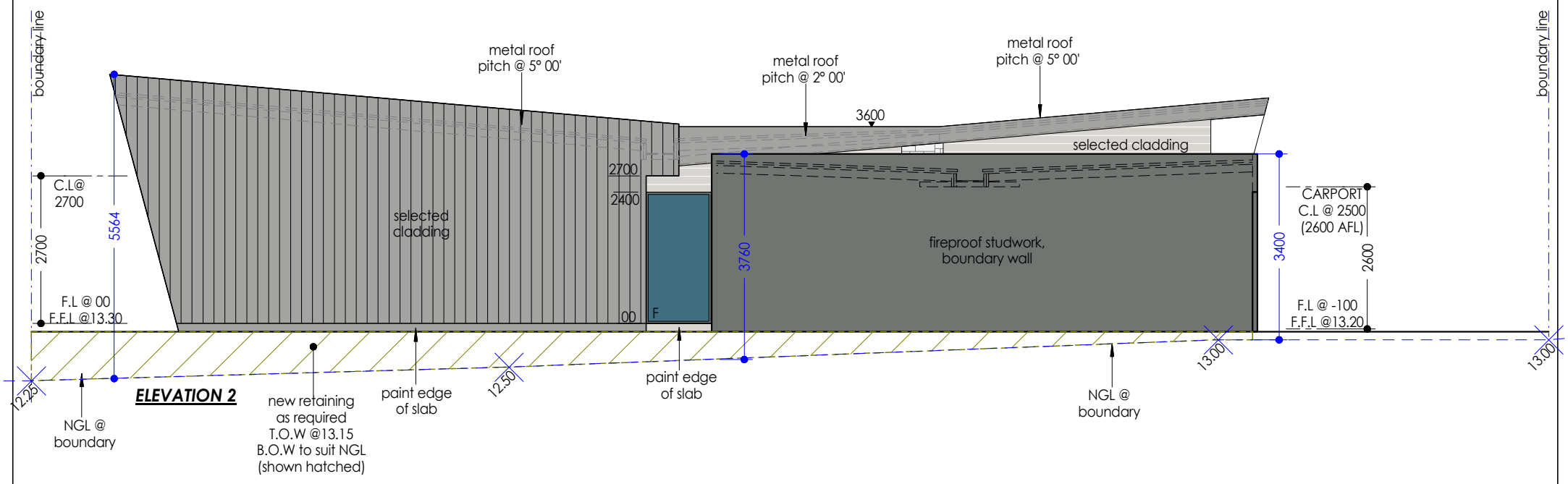
SIGNED...../...../2023

SIGNED...../...../2023

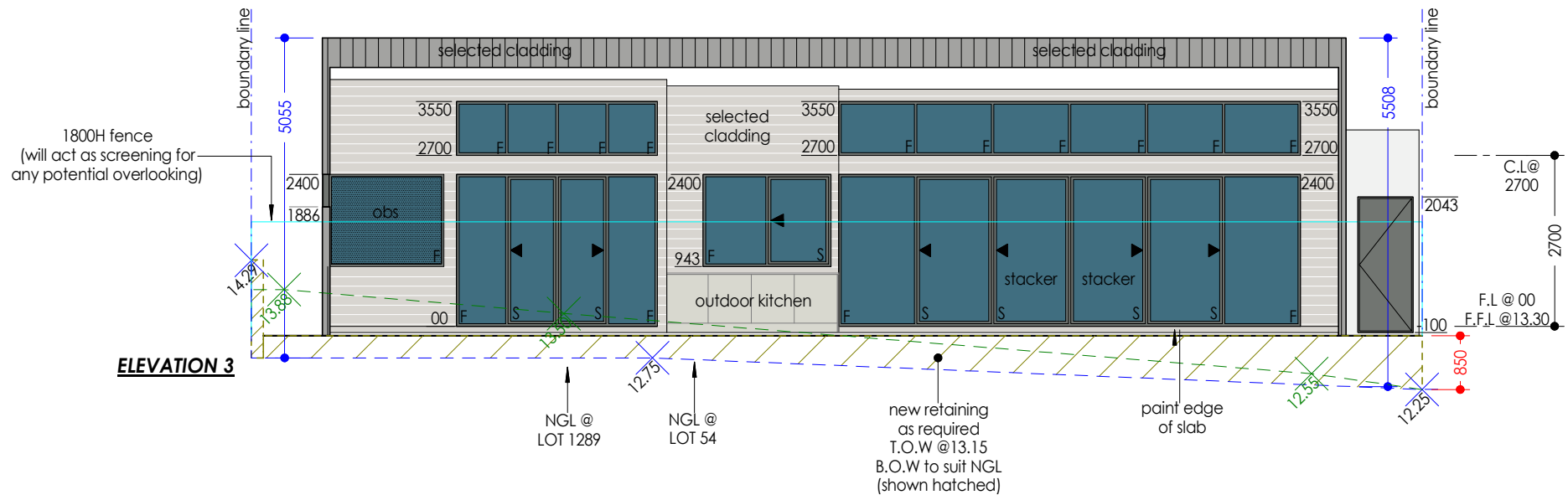
RENDERED FIBRE CEMENT
SELECTED CLADDING #1
RENDERED FIBRE CEMENT #2
SELECTED CLADDING #2



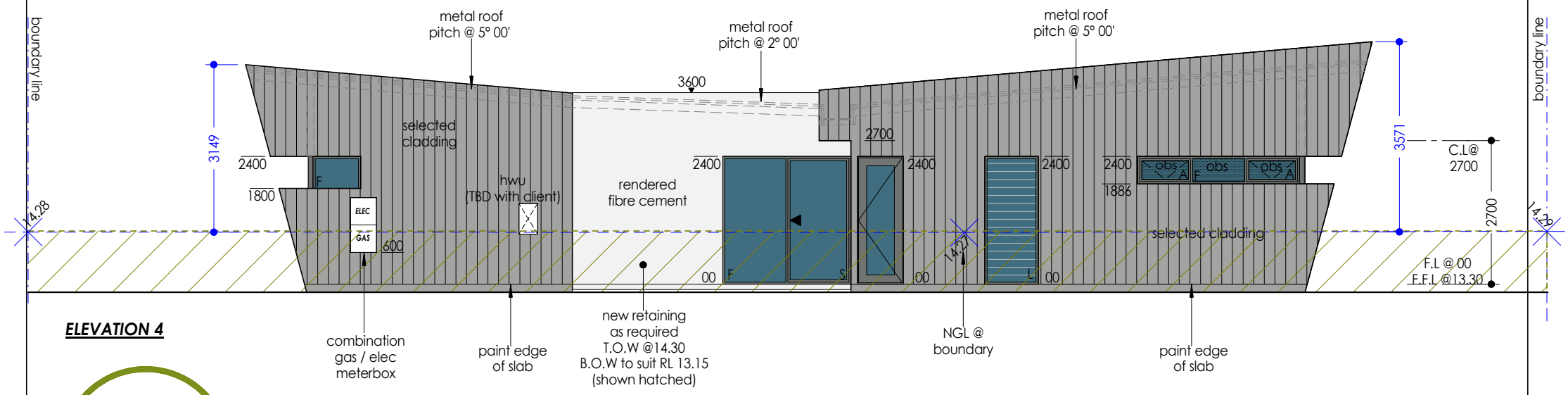
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

KTR CREATIONS

STONEMAN & TRUSCOTT

#18 WATKINS STREET
WHITE GUM VALLEY
CITY OF FREMANTLE

JOB NUMBER	DRAWING NAME
2023051	ELEVATIONS
START DATE: JUNE 2023	
SHEET: 05 of 06	A3
SCALE: 1:100	REVISION: A

REVISION DESCRIPTION	IN.	DATE
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C:\Users\Tiago\KTR Creations Pty Ltd\KTR Creations Pty Ltd - Documents\1. Drafting\1_Current Jobs\2023051_Stoneman & Truscott\Drafting\2_Planning\2023051 -PD- Plan_Elevations - Rev A.skf

120mm/90mm STUDWORK AS SHOWN

RENDER AND CLADDING AS PER ELEVATIONS

METAL ROOF @5°00' PITCH & 2°00' PITCH AS NOTED

COASTAL ZONE MAY APPLY
WIND CLASSIFICATION
AS PER ENGINEER'S DETAILS

I/WE _____,
BEING THE OWNERS OF THE ADJOINING BLOCK TO LOT 1289 (#18) WATKINS STREET, WHITE GUM VALLEY, HAVE INSPECTED THIS PLAN AND HAVE NO OBJECTION TO THE PROPOSED:

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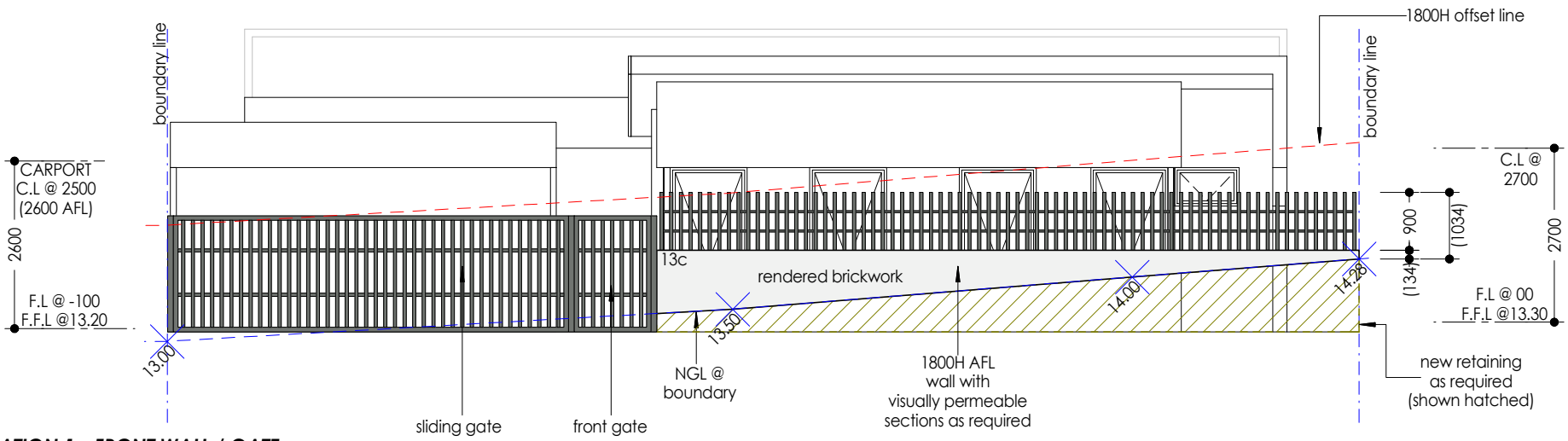
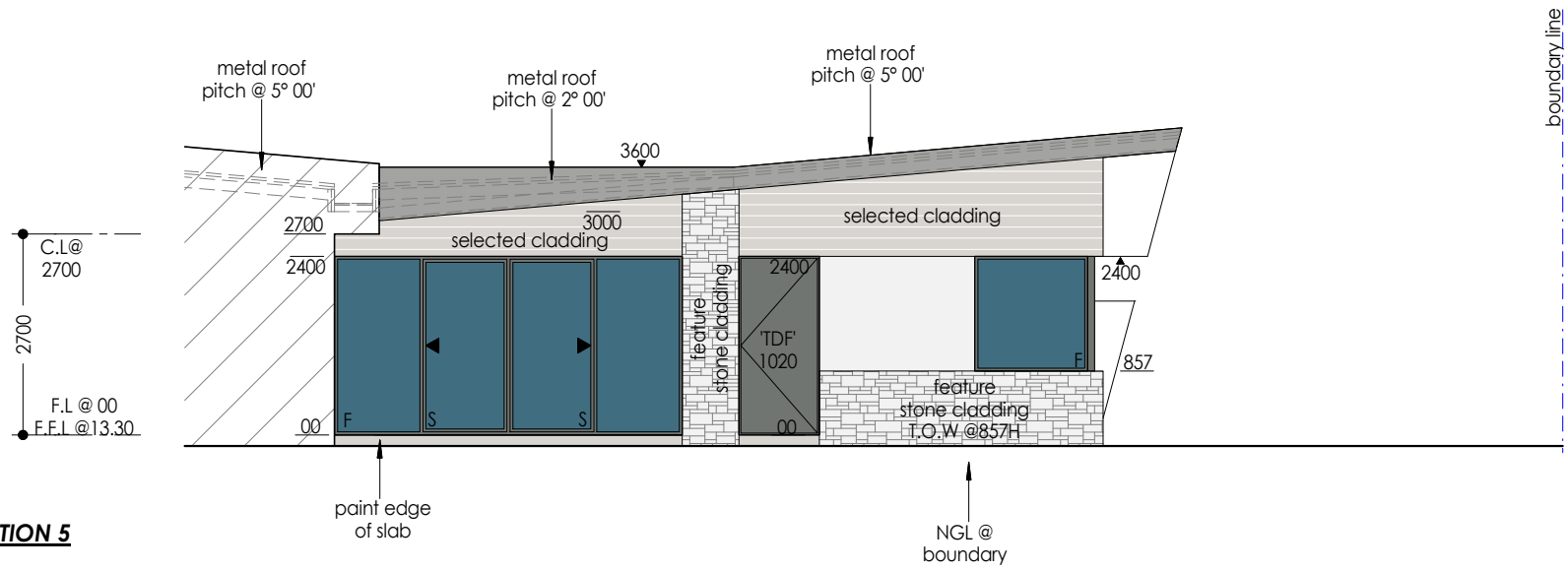
SIGNED...../...../2023

SIGNED...../...../2023

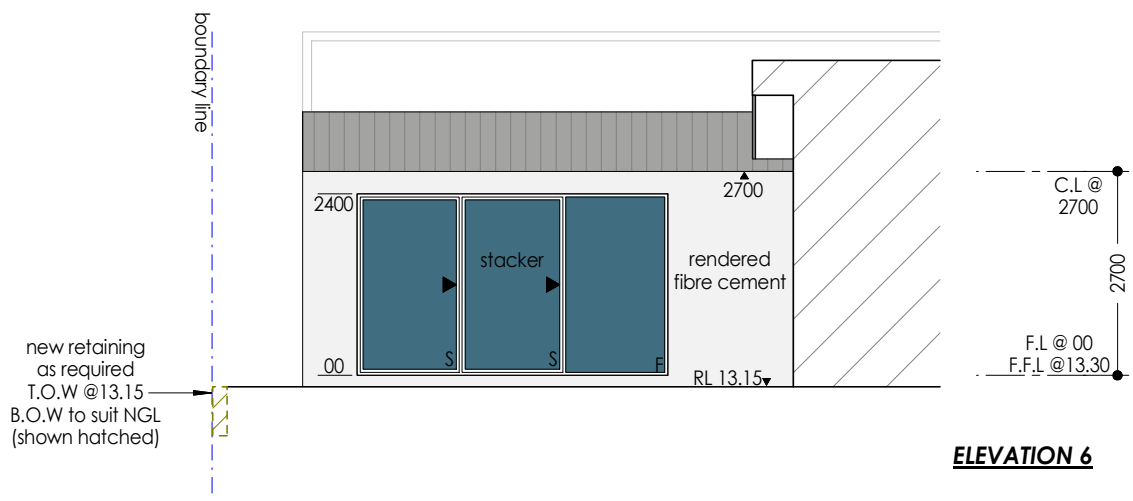
RENDERED FIBRE CEMENT
RENDERED FIBRE CEMENT #2
SELECTED CLADDING #1
SELECTED CLADDING #2



ELEVATION 1 - FRONT WALL / GATE



ELEVATION 5



ELEVATION 6

KTR CREATIONS

STONEMAN & TRUSCOTT

#18 WATKINS STREET
WHITE GUM VALLEY
CITY OF FREMANTLE

JOB NUMBER	DRAWING NAME
2023051	ELEVATIONS 2

START DATE: JUNE 2023
SHEET: 06 of 06 — A3
SCALE: 1:100 — REVISION: -

REVISION DESCRIPTION	IN.	DATE
FINAL CONCEPT DESIGN	KS	20.06.2023
PLANNING DRAWINGS	TR	25.07.2023

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08/11/2023

City of Fremantle
Fremantle Oval
70 Parry St
Fremantle, WA 6160

RE: Proposed Residence Development Application at LOT 1289 (#18) Watkins Street, White Gum Valley.
Please see enclosed plans and accompanying information for the above-mentioned proposed development. See below justification for variations to **LPP 2.9**.

The attached design proposes a variation to primary street setbacks as outlined in Local Planning Policy 2.9. However, The City of Fremantle possesses discretionary powers to approve a variation to clause 1.1 if the proposed setback of the building is consistent within the prevailing streetscape.

The City of Fremantle defines prevailing streetscape as the three properties, where appropriate, adjoining either side of the subject site (except where a road intersects), fronting the same street and in the same street block. It is noteworthy that two of the three adjoining properties to the east do not comply with the setbacks prescribed in the policy.

For instance, the two-story house at 20B Watkins Street exceeds 4 meters in height and is set back approximately 7.3 meters from the front boundary, with a 6-meter setback to the garage. According to Local Planning Policy 2.9, this dwelling should have a minimum primary street setback of 10 meters, which represents a deviation of approximately 2.7 meters from the stipulated requirement.

Similarly, the two-story house at 22 Watkins Street, with a height greater than 4 meters, should have a minimum front setback of 10 meters in accordance with the local planning policy. However, the house is only set back an average of 6.2 meters, indicating a variance of 3.8 meters from the prescribed setback.

Additionally, an existing carport on the subject site is set back only 2 meters from the front setback. The proposed design significantly increases the primary setback, thereby enhancing and positively contributing to the desired streetscape outlined in Local Planning Policy 2.9.

There are other instances of homes along the street that breach the prescribed 7-meter setback. Although these houses may not strictly fall under the City's definition of the "prevailing streetscape," they are in close proximity to the subject site and influence the overall streetscape. These houses contribute to the precedent already established above and should be considered when determining a variation to the setback of 18 Watkins Street. The following developments do not adhere to the setbacks specified in the Local Planning Policy:

- 17 Watkins Street: This lot is situated diagonally across the road from the subject site and has a primary street setback of 5.6 meters in lieu of 7 meters.
- 16 Watkins Street: This dwelling is on a subdivided lot] addressing Watkins Street as the primary frontage. It is directly across from the subject site and maintains a primary street setback of 5 meters in lieu of the required 7 meters.
- 98A Edmund Street: This two-story home, with a height exceeding 4 meters, should have a 10-meter setback according to the policy but is only set back 3.2 meters.
- 24 & 26 Watkins Street: Both of these houses have setbacks less than 7 meters, with 5.3 meters and 6.4 meters, respectively.

These properties contribute to the immediate streetscape of the subject site and impact the aesthetic of the public realm, particularly from a pedestrian perspective. The variation to the policy seen throughout these houses is contextually relevant. The proposed single-story dwelling boasts an appealing street facade and will have a lesser impact in terms of building bulk and overshadowing to the street in comparison to most other houses in the area. The precedent set by the variation to setback requirements within the streetscape supports the variation sought by the proposed design.

It's important to note that there are only two homes on Watkins Street that align with the 7-meter setback that the City of Fremantle is requiring from the proposed development (20A & 20B). However, both lots are considerably longer than the subject property, allowing for large northern-facing outdoor living areas, providing opportunity for residence to use space external to the dwelling for outdoor pursuit. Furthermore, as mentioned above, 20B does not comply with Local Planning Policy 2.9 due to its height being more than 4m.

Considering the above, we kindly request review and consideration of a variation to the 7-meter setback as stipulated in Local Planning Policy 2.9. While doing so, we would also appreciate the following factors being taken into account:

- Increasing the setback of the proposed design would reduce the solar passive aspects of the home. It would result in a reduction in the size of the northern-facing backyard, as a result the boundary fence would overshadow the primary outdoor living area of the home, which is counterproductive, and goes against the general ambitions of the City of Fremantle in terms of being energy efficient and designing houses to be solar passive.
- The front boundary has an angled configuration, making it challenging to comply with the required setback.
- Written planning advice was previously provided by email suggesting that a 5.3-meter setback would be considered.

Since there are examples of other adjacent properties to the subject site with previously approved varied setbacks, we believe the City of Fremantle should be able to support the proposed variation to the 7-meter setback as set out in Local Planning Policy 2.9.

Kind Regards,

S.Phillips

Sarah Phillips
Designer|Draftsperson
P | 9381 2106
E | sarah@ktrcreations.com.au
W | www.ktrcreations.com.au

C2312-1 WATKINS STREET, NO. 18 (LOT 1289), WHITE GUM VALLEY – SINGLE STOREY SINGLE HOUSE – (JD DA0249/23)

Attachment 3 - Site Photos

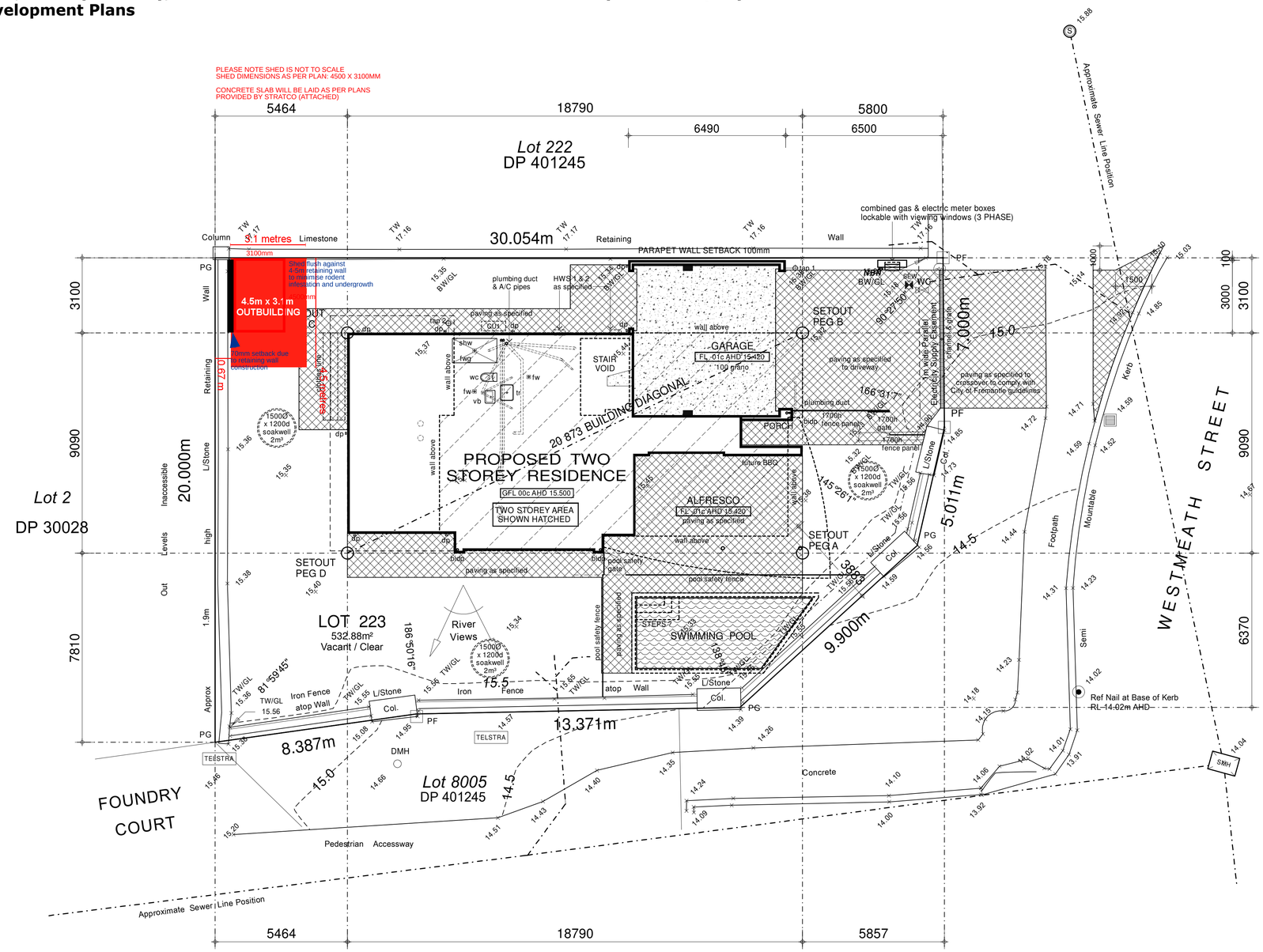
Photo 1: Subject site as viewed from the corner of Watkins and Edmund Street (view north-east).

Photo 2: Subject site as viewed from Watkins Street

Photo 3: Frontage of subject site looking north along Watkins Street.

Photo 4: Frontage of subject site looking south along Watkins Street.

Photo 5: Subject site and adjoining lot as viewed from opposite side of Watkins Street.



LEGEND:

AHD	Australian Height Datum
GFL	Ground Floor Level
FL	Floor Level
FPL	Finished Paving Level
FGL	Finished Ground Level
TOPS	Top Of Pool Shell
InvL	Invert Level
TOW	Top Of Wall
TOF	Top Of Footing
SW	Stormwater
dp	Downpipe
PD	Paving Drain
LPD	Linear Paving Drain
TOSS	Top Of Spa Shell
RS	Remote Switch
bkwk	Brickwork
SF	Stone Facing
LMC	Lift Machine Cabinet
DW	Dry Walling
WHP	Wall Hung Pan

SITE PLAN
SCALE 1:100

NOTE:
LOT MISCLOSE ???mm

SURVEY INFORMATION:

SURVEYOR
SURVEY JOB No: 101343
SURVEY DATE: 08/07/2014
LOCAL AUTHORITY: CITY OF FREMANTLE
DP 401245 VOL 2838 FOL 597

CITY OF FREMANTLE
These Plans Form Part of
DA0242/23
14 Aug 2023

REFINED EDGE
BY BRIAN BURKE HOMES

ABN 77 008 823 425
131 Herdsman Parade, WEMBLEY WA 6014
Tel: 9387 7333 Fax: 9387 3181
Email: bbh@brianburkehomes.com.au

PROJECT TITLE:
PROPOSED RESIDENCE FOR Mr & Mrs MINNS

PROJECT ADDRESS:
LOT 223 (H No 4) WESTMEATH STREET, NORTH FREMANTLE

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DRAWINGS APPROVED FOR QUOTING
DRAWINGS APPROVED FOR CONSTRUCTION

AMENDMENTS: DESCRIPTION:

QUOTING

DRAWING TITLE: SITE PLAN

THESE ARE THE PLANS REFERRED TO IN OUR CONTRACT
OWNER ..... OWNER .....
BUILDER ..... WITNESS .....

DATE DRAWN:	ISSUE DATE:	PRINT SIZE:	ISSUE:	SHEET NO:
MAY 2021	12/07/21	A1	C	A01

How To. STRATCO

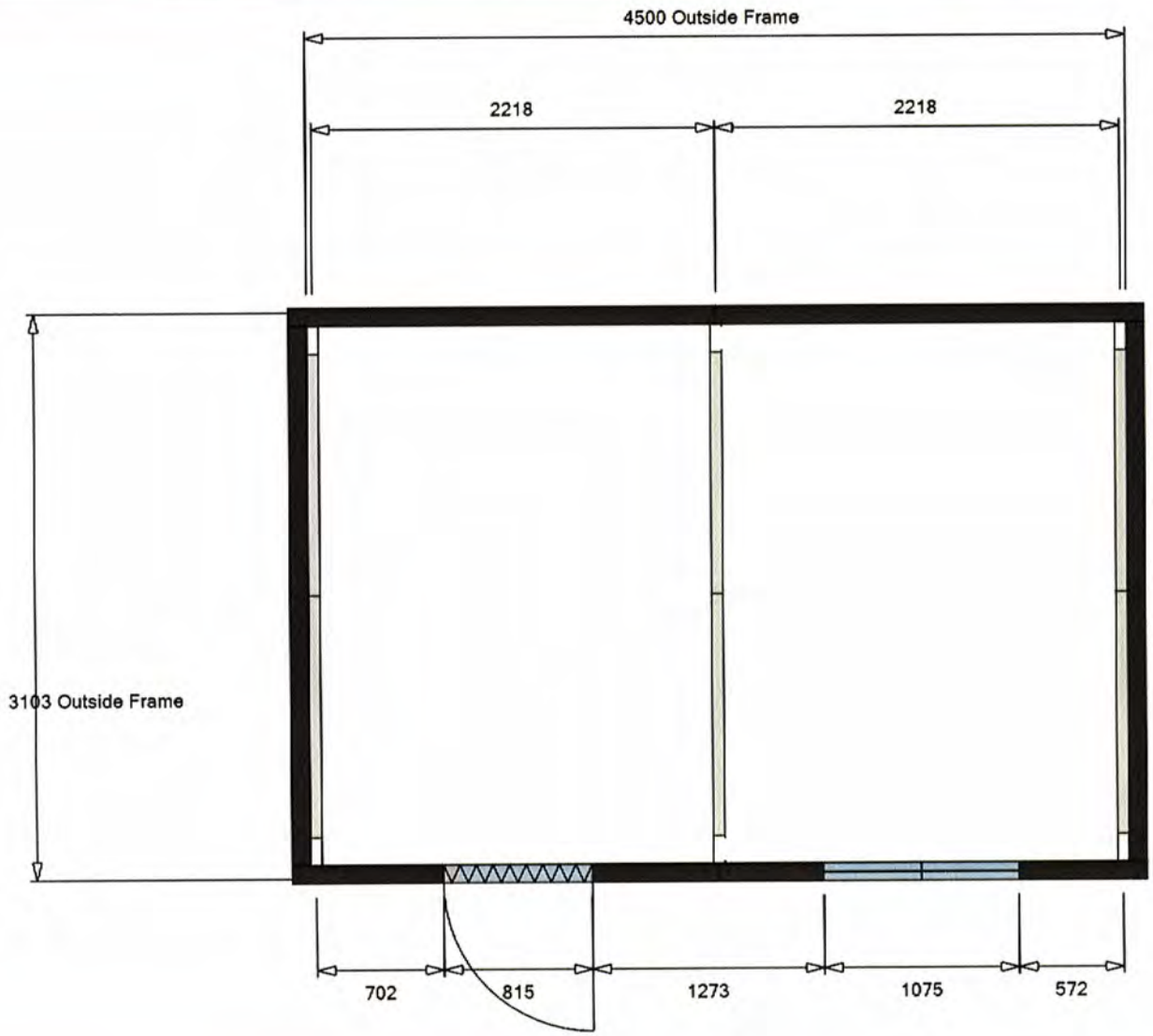
All Dimensions shown are measured from outside of frame (including purlins and girts). Dimensions shown are for illustrative purposes only and should not be used for assembly. Please refer to the relevant installation guides or detailed drawings provided for site preparation, portal frame layout and slab dimensions.

Please refer to current Stratco Gable Homeshed certification referenced 50098 by FYFE Pty Ltd for 15° Homeshed range or certification referenced 2011-628 by RSA for 10° Homeshed range. Certifications are applicable to standard shed designs only.

SHEDS

Site Plan

Job Reference		Site Address	4 Westmeath Street	Design Number	SQ284673	Customer Signature
Sales Person	Mr Jimmi Homewood		North Fremantle	Date	10/06/2023	
Client Name	David Minns					



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14 Aug 2023

How To. STRATCO

All Dimensions shown are measured from outside of frame (including purlins and girts). Dimensions shown are for illustrative purposes only and should not be used for assembly. Please refer to the relevant installation guides or detailed drawings provided for site preparation, portal frame layout and slab dimensions.

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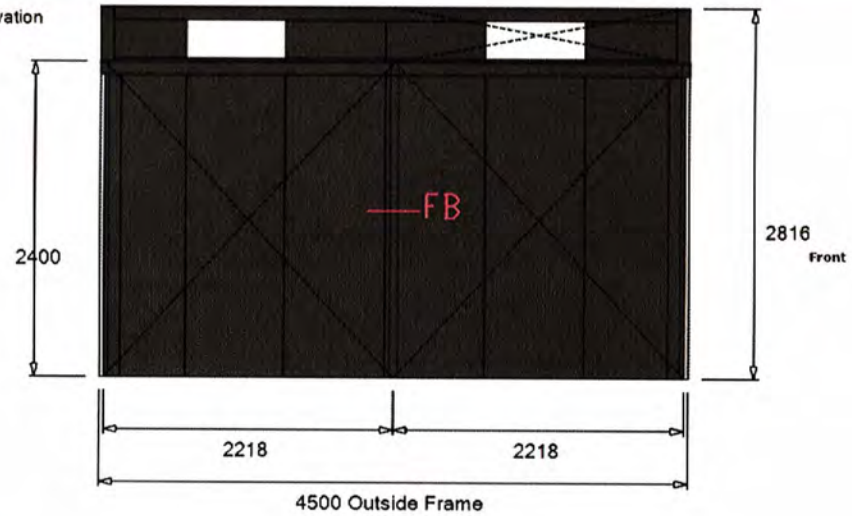
SHEDS

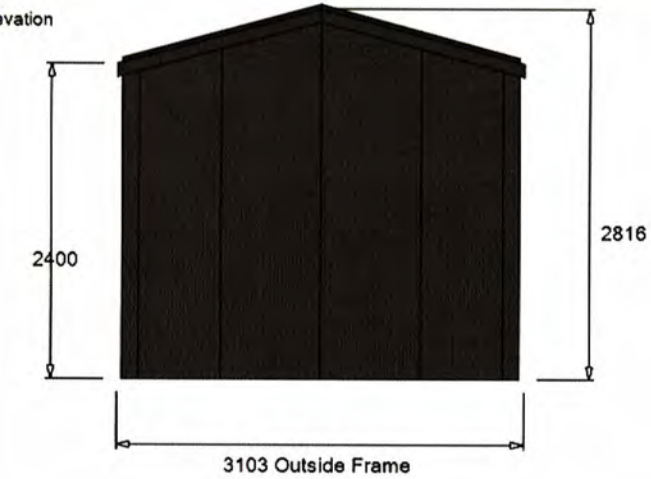
Elevations

Job Reference		Site Address	4 Westmeath Street	Design Number	SQ284673	Customer Signature
Sales Person	Mr Jimmi Homewood		North Fremantle	Date	10/06/2023	
Client Name	David Minns					

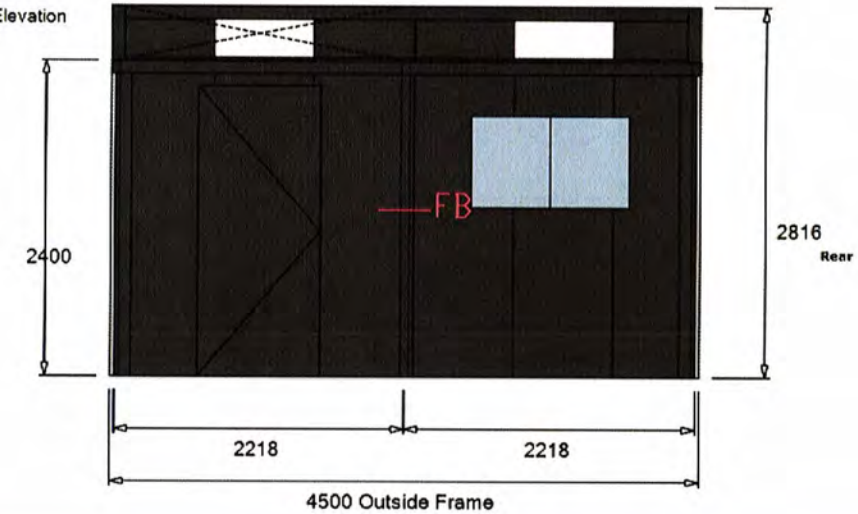
Left Elevation



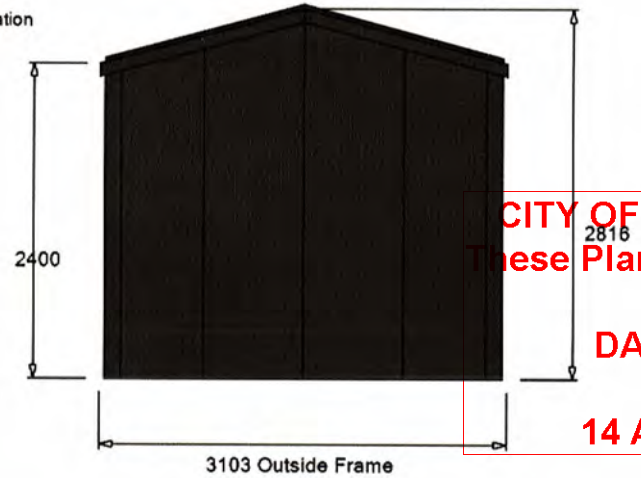
Front External Elevation



Right Elevation



Rear External Elevation



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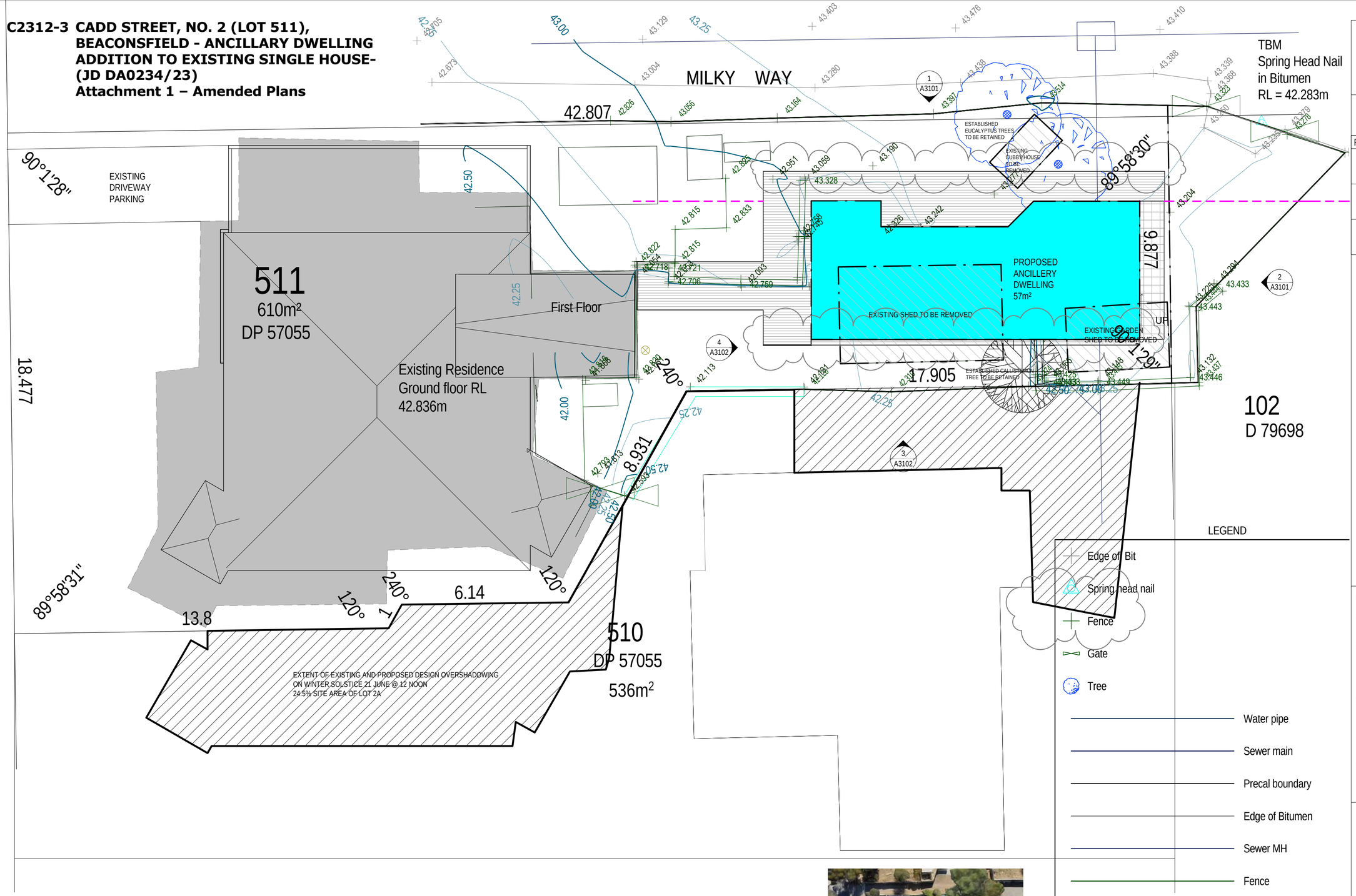
14 Aug 2023

C2312-2 **WESTMEATH STREET, NO. 4 (LOT 223), NORTH FREMANTLE– OUTBUILDING ADDITION – (JD DA0242/23)**
Attachment 2 - Site Photos

Photo 1: Subject site as viewed from Westmeath Street (dwelling construction has since been completed)

Photo 2: Proposed location of outbuilding in rear corner of lot.

C2312-3 CADD STREET, NO. 2 (LOT 511), BEACONSFIELD - ANCILLARY DWELLING ADDITION TO EXISTING SINGLE HOUSE- (JD DA0234/23)
Attachment 1 – Amended Plans



1 A3101 Site Plan
1 : 100

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9 Nov 2023

EXISTING EXTENT OF ESTABLISHED TREE CANOPY OVERSHADOWING IN WINTER

REV	DATE	STATUS	ISSUED
1	28/07/23	FOR DEVELOPMENT APPROVAL	SB
2	24/10/23	FOR DEVELOPMENT APPROVAL	SB
3	8/11/23	FOR DEVELOPMENT APPROVAL	SB

NOTES

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2. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORKS. THE CONTRACTORS SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES AND AWAIT AN INSTRUCTION BEFORE COMMENCEMENT OF THE WORKS.
3. THE DRAWINGS MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND ASSOCIATED DRAWINGS.
4. CONFIRM ALL RELEVANT LEVELS, DETAILS AND SETBACKS TO ALIGNMENTS ON SITE PRIOR TO COMMENCEMENT OF ALL WORKS.
5. ALL DESIGN AND ALL CONSTRUCTION TO COMPLY WITH RELEVANT STANDARDBUILDING BY-LAWS, BUILDING ACT AMENDMENTS, AND ALL CONTRACT DOCUMENTATION.

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Client	D. Groves and L. Goodwin
Project	2 CADD STREET BACKYARD HAVEN
Drawing Title	SITE PLAN

Scale:	Dr:	Chk:	Appvd:
As indicated @ A2	SB	SB	SB

Job No:	Drawing No:	Rev:
O22P02	A1101	3

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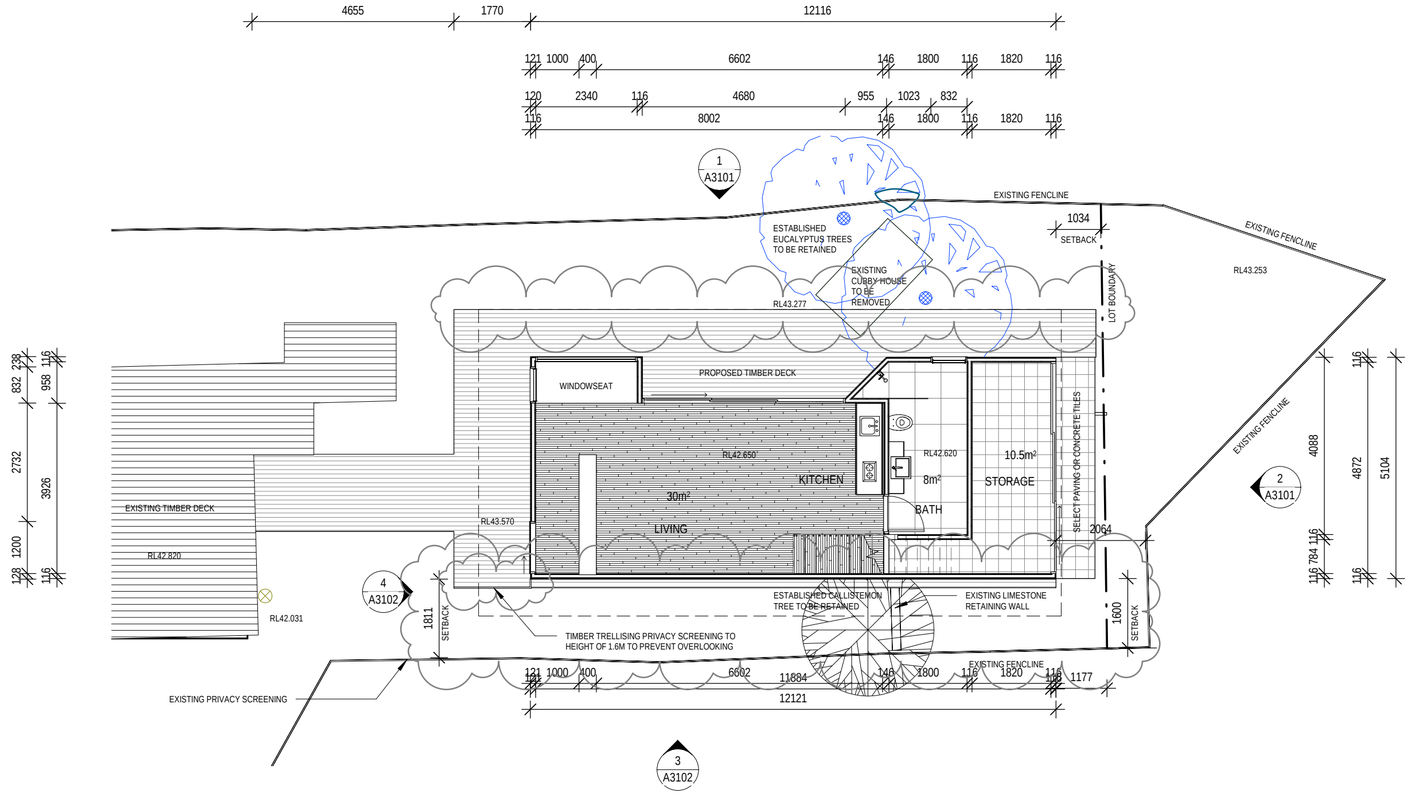
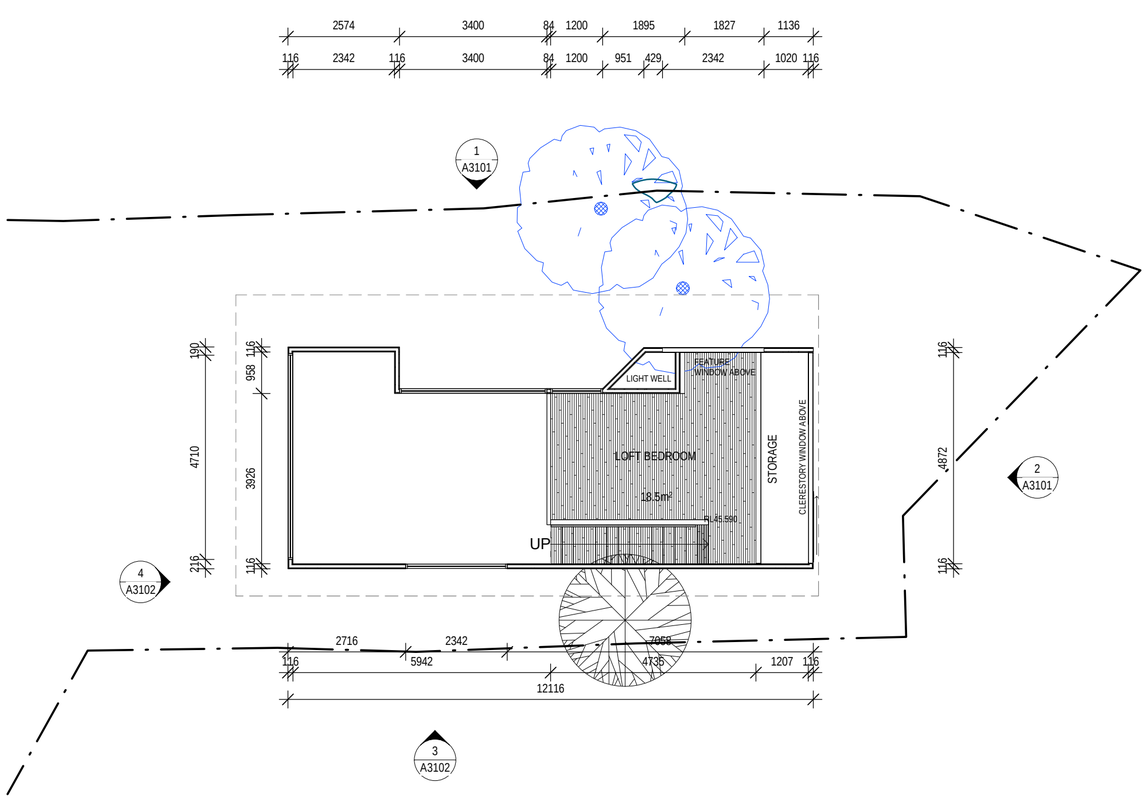


1 A3101 GROUND FLOOR
1 : 100



2 A3101 LOFT
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Project: 2 CADD STREET BACKYARD HAVEN

Drawing Title: FLOOR PLANS

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1 : 100 @ A2	Author	Checker	SB

Job No:	Drawing No:	Rev:
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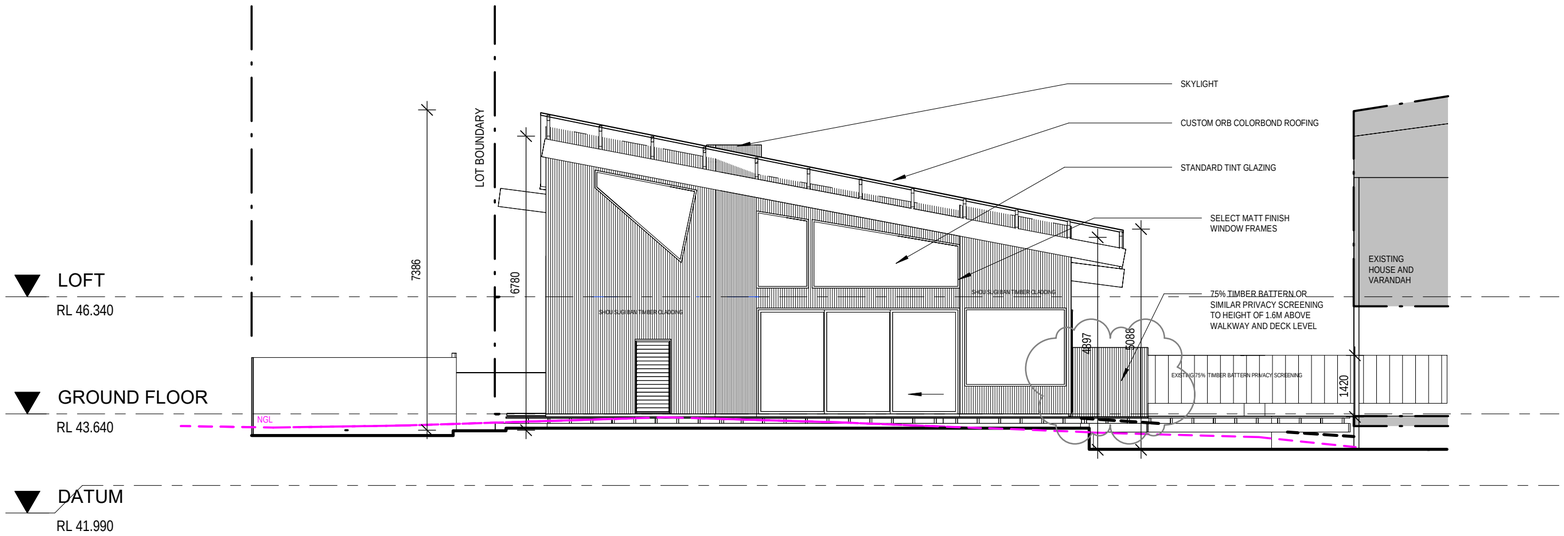

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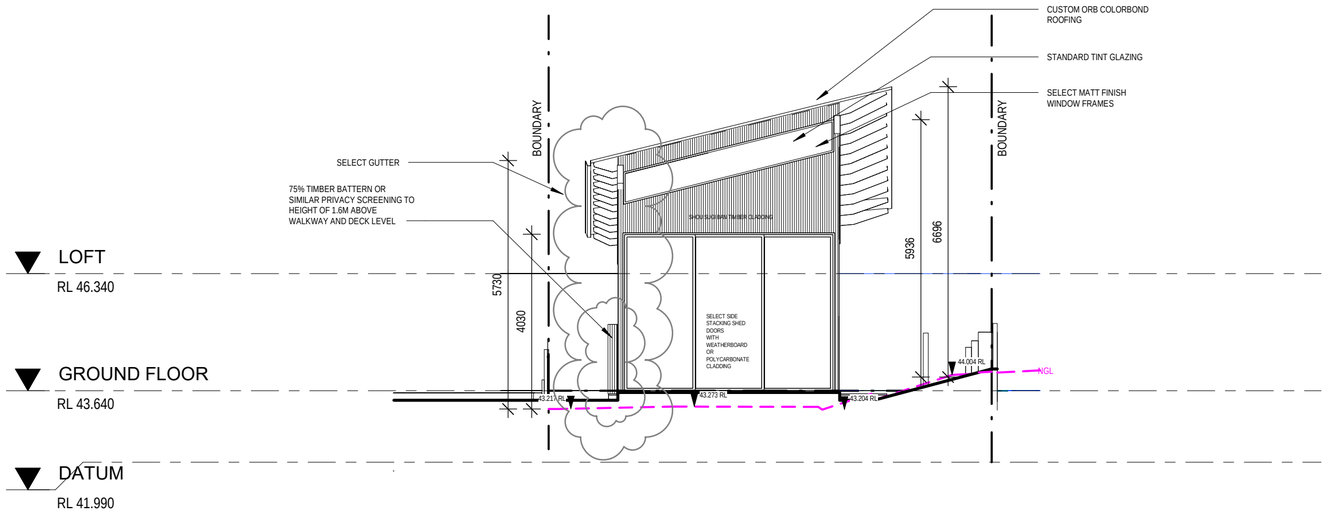

2 A1101 Elevation 2 - a

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1	28/07/23	FOR DEVELOPMENT APPROVAL	SB
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Client: D. Groves and L. Goodwin

Project: 2 CADD STREET BACKYARD HAVEN

Drawing Title: ELEVATIONS

Scale:	Dr:	Chk:	Appvd:
1 : 100 @ A2	Author	Checker	SB

Job No:	Drawing No:	Rev:
O22P02	A3101	3

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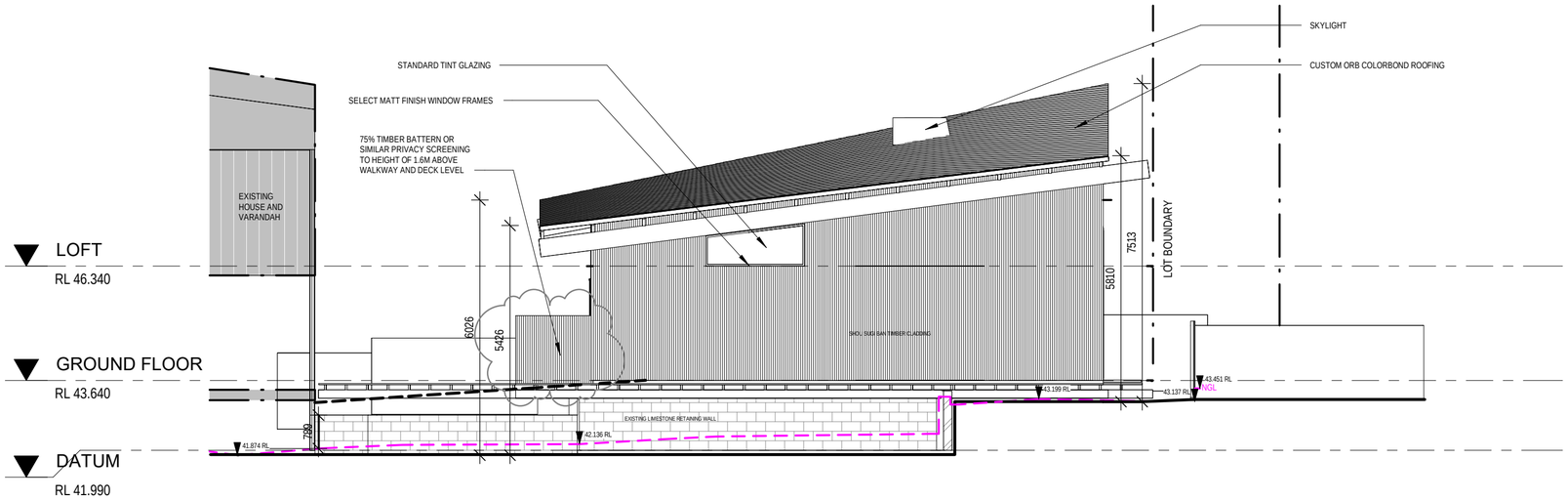

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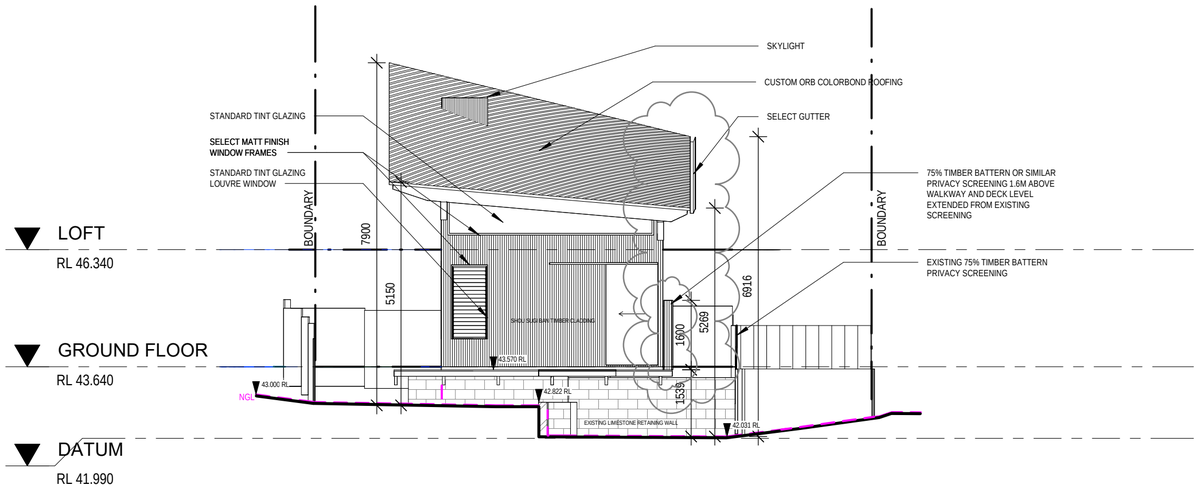

4 A1101 Elevation 4 - a

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DA0234/23

9 Nov 2023

REV	DATE	STATUS	ISSUED
1	28/07/23	FOR DEVELOPMENT APPROVAL	SB
2	24/10/23	FOR DEVELOPMENT APPROVAL	SB
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Client: D. Groves and L. Goodwin

Project: 2 CADD STREET BACKYARD HAVEN

Drawing Title: ELEVATIONS

Scale:	Dr:	Chk:	Appvd:
1 : 100 @ A2	Author	Checker	SB

Job No:	Drawing No:	Rev:
O22P02	A3102	3

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C2312-3 CADD STREET, NO. 2 (LOT 511), BEACONSFIELD - ANCILLARY DWELLING ADDITION TO EXISTING SINGLE HOUSE – (JD DA0234/23)

Attachment 2 – Advertising Submission

The proposed ancillary dwelling at 2 Cadd Street, if built as proposed, will have significant impacts on our visual privacy, light access and site amenity.
In combination with the existing dwelling, solar access would be blocked along our entire northern boundary.

The proposed development does not meet the the R-Codes in several ways and we consider that the City of Fremantle Planning office and Fremantle Council should not allow this development to proceed until the design is rectified in a manner that meets minimum expected standards. Here we identify the most significant ways in which the proposed development fails to comply:

- **Lot boundary setback (5.1.3)**: Setback from the southern boundary is insufficient. For a building of this height with wall length of 12 metres, the minimum setback must be 1.5m. The proposed setbacks of 1.2 and 1.45 are insufficient and would have consequent effects on our amenity. The drawing provided as "Elevation 4-a" does not use correct proportions and could be considered misleading for assessing the proposed setback distance.

- **Access to light (Design principle 5)**: Direct sun to all major openings in all north facing habitable rooms will be totally restricted. Solar cells on the roof are also likely to be affected. In combination with the existing dwelling solar access is limited along our entire northern boundary.

- **Overshadowing (5.4.2)**: the proposed development will lead to more than 25% of our property being overshadowed. The drawings provided do not include the overshadowing from proposed fences and screening, which will be more than 3 metres height above natural ground level and thus need to be taken into account. Additional comments on the calculation and effects of overshadowing are provided in a footnote*, below.

- **Visual privacy (5.4.1)**: The positioning of the walkway and entrance doorway directly adjacent to our boundary means our property will be overlooked. The proposed screening along our fenceline, will mean a fence height of over 3 metres along 18 m of our northern boundary fence, with significant impacts on access to light and overshadowing. Our entire north side will be overshadowed. We consider the proposed walkway to the main house, positioning of the entrance door and proposed walkway along the southern wall of the Ancillary Dwelling to be unnecessary and do not comply with the code.

- **Setbacks of unenclosed outdoor active habitable spaces (5.4.1)**: The walkways around the western and southern sides of the proposed dwelling can be considered active outdoor habitable spaces, are raised more than 0.5m above natural ground level, similar to a verandah, and require a far greater setback than provided in the plans.

- **Building heights (5.1.6)** are not depicted accurately on the plans. These need to be shown as the natural level at the boundary, including the retaining wall along the southern boundary at the eastern end of the site. "Elevation 2a" does not include these heights, which are significantly high for an ancillary dwelling.

Open space (5.1.4) The existing dwelling and outbuildings with the addition of the proposed ancillary dwelling will not meet the R code provisions relating to open space. Indeed the existing footprint may already be close to 50% of the site. The existing main residence has a larger ground floor footprint than the 42.836m2 suggested in the submitted plans. We note that design principal 5.5.1 "Ancillary dwelling" states that the ancillary dwelling must not preclude the single house from meeting the required minimum open space and outdoor living area requirements.

- **Obstructed sight lines (5.2.5)** The proposed car parking and existing planter box on the verge create visual interference which has considerable safety implications for pedestrians and for driveway egress for us and for other neighbours down the hill. It is especially dangerous when cyclists are coming down the hill as their visibility is compromised.

  Insufficient accompanying information (Part 3): The drawings referred to above (Elevation 2a and Elevation 4a) do not include relevant height or setback information required to assess the proposal and are drawn in a manner that is inaccurate and could be misleading. Similarly the use of perspective in the rendered diagrams (on page A4101) may also be construed as misleading planning decision-makers. The diagram for overshadowing is also insufficient, as described in the note below. Full and clearly depicted information is required in order for a decision about the proposed development to be made.

This proposed development is not only along our northern boundary but also on an uphill slope. The existing and the proposed building size is significant in terms of overlooking, overshadowing, proximity to our boundary and access to light.

Several changes to the plan would help to remedy some of the negative effects. These include the removal of the proposed western entrance door and western and southern walkways, and thus the need additional screening along the fence. The building height is significant and consideration should be given to using the natural lower ground level rather than building at upper slope height and including a loft. Finally, the overall building footprint is large for an ancillary dwelling and reducing the size of the dwelling and the bulk of the building would reduce the negative impacts on our adjoining property. In fact this is necessary to achieve the required boundary setbacks.

For these reasons provided here as comments, we formally object to the development as proposed. You are welcome to contact us for further information and we expect to be kept informed of any Planning Committee or Council discussion of this proposal.

Kind regards,

**** Additional remarks on the calculation of overshadowing:***

The provided documents fall short of the requirements of R-code part 3 (Accompanying information), section 2, clause n ('plans and sections of sufficient information to explain how the adjoining property as a whole would be affected by overshadowing'). The plans do not meet the requirements because:

1. *They fail to give any indication of the natural ground levels of the adjoining block 510 (our block).*
2. *They ignore that the natural ground level of block 510 is lower than that of block 511.*
3. *They misrepresent, on the second (lower) drawing on the plan on page 5 of 6 the groundlevel of block 510 (adjoining) block to increase relative to block 510.*

The provided calculation of the overshadowed area of the adjoining block 510 is, as a consequence of the above, likely incorrect and likely higher than the 25% allowed.

Further, the calculation of the shadow is likely incorrect and too low because it fails to correctly follow the following requirements of the code:

1. *The dividing fences between block 511 and 510 are not taken into account even though their height exceeds 2 metres above the natural ground level. (see explanation for code 5.4.2 C2.1)*
2. *The calculation makes regard to existing buildings on block 510 (that is, the overshadowed area in the plan on page 2 of 5 excludes the area of the existing house on block 510. (as per 5.4.2.C2.1 the shadowed area needs to be calculated without regards to existing buildings)*
3. *The calculation for the showed area does not or appears not to take the lower natural ground level of block 510 into account. Again this is required by 5.4.2.C2.1*

Based on the above observations, we object to the proposed development as it will or is likely to overshadow more than 25% of our block (block 510, adjoining to block 511).

Should the proponents of the development pursue further the approval of the development, we require a further consultation on the basis of plans that enable an accurate calculation of the overshadowed area; that contain the relevant information as per part 3, clause 2, n; and that rectify the errors described above.

C2312-3 CADD STREET, NO. 2 (LOT 511), BEACONSFIELD - ANCILLARY DWELLING ADDITION TO EXISTING SINGLE HOUSE – (JD DA0234/23)

Attachment 3 - Site Photos

Photo 1: Subject site as viewed from Cadd Street

Photo 2: Rear of subject site as viewed from the right of way, proposed ancillary to be located on opposing side of green dividing fence.

Photo 3: Subject site as viewed from the right of way looking towards adjoining site to the south.

Photo 4: Location of proposed ancillary dwelling (structures in photo to be removed).

Photo 5: Location of proposed ancillary dwelling as viewed from the adjoining lot to the south.

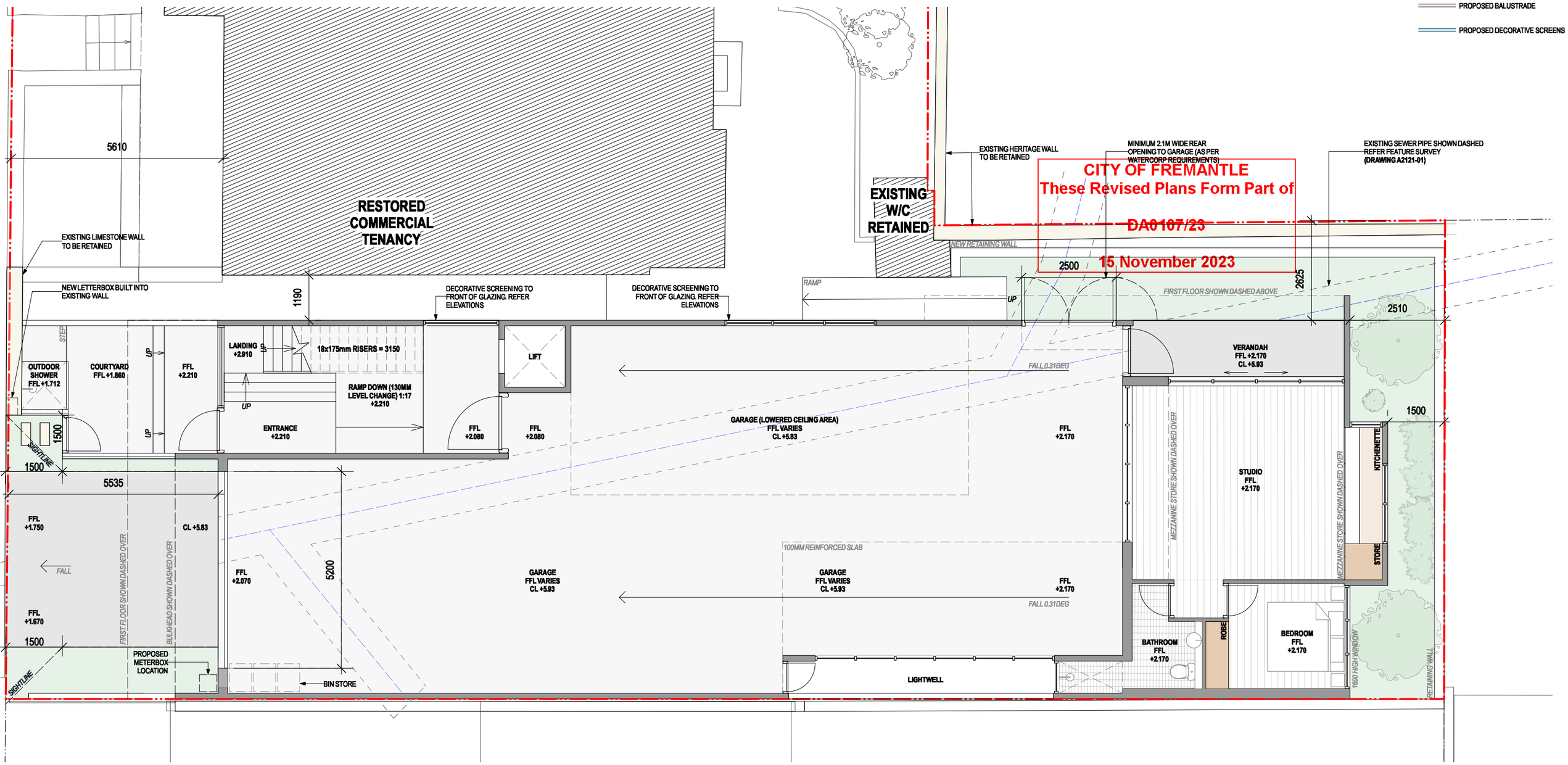
Photo 6: Kitchen window on the adjoining lot to the south expected to be overshadowed.

C2312-4 MARINE TERRACE, NO. 96 (LOT 123), FREMANTLE – ALTERATIONS TO EXISTING HERITAGE BUILDING AND A TWO STOREY SINGLE HOUSE – (ED DA0107/23)

Attachment 1 -Amended Development Plans

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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15 November 2023

PHILIP STEJSKAL ARCHITECTURE

website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:100
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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D	15/11/23	DAAMENDMENTS
C	24/08/23	DAAMENDMENTS
B	23/08/23	DAAMENDMENTS
A	20/03/23	DAAPPLICATION

DRAWING : PROPOSED GF PLAN
ISSUE : D
DWG No. : A-04

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS

CITY OF FREMANTLE
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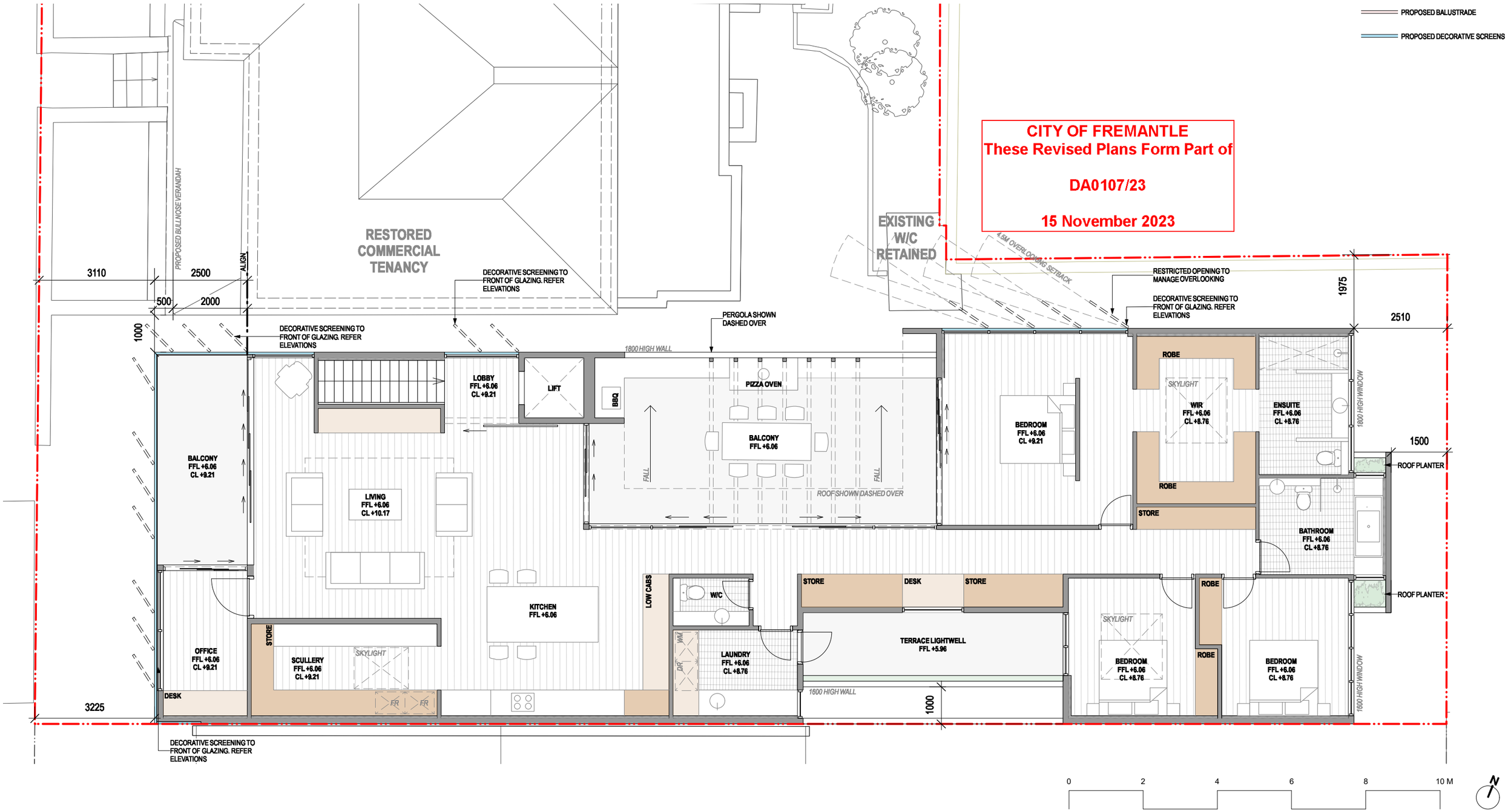

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website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:100
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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F	15/11/23	DA AMENDMENTS
E	28/08/23	DA AMENDMENTS
D	24/08/23	DA AMENDMENTS
C	23/08/23	DA AMENDMENTS
B	17/08/23	FOR CLIENT COMMENT
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED FF PLAN
ISSUE : F
DWG No. : A-05

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS

CITY OF FREMANTLE
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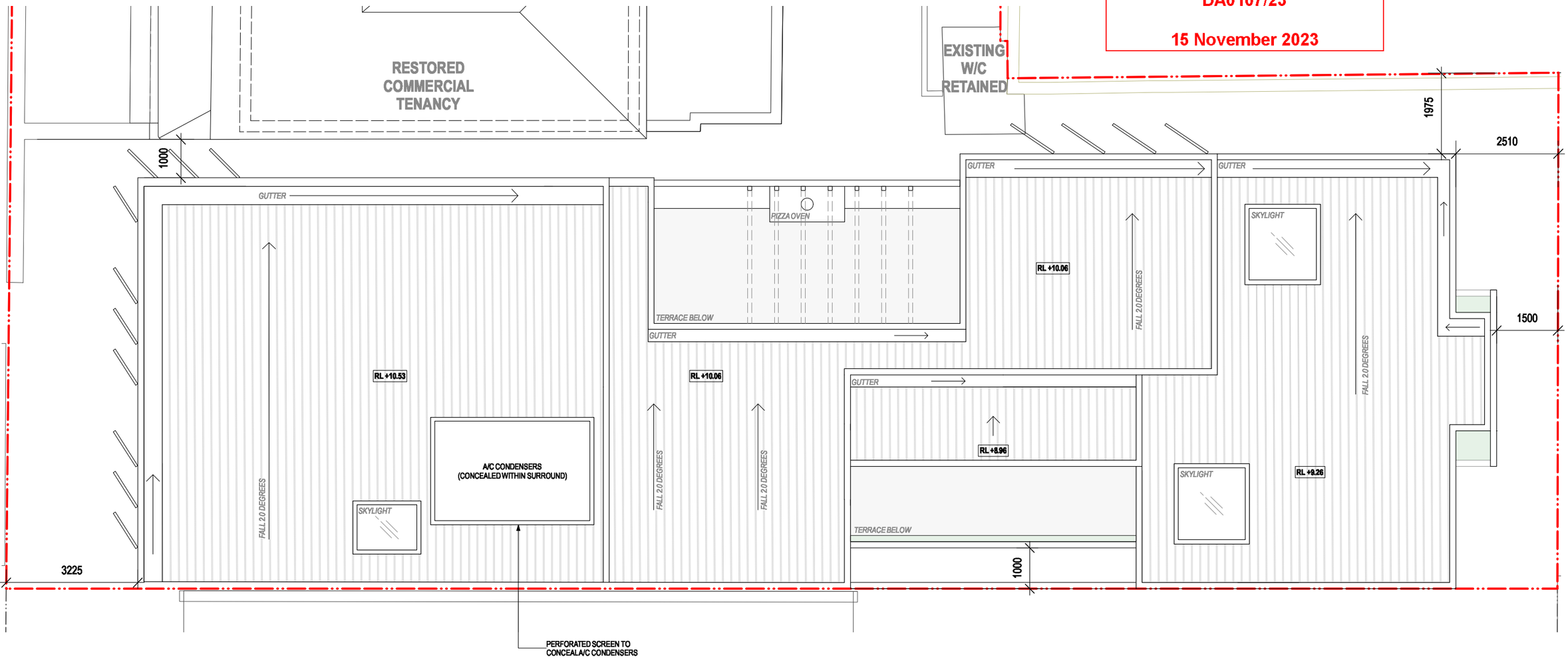

0 2 4 6 8 10 M

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website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT

GREG & RHONDA BADER

96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:100

DATE: 20/03/23

JOB REF: 2121

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D	14/11/23	DA AMENDMENTS
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED ROOF PLAN

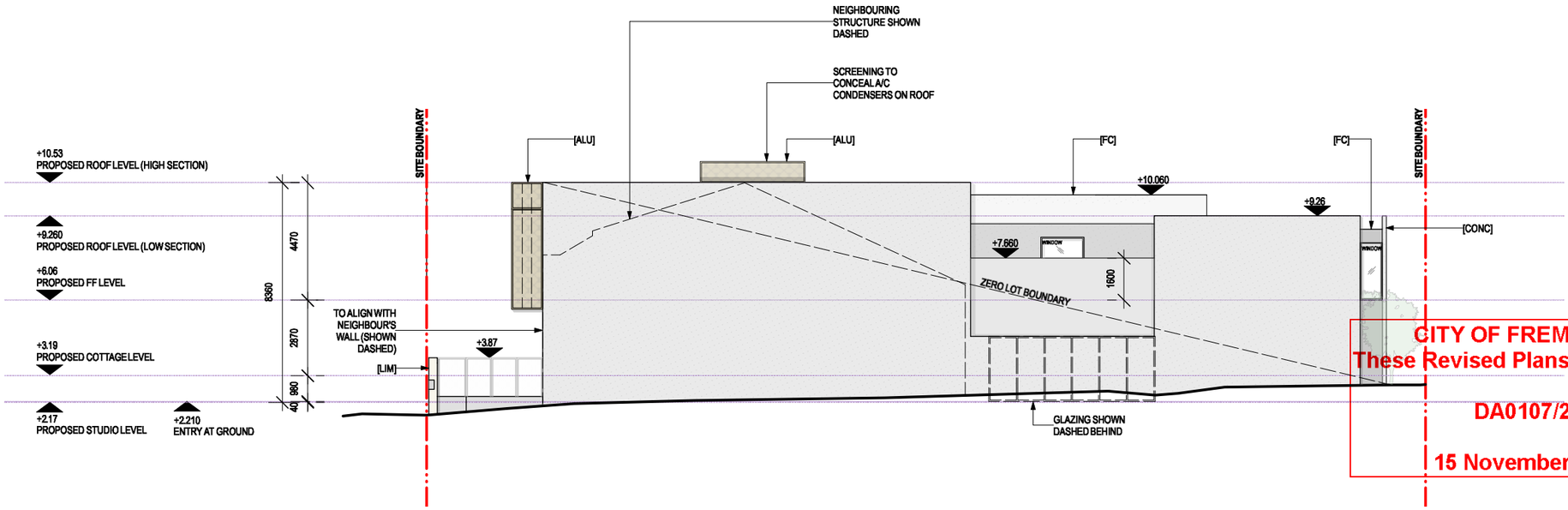
ISSUE : D

DWG No. : A-06

MATERIAL LEGEND	
[CONC]	CONCRETE
[ALU]	PERFORATED ANODIZED ALUMINIUM SCREENS IN BRONZE FINISH
[FC]	PAINTED FIBRE CEMENT CLADDING
[TD]	TRIM DECK ROOF SHEETING
[ZIN]	STANDING SEAM ZINC CLADDING
[LIM]	LIMESTONE

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



CITY OF FREMANTLE
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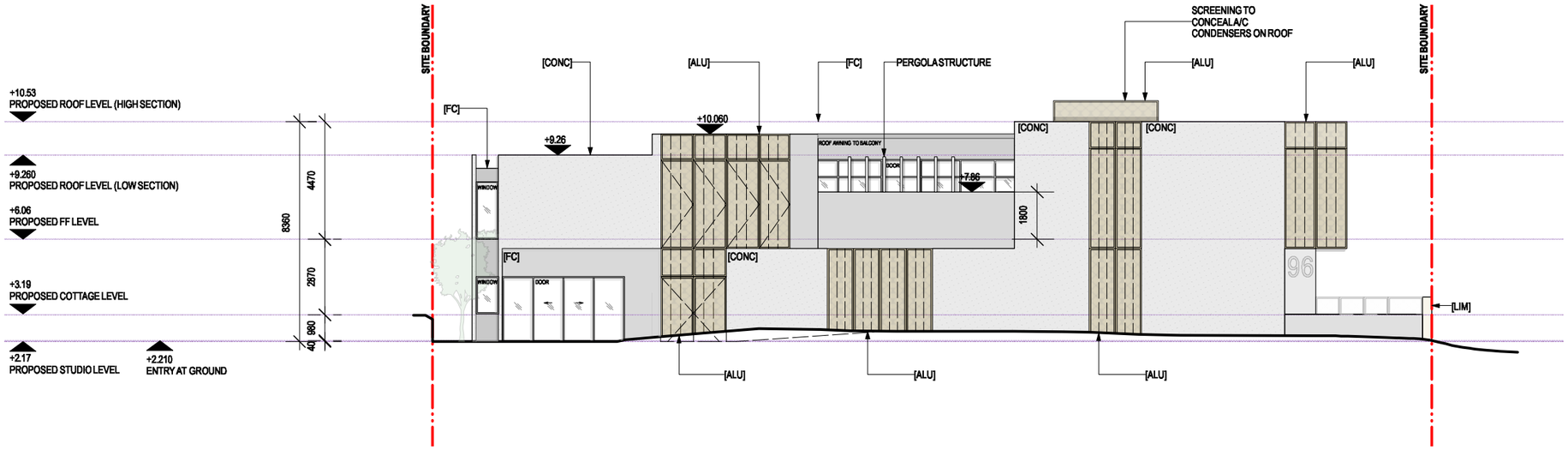
1 PROPOSED SOUTH ELEVATION
1:200



2 PROPOSED NORTH ELEVATION
1:200

0 2 4 6 8 10 12 14 16 18 20 M

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website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: NTS
DATE: 20/03/23
JOB REF: 2121
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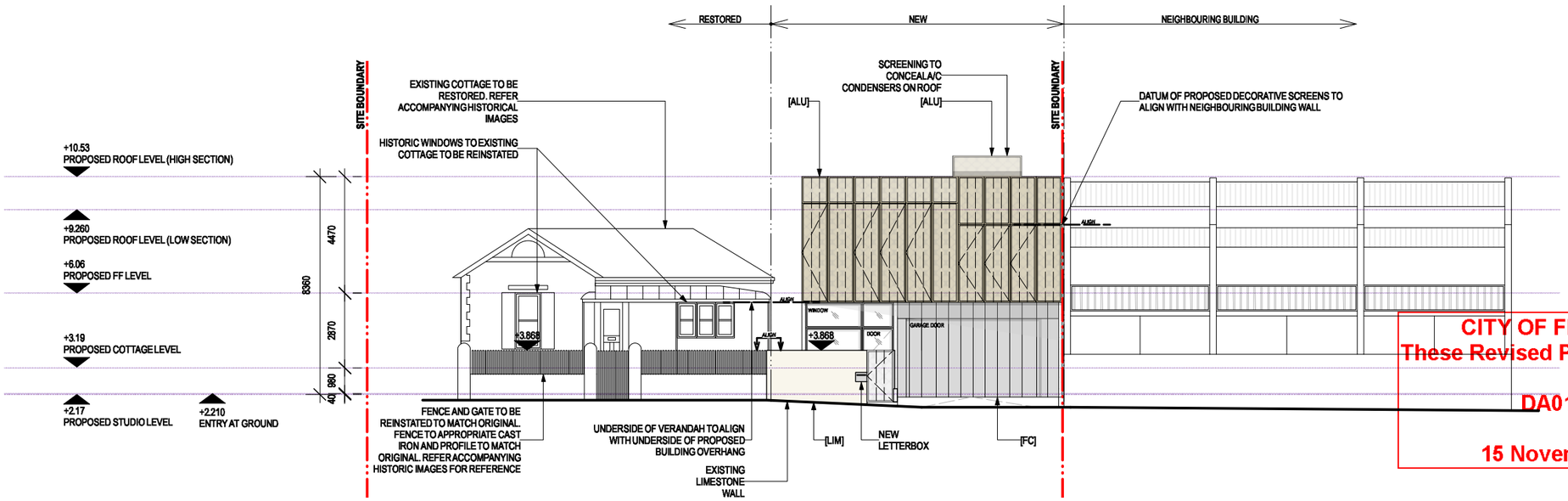
D	15/11/23	DA AMENDMENTS
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED ELEVATIONS
ISSUE : D
DWG No. : A-07

MATERIAL LEGEND	
[CONC]	CONCRETE
[ALU]	PERFORATED ANODIZED ALUMINIUM SCREENS IN BRONZE FINISH
[FC]	PAINTED FIBRE CEMENT CLADDING
[TD]	TRIM DECK ROOF SHEETING
[ZIN]	STANDING SEAM ZINC CLADDING
[LIM]	LIMESTONE

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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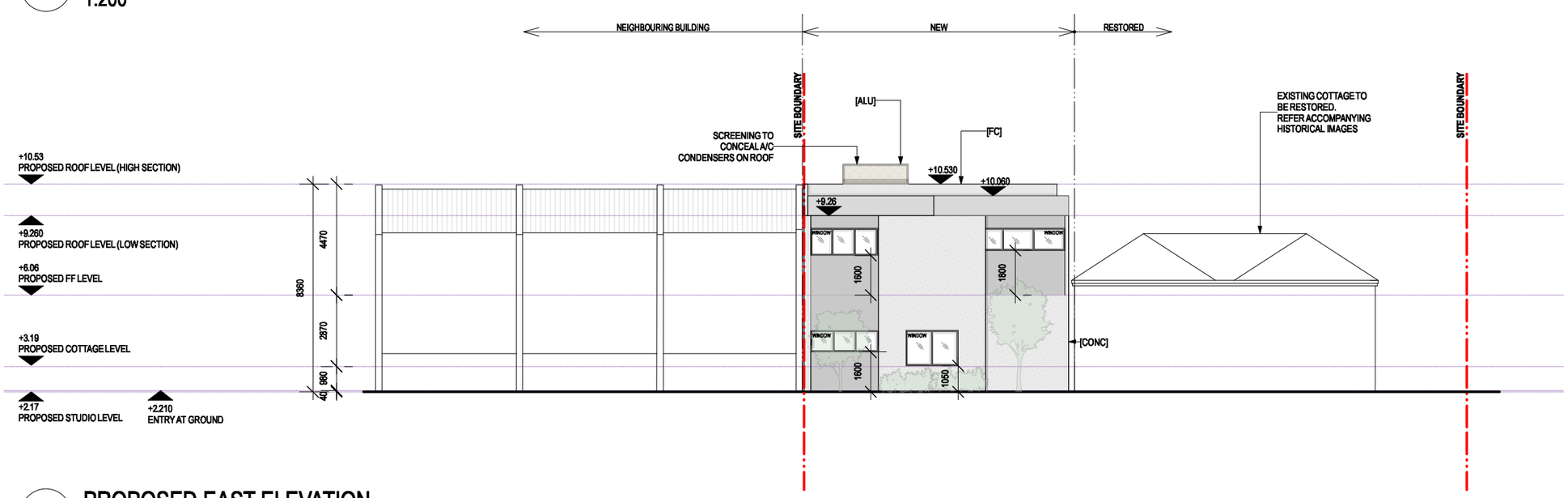
15 November 2023

1 PROPOSED WEST ELEVATION
1:200



2 PROPOSED EAST ELEVATION
1:200

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96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121
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F	15/11/23	DAAMENDMENTS
E	05/09/23	DAAMENDMENTS
D	28/08/23	DAAMENDMENTS
C	24/08/23	DAAMENDMENTS
B	23/08/23	DAAMENDMENTS
A	20/03/23	DAAPPLICATION

DRAWING : PROPOSED ELEVATIONS
ISSUE : F
DWG No. : A-08

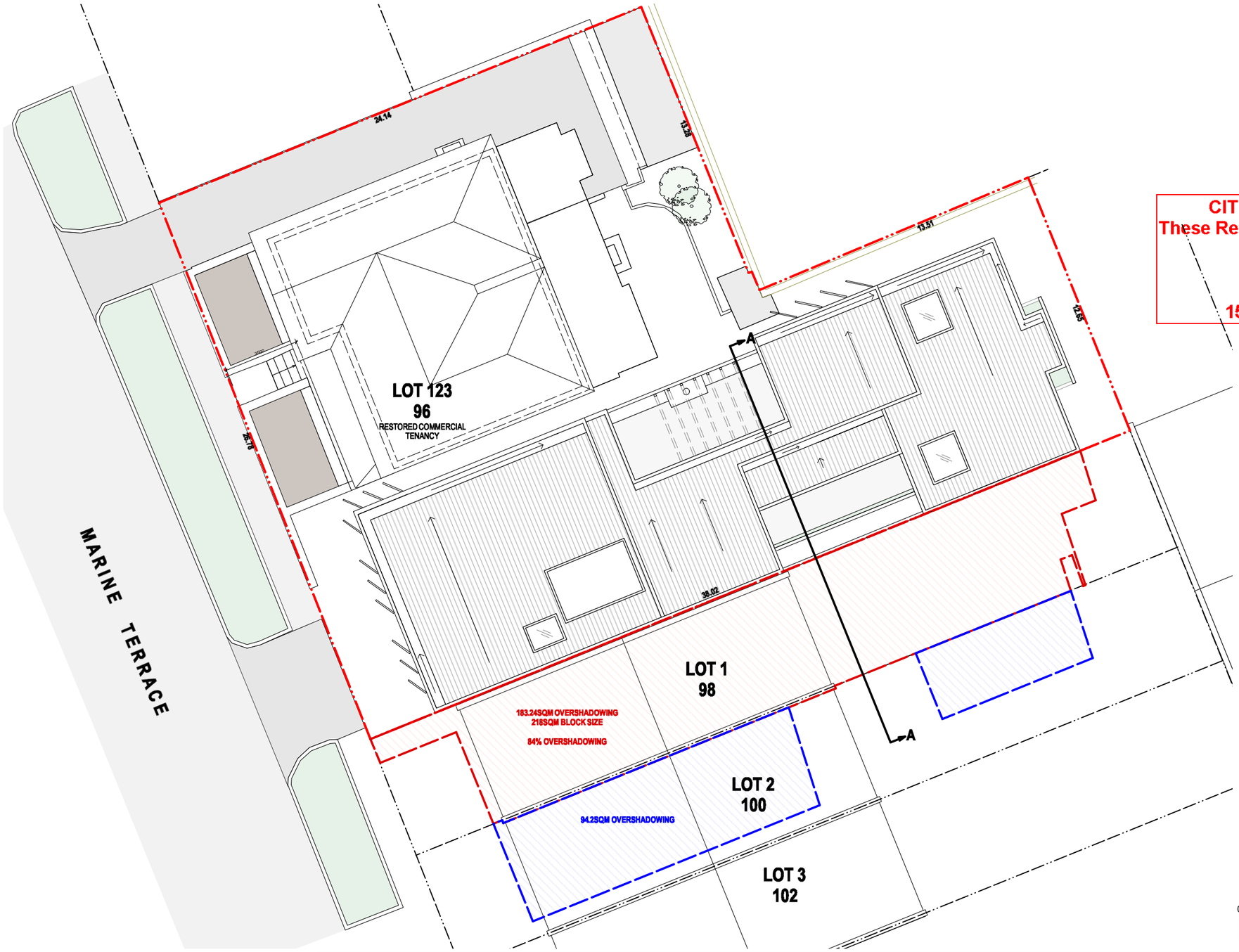
OVERSHADOWING CALCULATIONS - PROPOSED (REVISED SCHEME)	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	183.24 SQM (26.76 SQM REDUCTION)
OVERSHADOWING TO LOT 2 FROM PROPOSED DEVELOPMENT	94.2 SQM. (85.5 SQM REDUCTION)
OVERSHADOWING TO LOT 3 FROM PROPOSED DEVELOPMENT	0 SQM. (52.5 SQM REDUCTION)
OVERALL OVERSHADOWING TO NEIGHBOURS	**277.44SQM (164.76 SQM REDUCTION)**

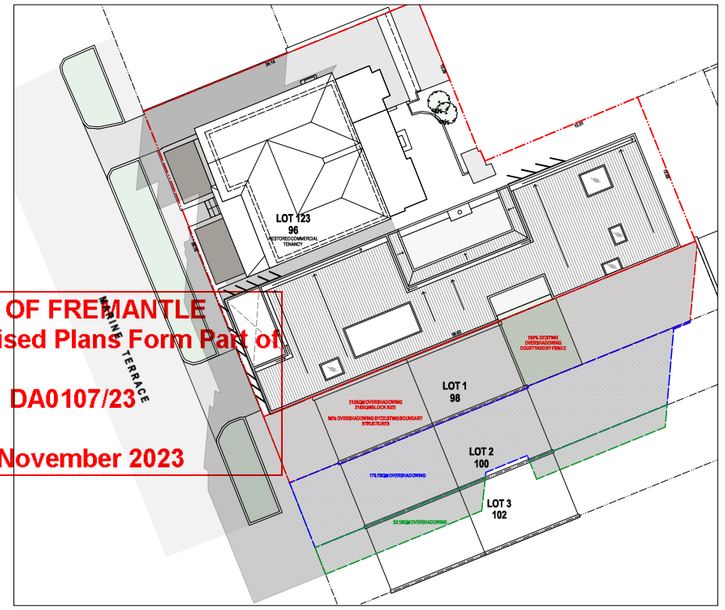
OVERSHADOWING CALCULATIONS - PROPOSED (ORIGINAL SCHEME)	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	210 SQM
OVERSHADOWING TO LOT 2 FROM PROPOSED DEVELOPMENT	179.7 SQM
OVERSHADOWING TO LOT 3 FROM PROPOSED DEVELOPMENT	52.5 SQM
OVERALL OVERSHADOWING TO NEIGHBOURS	**442.2 SQM**

OVERSHADOWING % TO LOT 1 COMPARISON	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	
ORIGINAL	210 SQM (96%)
REVISED	183.24 SQM (84%)

OVERSHADOWING % TO LOT 2 COMPARISON	
LOT 2 AREA	216 SQM
OVERSHADOWING TO LOT 2 FROM PROPOSED DEVELOPMENT	
ORIGINAL	179.7 SQM (83%)
REVISED	94.2 SQM (43%)

OVERSHADOWING % TO LOT 3 COMPARISON	
LOT 3 AREA	217 SQM
OVERSHADOWING TO LOT 3 FROM PROPOSED DEVELOPMENT	
ORIGINAL	52.5 SQM (24%)
REVISED	0 SQM (0%)





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2 ORIGINAL SCHEME - OVERSHADOWING COMPARISON

0 2 4 6 8 10 12 14 16 18 20 M

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website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
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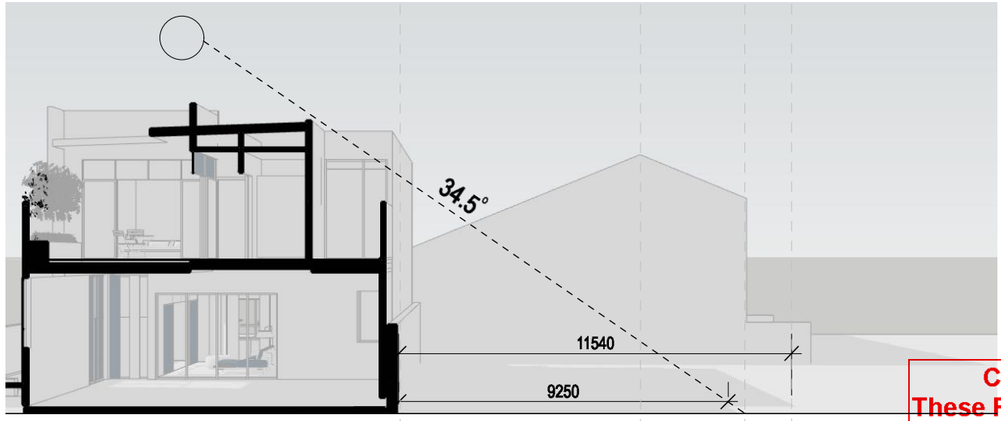
B	05/09/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED OVERSHADOWING
ISSUE : B
DWG No. : A-10



1 CROSS-SECTION AA (OVERSHADOWING WINTER SOLSTICE)
ORIGINAL SHEME

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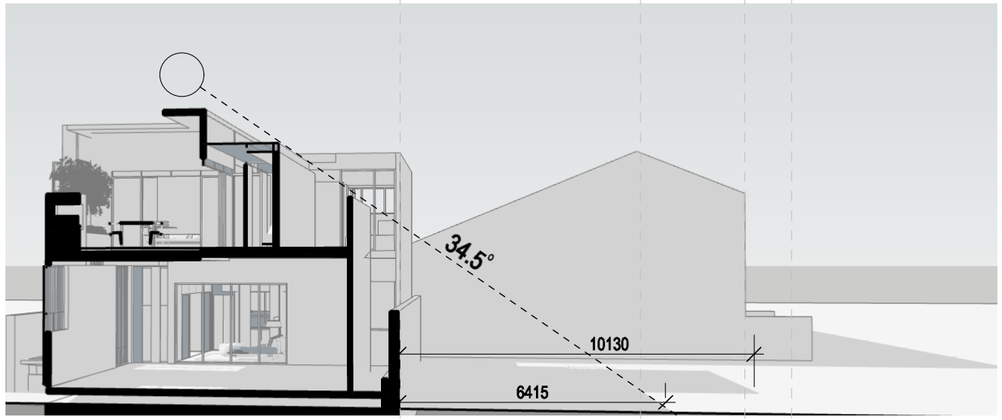
15 November 2023



2 CROSS-SECTION AA (OVERSHADOWING WINTER SOLSTICE)
REVISED CURRENT SCHEME

PHILIP
STEJSKAL
ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
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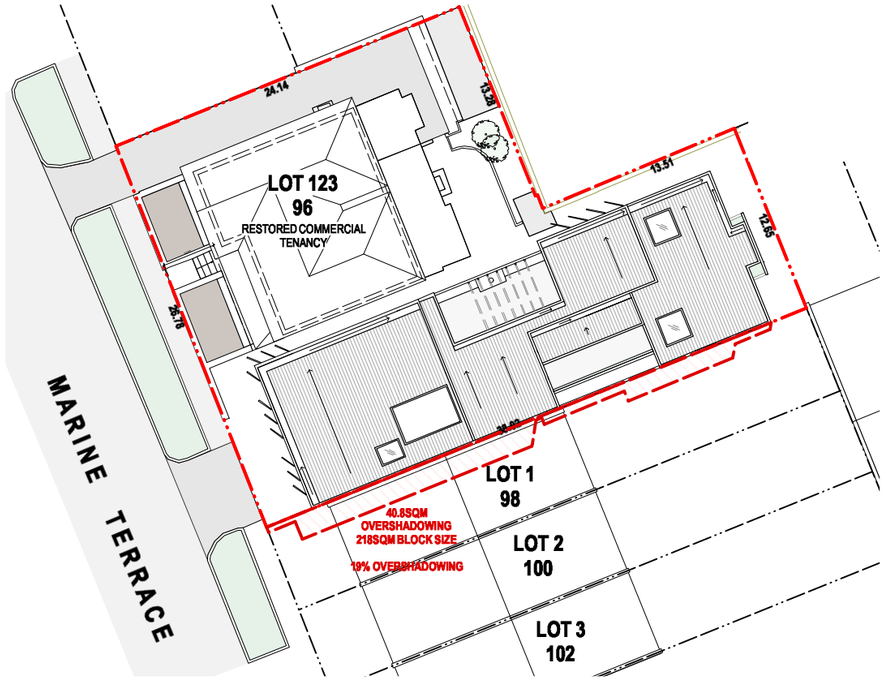
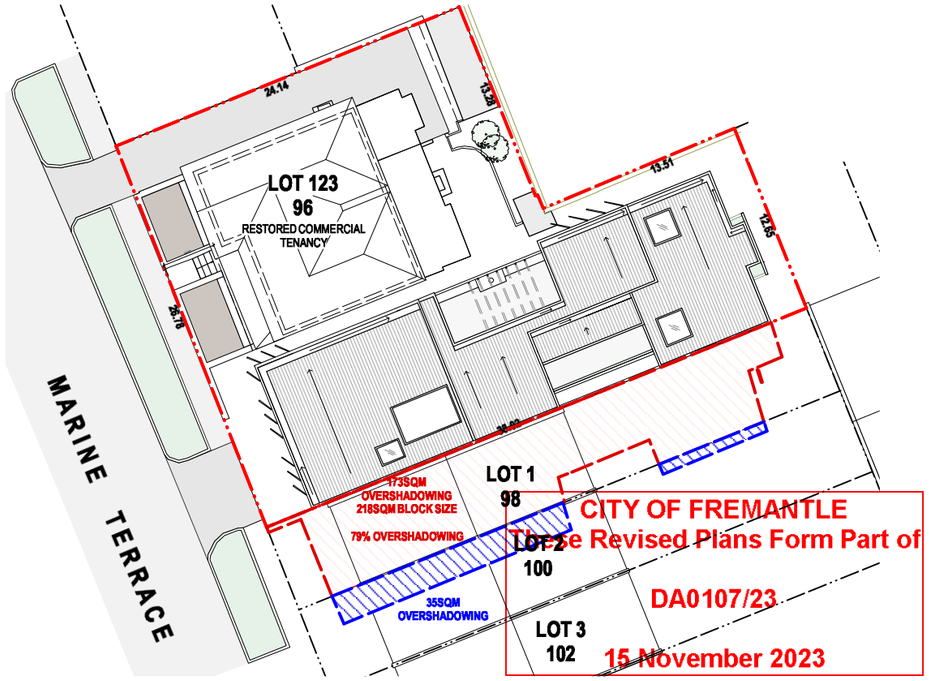
A 15/11/23 DAAPPLICATION

DRAWING : PROPOSED OVERSHADOWING
ISSUE : A
DWG No. : A-10a



1 PROPOSED OVERSHADOWING - JANUARY @12PM



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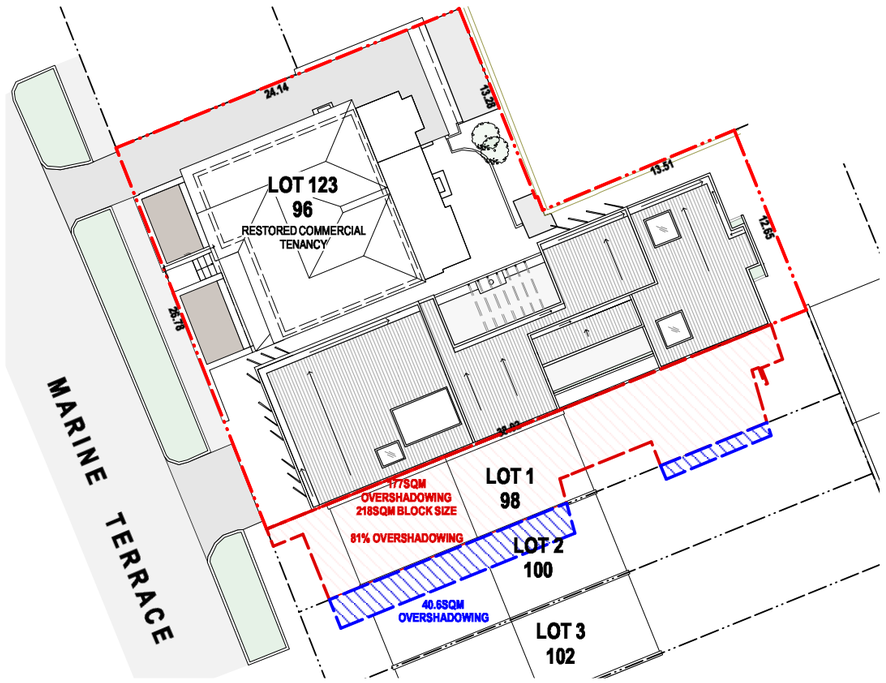
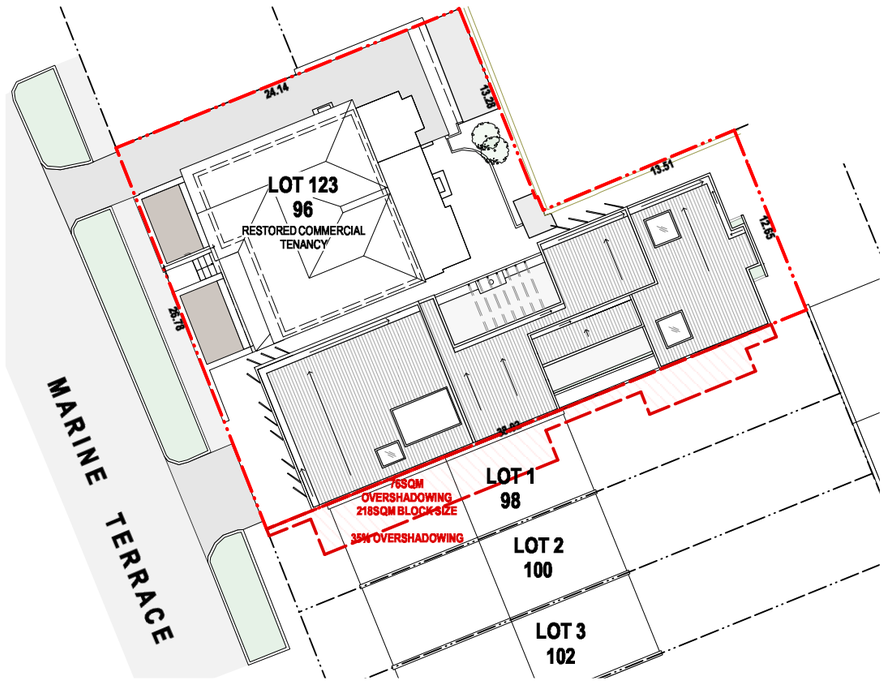
2 PROPOSED OVERSHADOWING - APRIL @12PM



3 PROPOSED OVERSHADOWING - AUGUST @12PM



4 PROPOSED OVERSHADOWING - OCTOBER @12PM

PHILIP
STEJSKAL
ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
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A 15/11/23 DAAPPLICATION

DRAWING : PROPOSED OVERSHADOWING
ISSUE : A
DWG No. : A-10b

URBANISTA
TOWN PLANNING

15 November 2023

Erik Dybdahl
Senior Planning Officer
City of Fremantle
151 High Street
FREMANTLE WA 6959

Dear Erik,

NO. 96 (LOT 123) MARINE TERRACE, FREMANTLE

RESTORATION AND ALTERATIONS TO EXISTING HERITAGE DWELLING AND ADDITION OF TWO STOREY GROUPED DWELLING

At the City's Planning Committee Meeting on 4 October, the subject application was presented to Council with a recommendation of refusal due to several variations. The primary issue was the overshadowing on the adjoining property. At the meeting, Council resolved to defer the application, as follows:

> *Refer the application to the administration with the advice that the Council is not prepared to grant planning approval to the application for the alterations to existing heritage building and a two storey Single house at No. 96 Marine Terrace, Fremantle based on the current submitted plans and invite the applicant, prior to the next appropriate Planning Committee meeting to consider submitting an amended proposal to address elements including overshadowing and setbacks to reduce the impact on adjoining residential properties.*

Since the deferral, amended plans have been prepared and the applicant has liaised with Councillors and officers to reduce the extent of overshadowing and present an improved development outcome.

The amended plans are attached with this letter and have been revised, as follows:

- Lightwell to ground floor created on southern side to reduce bulk and a portion of the building back from the boundary;
- First floor terrace set back to accommodate new lightwell to ground floor and provide further setback to a portion of the building from the southern boundary;
- Roof over link lowered by 300mm (2.4m ceiling height + 500mm allowance for roof buildup);

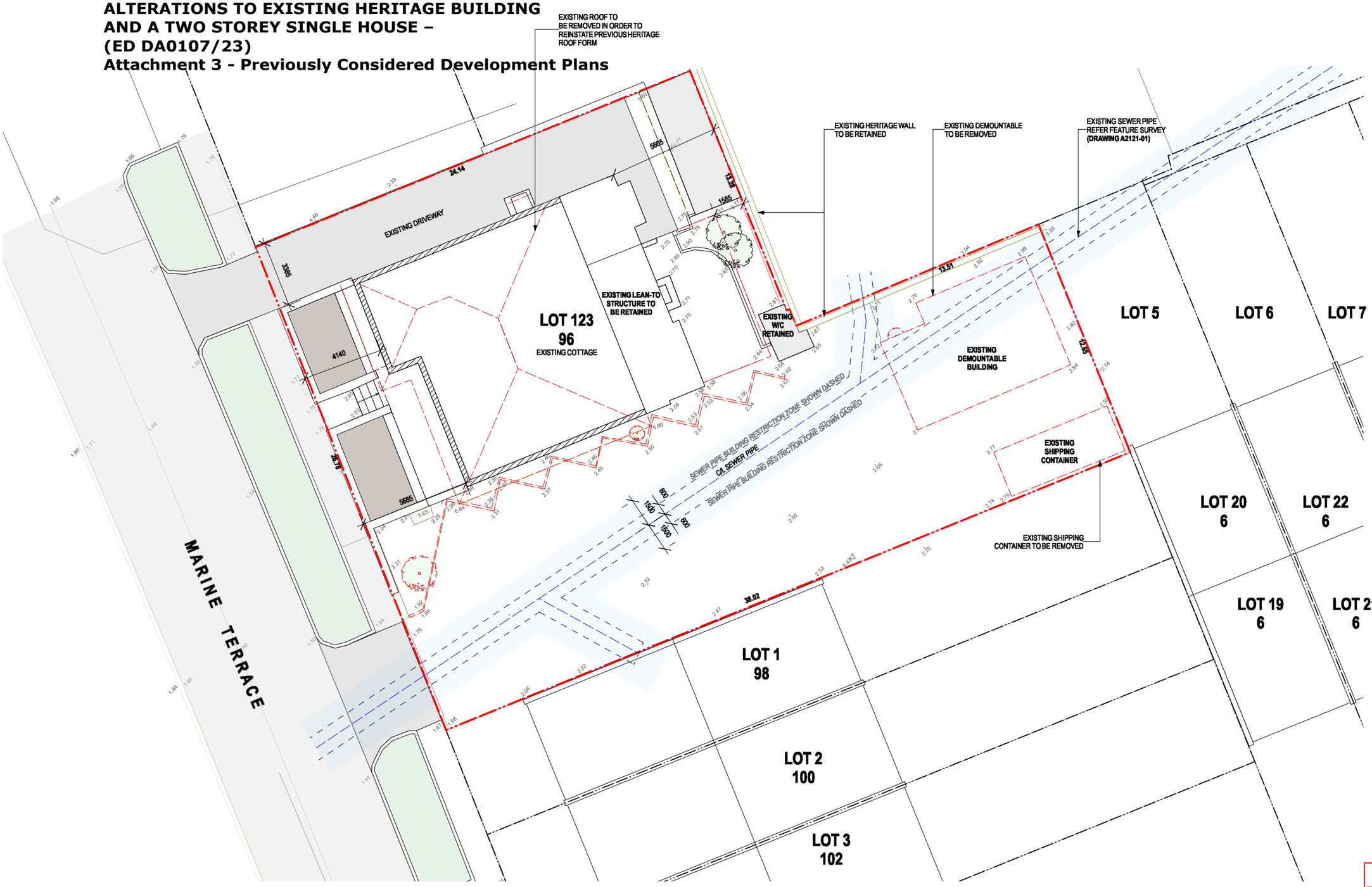
- Reduce eastern roofline by 800mm (2.7m ceiling height + 500mm allowance for roof buildup);
- Rear elevation altered to create two wings which allow setback to be increased from 1.5m to 2.5m to the rear boundary;
- Additional greening proposed to rear to soften elevation and create better outlook for neighbours; and
- Setback of Master bedroom, WIR and ensuite decreased by 650mm (500mm internally) to the north to accommodate the increased setback to the south.

With the above changes being made, the applicant is confident that the main issues have been addressed and that the plans should be supported. We welcome the City's support for the proposal and hope to achieve development approval when the plans are presented back to Council in December.

Should you have any questions or require further information please do not hesitate to contact the undersigned on 08 6444 9171 or petar@urbanistaplanning.com.au

Yours sincerely,

Petar Mrdja | **Director**
Urbanista Town Planning
231 Bulwer Street, Perth



LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS

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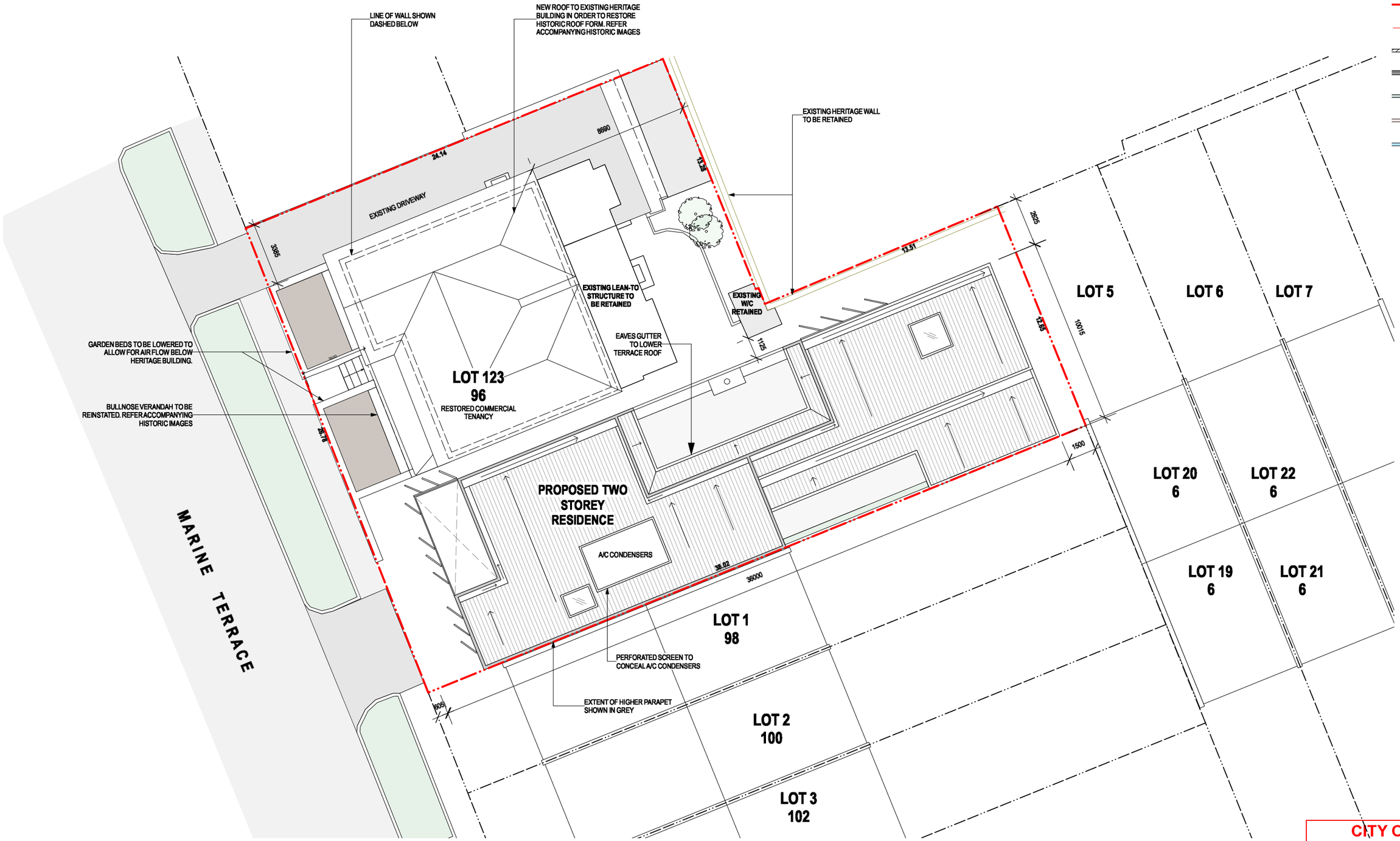
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : EXISTING SITE PLAN
ISSUE : C
DWG No. : A-02

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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C	24/08/23	DAAMENDMENTS
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DRAWING : PROPOSED SITE PLAN

ISSUE : C

DWG No. : A-03

STORMWATER / SOAKWELL CALCULATIONS	
PROPOSED ROOF AREAS	272 M^2
PROPOSED BALCONY AREAS	78M^2
TOTAL AREAS	350M^2
AS 3500.1/3 - 1:20 CALC 350 x 0.125	43.75M^3
ESTIMATED SOAKWELLS REQUIRED	3x 1500x1200@2090L Capacity

OPEN SPACE CALCULATIONS	
TOTAL OPEN SPACE	327M^2
TOTAL BLOCK SIZE	820M^2
R60 MIN OPEN SPACE REQ.	40% min.
TOTAL OPEN AREAS	39.9%

PROPOSED FLOOR AREAS	
PROPOSED GARAGE	201M^2
PROPOSED ENTRY	27M^2
PROPOSED STUDIO	52M^2
PROPOSED FIRST FLOOR	265M^2
PROPOSED BALCONIES	78M^2

LEGEND

- SITE BOUNDARY
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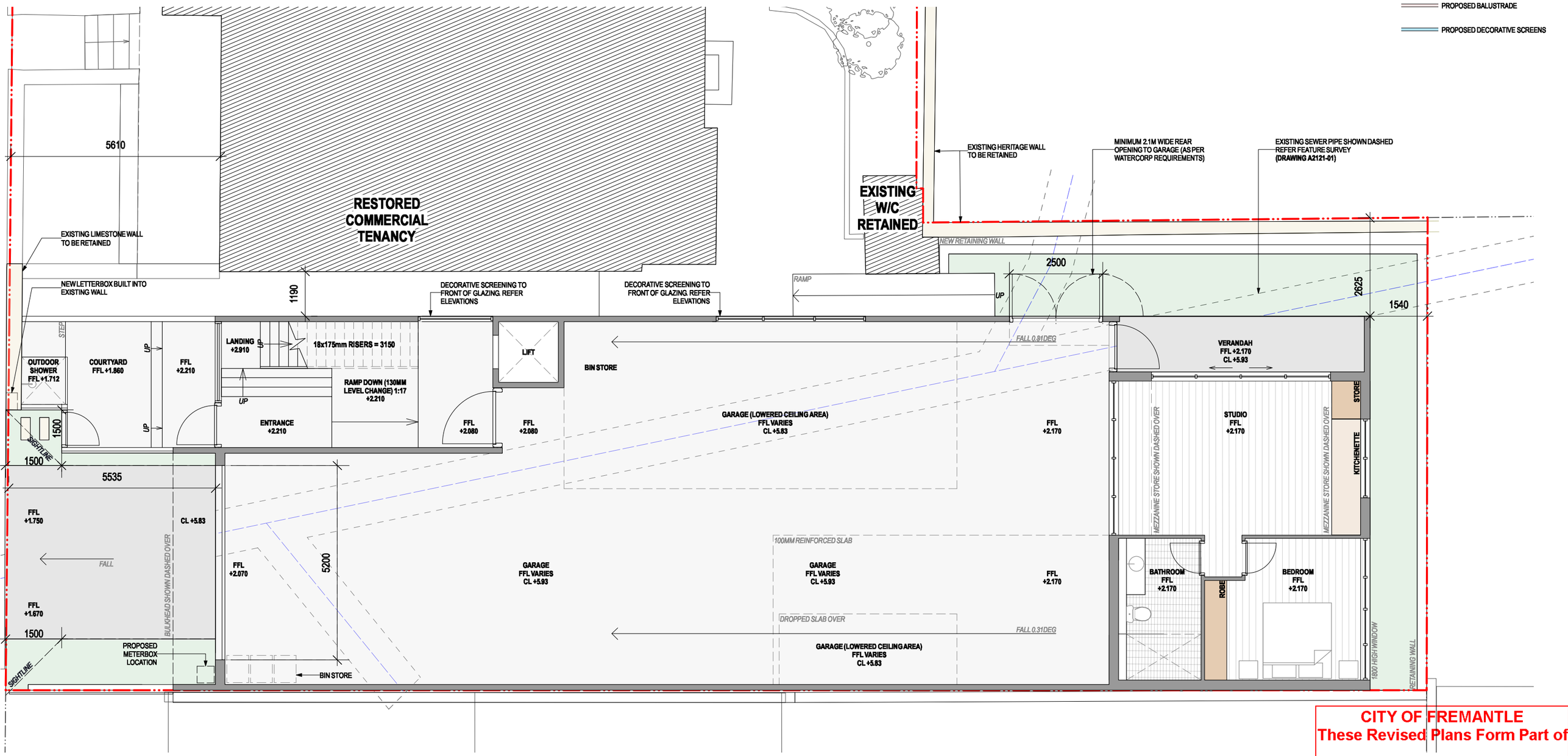
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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PHILIP STEJSKAL ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:100
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

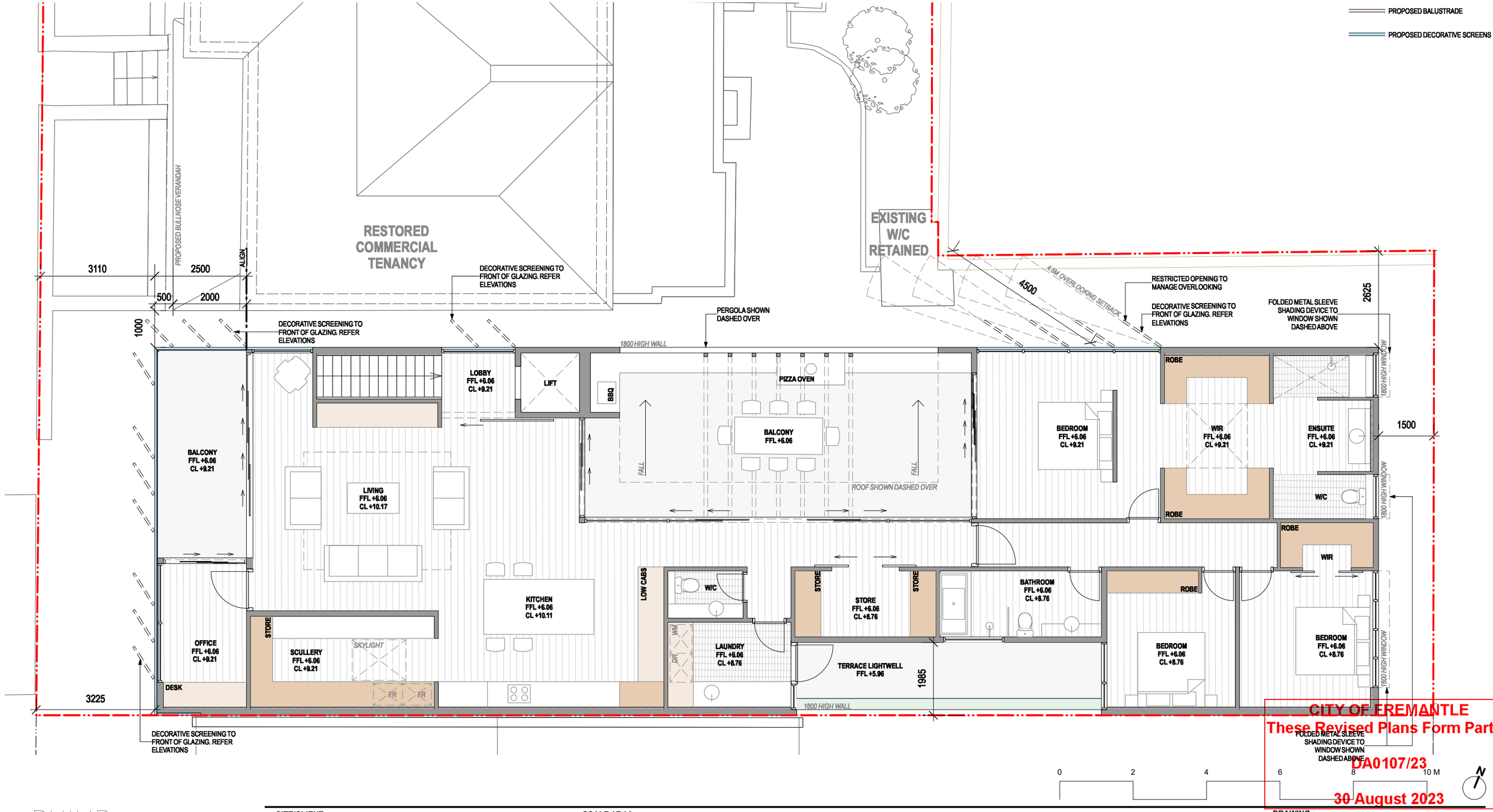
DRAWING : PROPOSED GF PLAN
ISSUE : C
DWG No. : A-04

STORMWATER / SOAKWELL CALCULATIONS	
PROPOSED ROOF AREAS	272 M^2
PROPOSED BALCONY AREAS	78M^2
TOTAL AREAS	350M^2
AS 3500.1/3 - 1:20 CALC 350 x 0.125	43.75M^3
ESTIMATED SOAKWELLS REQUIRED	3x 1500x1200@2090L Capacity

OPEN SPACE CALCULATIONS	
TOTAL OPEN SPACE	327M^2
TOTAL BLOCK SIZE	820M^2
R60 MIN OPEN SPACE REQ.	40% min.
TOTAL OPEN AREAS	39.9%

PROPOSED FLOOR AREAS	
PROPOSED GARAGE	201M^2
PROPOSED ENTRY	27M^2
PROPOSED STUDIO	52M^2
PROPOSED FIRST FLOOR	265M^2
PROPOSED BALCONIES	78M^2

LEGEND
- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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website: www.architectureps.com.au
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GREG & RHONDA BADER
96 MARINE TERRACE
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SCALE AT A3: 1:100
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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E	28/08/23	DA AMENDMENTS
D	24/08/23	DA AMENDMENTS
C	23/08/23	DA AMENDMENTS
B	17/08/23	FOR CLIENT COMMENT
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED FF PLAN
ISSUE : E
DWG No. : A-05

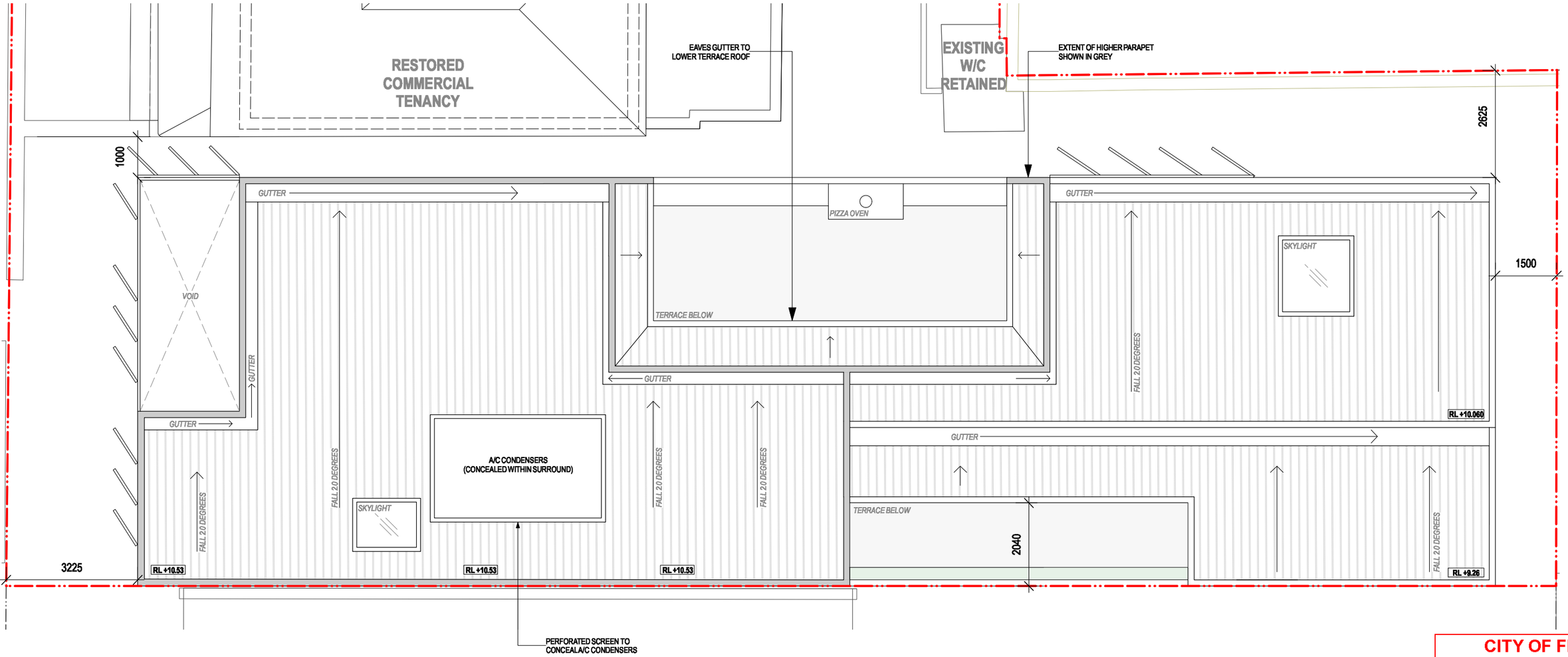
STORMWATER / SOAKWELL CALCULATIONS	
PROPOSED ROOF AREAS	272 M^2
PROPOSED BALCONY AREAS	78M^2
TOTAL AREAS	**350M^2**
AS 3500.1/3 - 1:20 CALC 350 x 0.125	43.75M^3
ESTIMATED SOAKWELLS REQUIRED	**3x 1500x1200@2090L Capacity**

OPEN SPACE CALCULATIONS	
TOTAL OPEN SPACE	327M^2
TOTAL BLOCK SIZE	820M^2
R60 MIN OPEN SPACE REQ.	40% min.
TOTAL OPEN AREAS	**39.9%**

PROPOSED FLOOR AREAS	
PROPOSED GARAGE	201M^2
PROPOSED ENTRY	27M^2
PROPOSED STUDIO	52M^2
PROPOSED FIRST FLOOR	265M^2
PROPOSED BALCONIES	78M^2

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



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website: www.architectureps.com.au
email: studio@architectureps.com.au
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SITE/CLIENT

GREG & RHONDA BADER

96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:100

DATE: 20/03/23

JOB REF: 2121

DRAWN: GJ

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C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : **PROPOSED ROOF PLAN**

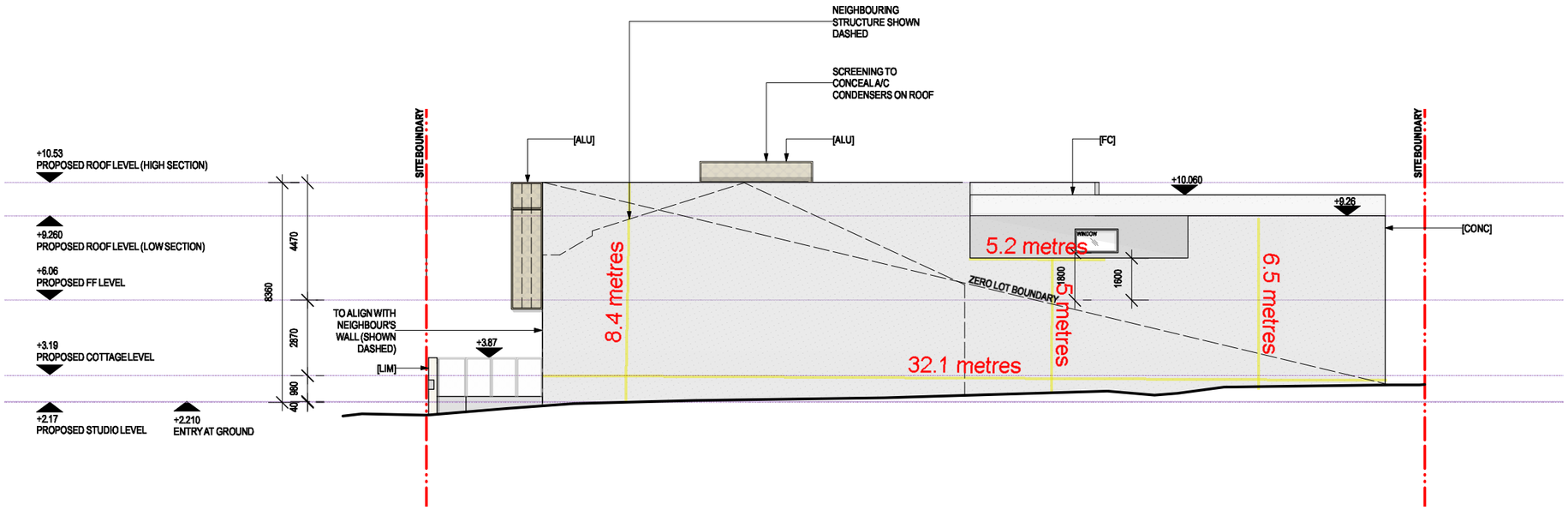
ISSUE : **C**

DWG No. : **A-06**

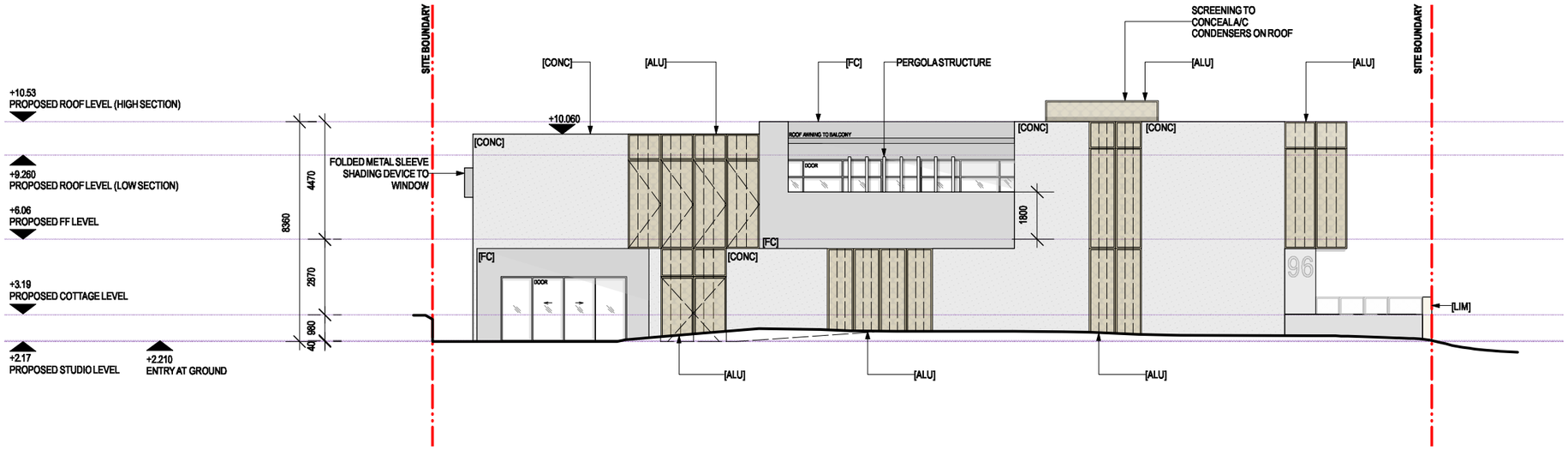
MATERIAL LEGEND	
[CONC]	CONCRETE
[ALU]	PERFORATED ANODIZED ALUMINIUM SCREENS IN BRONZE FINISH
[FC]	PAINTED FIBRE CEMENT CLADDING
[TD]	TRIM DECK ROOF SHEETING
[ZIN]	STANDING SEAM ZINC CLADDING
[LIM]	LIMESTONE

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



1 PROPOSED SOUTH ELEVATION
1:200



2 PROPOSED NORTH ELEVATION
1:200

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email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: NTS
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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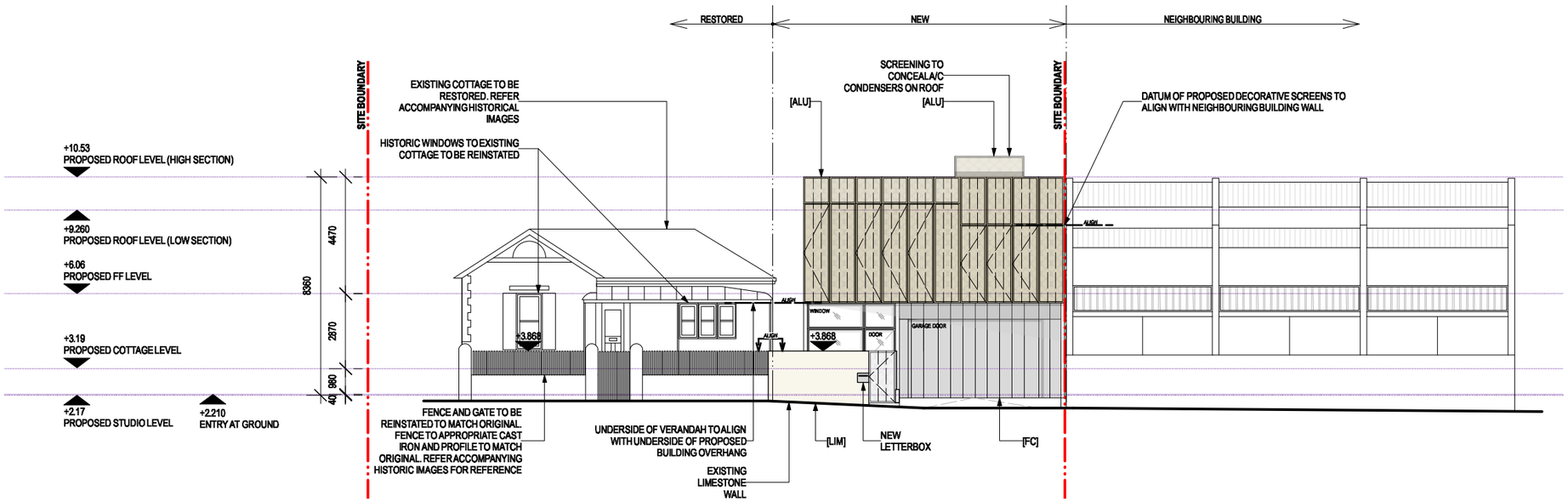
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED ELEVATIONS
ISSUE : C
DWG No. : A-07

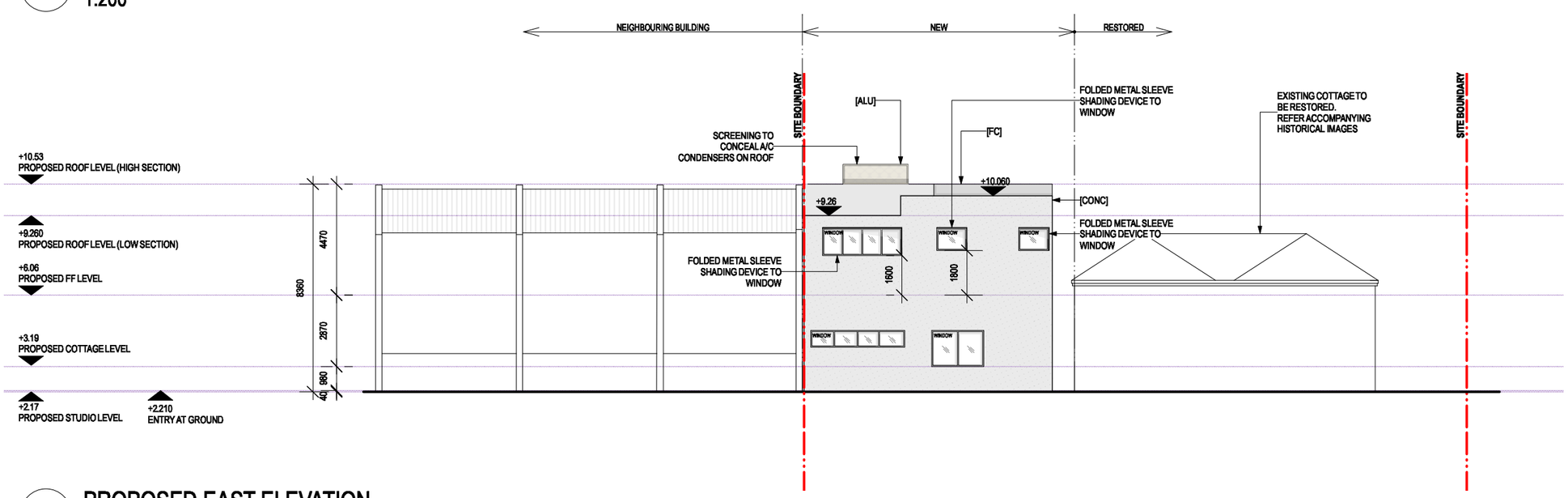
MATERIAL LEGEND	
[CONC]	CONCRETE
[ALU]	PERFORATED ANODIZED ALUMINIUM SCREENS IN BRONZE FINISH
[FC]	PAINTED FIBRE CEMENT CLADDING
[TD]	TRIM DECK ROOF SHEETING
[ZIN]	STANDING SEAM ZINC CLADDING
[LIM]	LIMESTONE

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING
- PROPOSED TILT UP CONCRETE LINED INTERNALLY WITH INSULTATION (~70MM)
- PROPOSED MASONRY
- PROPOSED BALUSTRADE
- PROPOSED DECORATIVE SCREENS



1 PROPOSED WEST ELEVATION
1:200



2 PROPOSED EAST ELEVATION
1:200

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reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121
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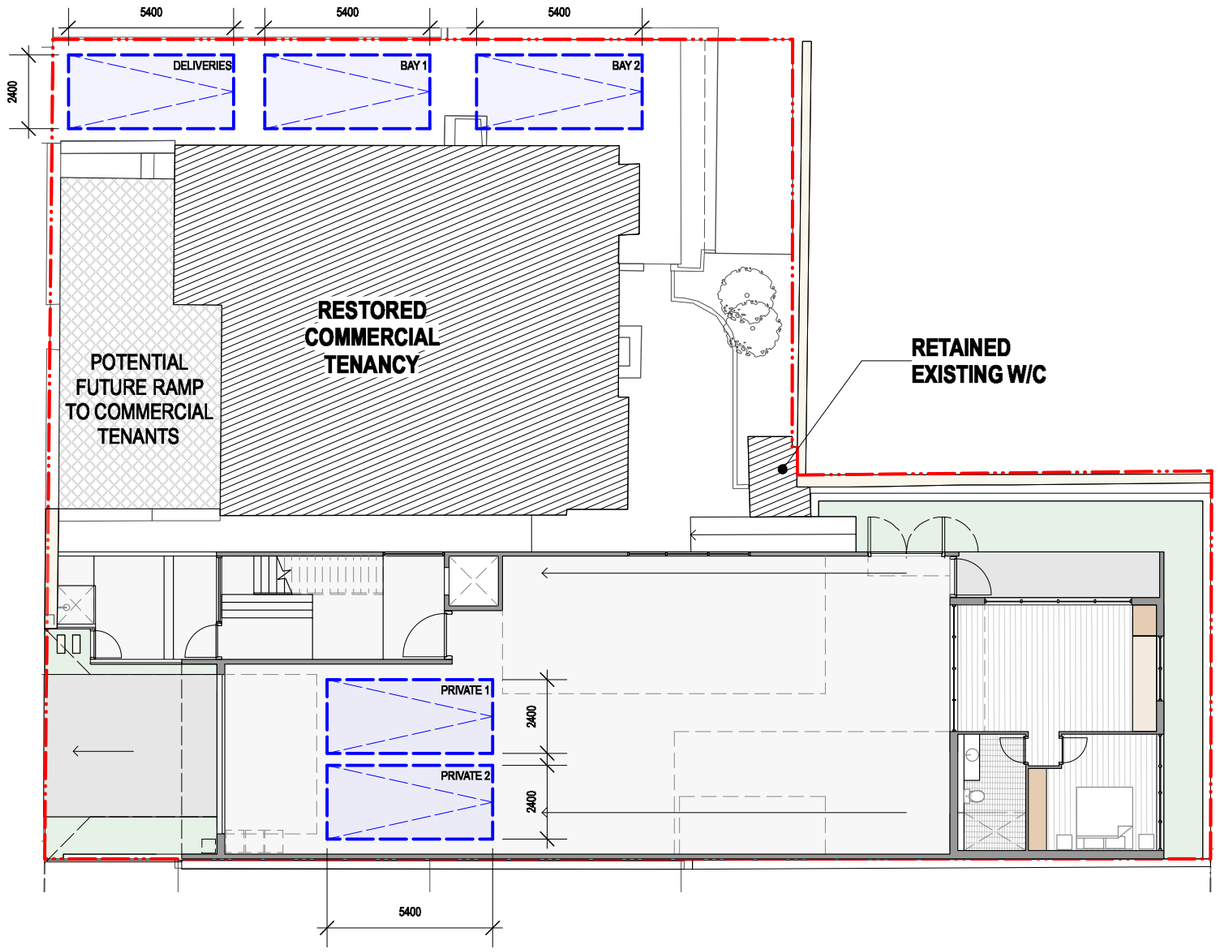
E	05/09/23	DAAMENDMENTS
D	28/08/23	DAAMENDMENTS
C	24/08/23	DAAMENDMENTS
B	23/08/23	DAAMENDMENTS
A	20/03/23	DAAPPLICATION

DRAWING : **30 August 2023**

PROPOSED ELEVATIONS

ISSUE : E
DWG No. : A-08



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PHILIP STEJSKAL ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121

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DRAWN: GJ
ARCHITECT REG No: -

C	24/08/23	DAAMENDMENTS
B	23/08/23	DAAMENDMENTS
A	20/03/23	DAAPPLICATION

DRAWING : PROPOSED PARKING SCENARIO
ISSUE : C
DWG No. : A-11

1 VIEW LOOKING NORTH UP MARINE TERRACE

2 VIEW LOOKING SOUTH DOWN MARINE TERRACE

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PHILIP
STEJSKAL
ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: NTS
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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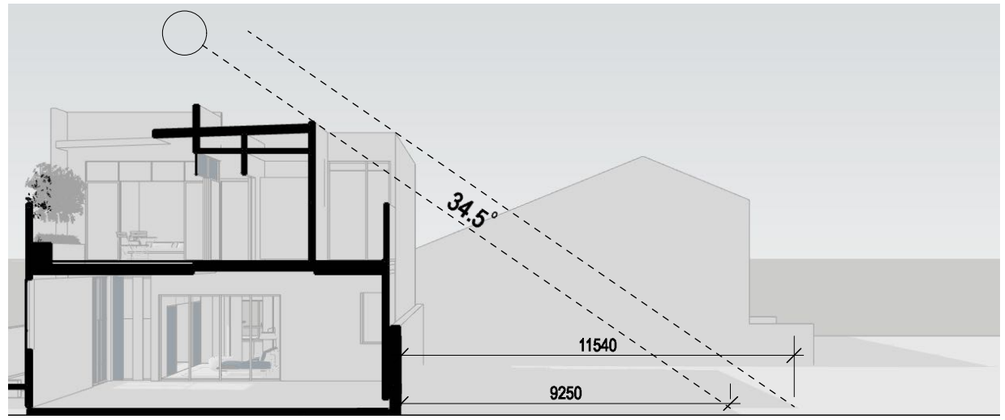
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED 3Ds
ISSUE : C
DWG No. : A-13

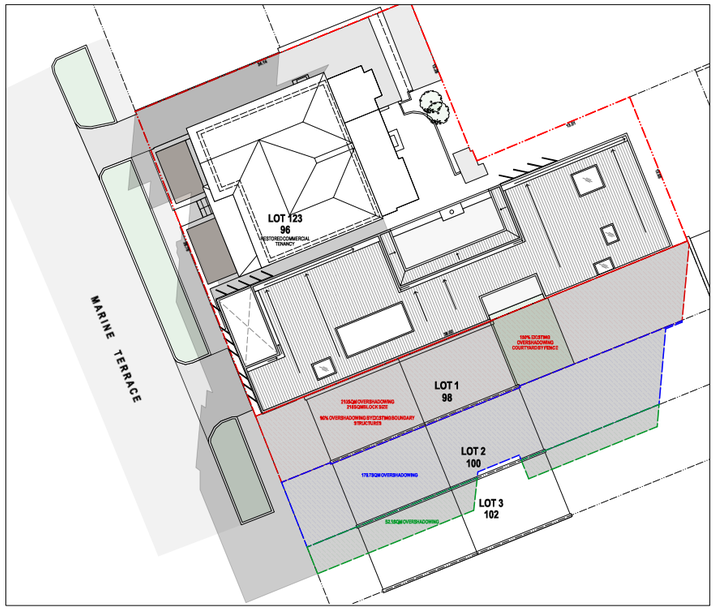
OVERSHADOWING CALCULATIONS - PROPOSED (REVISED SCHEME)	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	189.7 SQM (20.3 SQM REDUCTION)
OVERSHADOWING TO LOT 2 FROM PROPOSED DEVELOPMENT	121.7 SQM. (58 SQM REDUCTION)
OVERSHADOWING TO LOT 3 FROM PROPOSED DEVELOPMENT	0 SQM. (52.5 SQM REDUCTION)
OVERALL OVERSHADOWING TO NEIGHBOURS	**311.4 SQM (130.8 SQM REDUCTION)**

OVERSHADOWING CALCULATIONS - PROPOSED (ORIGINAL SCHEME)	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	210 SQM
OVERSHADOWING TO LOT 2 FROM PROPOSED DEVELOPMENT	179.7 SQM
OVERSHADOWING TO LOT 3 FROM PROPOSED DEVELOPMENT	52.5 SQM
OVERALL OVERSHADOWING TO NEIGHBOURS	**442.2 SQM**

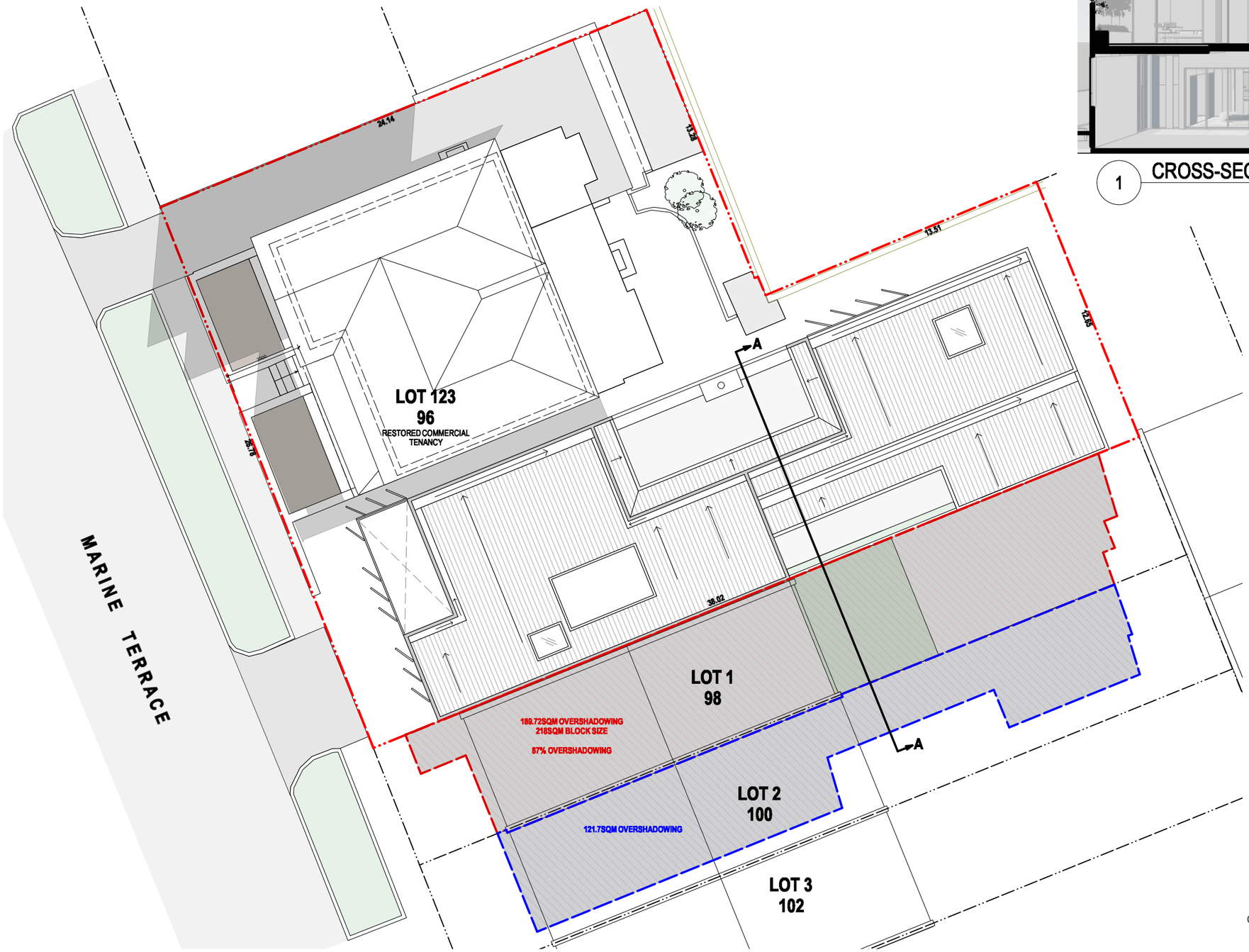
OVERSHADOWING % TO LOT 1 COMPARISON	
LOT 1 AREA	218 SQM
OVERSHADOWING TO LOT 1 FROM PROPOSED DEVELOPMENT	
ORIGINAL	210 SQM (96%)
REVISED	189.7 SQM (87%)



1 CROSS-SECTION AA (OVERSHADOWING WINTER SOLSTICE)



2 ORIGINAL SCHEME - OVERSHADOWING COMPARISON



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website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: 20/03/23
JOB REF: 2121
DRAWN: GJ
ARCHITECT REG No: -

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B	05/09/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED OVERSHADOWING
ISSUE : B
DWG No. : A-10

CITY OF FREMANTLE
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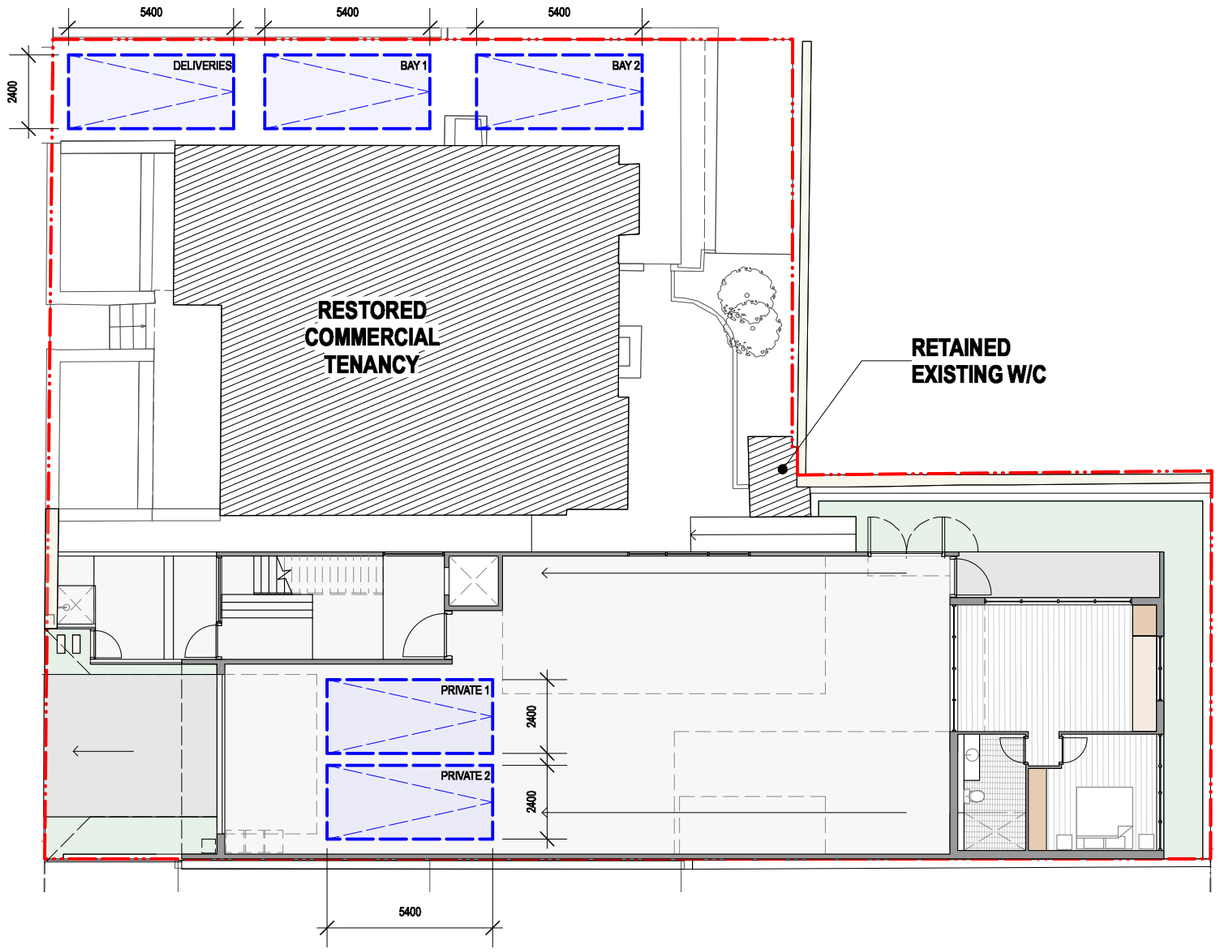

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STEJSKAL
ARCHITECTURE

website: www.architectureps.com.au
email: studio@architectureps.com.au
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SITE/CLIENT

GREG & RHONDA BADER

96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200

DATE: 20/03/23

JOB REF: 2121

DRAWN: GJ

ARCHITECT REG No: -

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D	05/09/23	DA AMENDMENTS
C	24/08/23	DA AMENDMENTS
B	23/08/23	DA AMENDMENTS
A	20/03/23	DA APPLICATION

DRAWING : PROPOSED PARKING SCENARIO

ISSUE : D

DWG No. : A-11

C2312-4 MARINE TERRACE, NO. 96 (LOT 123), FREMANTLE – ALTERATIONS TO EXISTING HERITAGE BUILDING AND A TWO STOREY SINGLE HOUSE – (ED DA0107/23)

Attachment 4 - Submission Table

Submission Table – DA0107/23 – 96 Marine Terrace, Fremantle - Restoration and Alterations to Existing Heritage Dwelling and Addition of Two Storey Grouped Dwelling

Submission number	Submission (verbatim)
1	The proposed building is a monstrous rectangular block constructed mainly of concrete which fully occupies the entirety of the site and does not even comply with current liberal setbacks. It resembles the construction of industrial units. Its height over the entire block is a development that has not proceeded in this area for many decades. It has serious overlooking of the living area of existing properties and dramatic shading consequences. Looking down Marine Terrace towards central Fremantle very few, of even the old commercial buildings, have a maximum height over the whole block. The suggestion that the council planning process overlook some of the developments issues because it is going to restore the existing home on the block is an insult to the residents, a case could be put that no renovations should take place as it is a great example of how changes to existing buildings by the migrant communities changed and preserved the residential nature of Fremantle. There is also no guarantee that the restoration will go ahead if the new build is completed. My whole outdoor living area will be dominated from the west by a wall at least 8.3 metres high and a length of just over 10 metres long . There are six windows overlooking my property from the second story, the floor of which is well above the height of my second story balcony. Four of these windows are 1.8 metres high from a bedroom. The setback for this proposed wall is only 1.3 metres, making the windows of the bedrooms within broom touching distance of my balcony. The bathroom and toilet windows are so close that the noise of ablutions we be quite audible from my outdoor area, especially when the windows are open. OVERSHADING. From around 3.00pm from the equinox over winter the sun will be prevented from entering my backyard. This is of a greater consequences for the townhouse blocks in Grey Street and we do not have any east west windows and the lighting of the houses is very dependent on the northern light. The 8 metre height of the proposed build greatly increased the overshading. OVERLOOKING. I will have no privacy in my backyard living area if this project goes ahead, four living area windows 1.8 m high will be 1.3 metres from the boundary. These windows will also overlook many of my neighbours. These windows on the secondary story will be considerably higher than the level of my second story and make the balcony unsuitable for outdoor use. SUMMARY. The sewage easements on the site of the proposed development were known to the owner before purchase. These does not excuse the complete avoidance of the consequences of the build on

	neighbours to overcome this limitations of the land. The 8 metre height of the build should not extend over the whole block. New builds should improve the area, this definitely does not. It is very detrimental to the enjoyment and value of existing properties. I strongly recommend that this development does not proceed.
2	Dear Madam/Sir I am responding to your invitation to comment on this proposed development. My concern is with the proposed restoration/conservation plan for the existing heritage house at 96 Marine Terrace. You will see from the attached extract from a Heritage report done by Philip McAllister Architect, that there is more to the building than is disclosed by the Heritage report filed with the application. You will see that to the rear of the property there is a laundry which according to the plans forming part of Mr McAllister's report has been in existence since 1901; far longer than the WC which the Applicants intend to conserve as part of the Conservation plan. It seems to me that the plans relied on in the application fail to identify this building, perhaps the most significant of them all, and far more so than the WC. In the submitted plans this area is shown as part of the northern driveway, which is clearly not the case. If the Applicant intends to rely on the Conservation Plan to support the proposed building of the new residence, then it should clearly report the existence of the laundry and include an undertaking to restore and conserve it. Other than that, I have no objection to the proposed development.
3	I, a pose the development of 96 Marine Tce on the grounds of the over shadowing the building design and the main sewer water corporation issue.
4	Refer to attachment in email
5	Following our phone conversation earlier today and on the understanding that tomorrow, Friday 5th May is the deadline for Public comments I am writing to formally lodge my objection as owner and occupier of 7 Russell St, to the proposed development at 96 Marine Terrace due to its large size and looming presence at the end of my garden. I would be grateful if you would keep me informed of all further developments in this matter. This would be a highly impactful development for all of the neighbours with concerns of overlooking, shading, breeze-blocking, as well as potential light and noise pollution. I am also concerned that the overall look of the place will fit in with the heritage nature of the area. I look forward to working with all concerned so that we come to a reasonable conclusion.

05 May 2023

City of Fremantle

Walyalup Civic Centre

151 High Street

Fremantle

WA 6959

FAO Planning

RE DA0107/23 dated 13 APRIL 2023

OBJECTION TO DEVELOPMENT APPLICATION FOR TWO STOREY SINGLE HOUSE AT 96 (LOT 123) MARINE TERRACE, FREMANTLE (DA0107/23 dated 13 April 2023)

To whom it may concern,

Advertisement, Notice and Request for an Extension to the Consultation Period

---

A limited number of neighbours to the development received a letter dated 17 April 2023 from Fremantle Council advising of the development and inviting comment on the development.

This notice was not provided to other neighbours impacted by the development eg Units 2, 3 and 4 of 6 Grey Street and 7 Russell Street.

These and other properties are impacted by overshadowing, setback, overlooking, privacy, loss of amenity, loss of view, car parking, and the like.

The residents are unaware of any advertisement regarding the proposed development and assume this has not been carried out or not carried out such that residents were reasonably aware of the proposal. The residents confirm that notices have not been provided in accordance with Clause 64 of the Planning and Development Act 2005 - Planning and Development (Local Planning Schemes) Regulations 2015.

For example Clause 64 (3) (b) (i) and (ii) requires:

> *giving notice of the proposed development —*
>
> *(i) to the owners and occupiers of every property that is within 200 m of the proposed development; and*
>
> *(ii) to any other owners and occupiers of properties in the vicinity of the proposed development who, in the opinion of the local government, are likely to be affected by the granting of development approval;*

Residents noted above are within 200m of the proposed development and were not provided notice.

The residents request an extension to the deadline for comment of 5th May 2023 until such time as the residents have been formally notified and notification periods complied with.

In the interim, the impacted residents provide preliminary comment as follows:

Departures to the Planning Framework

The Planning Framework exists for the benefit of all and includes, guides, recommendations and rules governing a development.

The Urbanista report requests various departures from the Planning Framework and tries to suggest that those departures will facilitate refurbishment of the existing heritage building at significant cost.

2 THE PROPOSAL

Heritage Place

The development application seeks approval to modify the existing heritage building and to construct a two storey development on the adjacent vacant area of the site. An existing office operates from the heritage plan. The following works are proposed:

- A new roof to the existing heritage building to restore historic roof form.
- Original bullnose verandah to be reinstated.
- A new front fence.
- Garden beds are to be lowered to allow for air floor below the heritage building.

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URBANISTA
TOWN PLANNING

Given that the owner is refurbishing the existing heritage building at significance cost, which will add to the local area streetscape, the City is asked to apply discretion and support the following departures from the planning framework;

- Setbacks
- Car parking
- Overshadowing

On this basis it is contended that the proposed design has taken into consideration the site constraint to deliver a positive outcome for the subject site and the streetscape.

This is disingenuous as the refurbishment works summarised at Section 2 (The Proposal) are reasonably minor in nature, can be considered ongoing maintenance and upgrade, are not urgent and are very likely tax deductable.

The office building (heritage building) was advertised for sale and sold mid to late 2021 with an annual income of $43,000. This demonstrates the commercial nature of current land ownership.

https://www.realcommercial.com.au/sold/property-96-marine-terrace-fremantle-wa-6160-503807814

Income Details
The property is leased until mid 2022 with one (1) option period of two years, with an income of $43,000 pa net, plus outgoings which are payable by the tenant.

The development proposal for the new dwelling is for commercial gain only ie addition of a residential property for profit or single landowner occupation on land not previously intended or designated for such use.

If anything, the addition of a new and demonstrably oversize dwelling diminishes and dwarfs the heritage building.

The residents respectfully request that the City respect the Planning Framework and not allow departures that disadvantage the existing landowners and residents in the immediate vicinity of the development.

The several residents should not be disadvantaged in amenity and value of their properties for the commercial gain of a single developer.

Setbacks

Page 26 of the Urbanista report identifies that the proposed development does not comply at the Southern and Eastern boundaries as follows:

Wall	Assessment	R-Code Requirement	Setback Provided	Complies/Does Not Comply
Southern Wall	Length: 16 metres Height: 8.5 metres at the front and 7.2 metres at the rear due to the sloping nature of the lot.	• For R35 a maximum height of 3.5 metres is permitted. • Boundary walls where they abut an existing or simultaneously constructed wall of similar or greater dimension where they do not cause an overshadowing impact. A maximum two-thirds the length of the lot boundary the wall abuts, measured from behind the street setback.	An average height of 7.85 metres is proposed. A portion of this wall is permitted as it abuts a simultaneously constructed boundary wall, however it still exceeds 2/3 the length of the lot.	*Does not comply.*
Eastern Wall	Length: 5 metres Height: 3.9 metres	A setback of 1.5 metres is permitted.	Setback 1.35 metres	*Does not comply.*

Notwithstanding that the proposed development is already non-compliant, the residents question whether Urbanista have used the correct dimensions in their assessment and suggest that the level of non-compliance is actually much worse.

For the Eastern wall the report suggests a length of 5 metres and a height of 3.9 metres. The drawings show an actual length over 10 metres (10.015m) and a height of somewhere between 7.2 and 8.5 metres.

The scale of the building would dominate neighbouring buildings and lead to significant loss of amenity, privacy, sunlight and views.

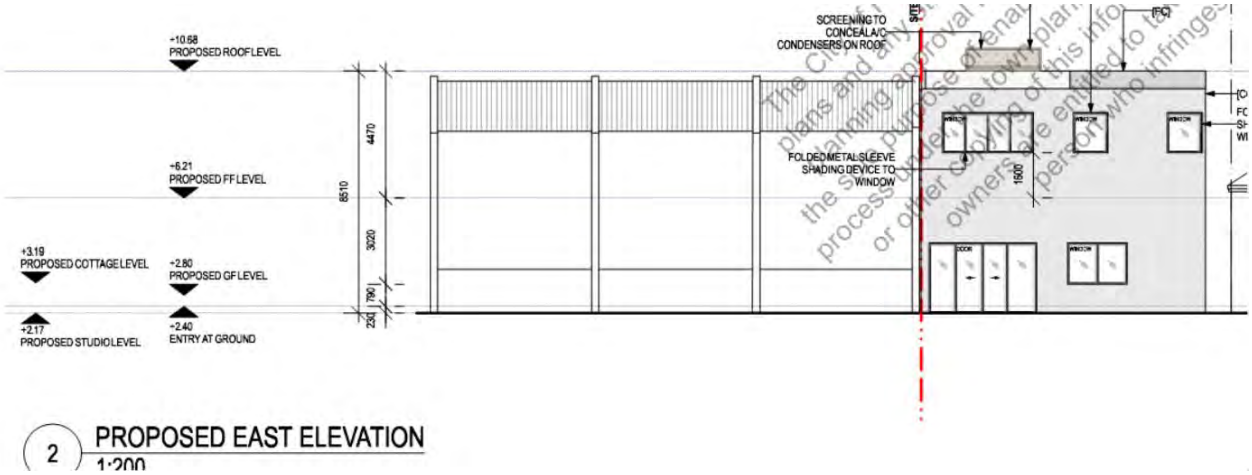
The limited setbacks (already non-compliant) mean that the eastern ground floor bedroom and the eastern 1st floor rooms of the proposed development will be immediately adjacent to its neighbouring property (Unit 1, 6 Grey Street) kitchen, bedrooms, balconies and outdoor spaces.

The upper floor bedroom window of the proposed building will be almost within touching distance from the balcony of 1/6 Grey Street and will be able to look into the gardens, balconies and

bedrooms of Unit 1, Unit 2 and Unit 3 of 6 Grey Street. The suggested 1600mm high window and shading will not prevent this.

The proposed building will block views from the units of 6 Grey Street and lead to significant shading.

At the Southwest boundary (Marine Terrace elevation) the oversize balcony will lead to loss of privacy, potential noise nuisance to the neighbouring property main bedroom and loss of light. Living accommodation (kitchen, dining & living) of the proposed development is at 1st floor level which places it alongside the Marine Terrace property bedrooms and creates potential loss of privacy and noise nuisance.



The planners may also wish to consider whether noise nuisance or environmental considerations such as cooking / bathroom smells are an issue at the Eastern boundary / boundary of Unit 1, 6 Grey Street and beyond. The downstairs studio of the proposal development places a bedroom (with large format sliding doors), kitchen and bathroom within 1.3m of the Grey Street garden and in very close proximity to the Unit 1, Grey Street WC (including exhaust fan), laundry, kitchen and external gas appliance (boiler). Freedom from noise and smells, and privacy for existing and proposed properties would be severely compromised.

DfES may also need to comment on whether suitable separation at ground floor and fire compartmentation and / or proximity to existing timber balustrade and exposed timber roof structure at the existing balconies are a concern. Access for fire emergency services to the rear of the Grey Street properties would also be severely compromised should the development be permitted.

At the proposed development's northern boundary the building mass would be unsightly and imposing to the established Russell Street properties. At circa 8m tall it would dominate the outdoor spaces and accommodation at the rear of house.

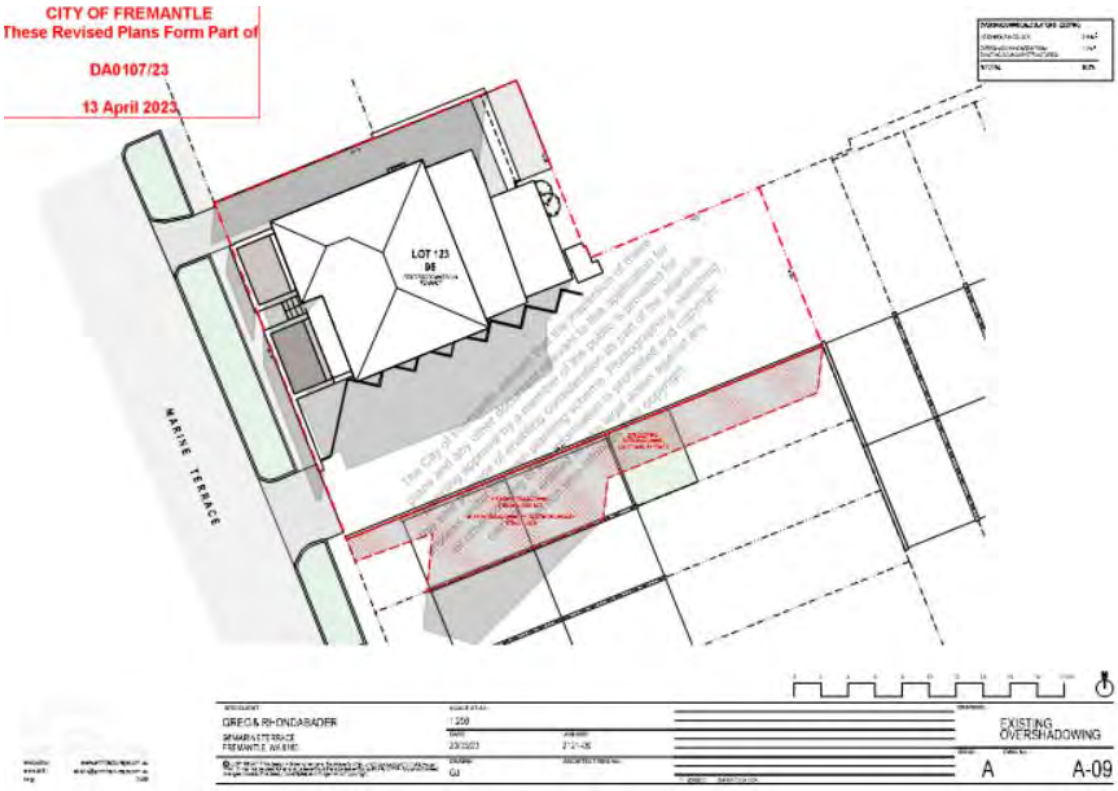
The proposed balcony and bedroom overlook the garden area and lead to loss of privacy within the property. Although the proposal details a 1600mm high balustrade to the balcony and shading screens to the bedroom this does not stop or prevent overlooking. A significant proportion of persons will be tall enough to look straight over the balcony balustrade and into the garden and house. The bedroom shading does not stop direct line of site into 7 Russell Street. Noise transfer between proposed and existing is also likely.

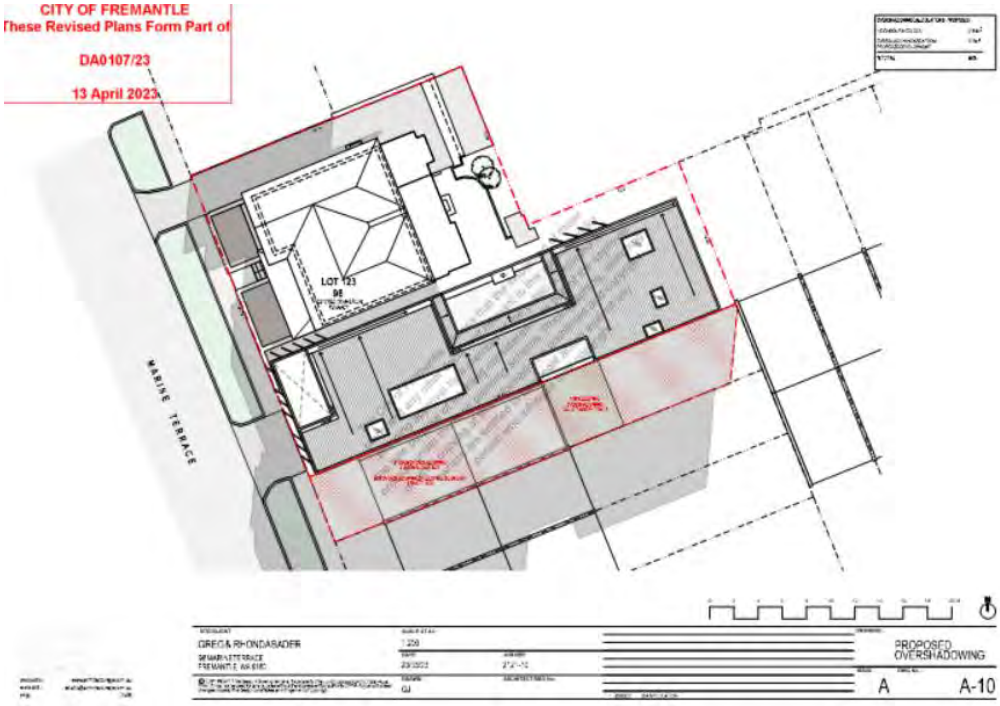
Shading

The shading commentary provided in the Urbanista report appears to suggest limited shading. The residents suggest that the report is lacking and provides a limited, biased or highly optimistic view.

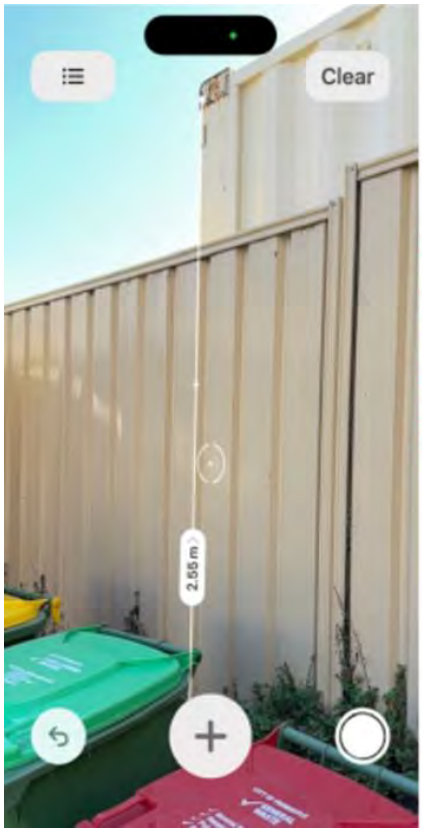
The comparison between existing shading (Drawing A-09) and after (Drawing A-10) is misleading as the existing shading is at low level. If the new development was allowed to proceed, the shading would impact the gardens, rear ground floor rooms, upper floor balconies and upper floor bedrooms of the existing Marine Terrace properties to the South of the development. It would block almost all sunlight at most times of the day and most times of the year.

The Urbanista report appears to only consider part of the Southern shading for a limited time period, possibly mid-morning.

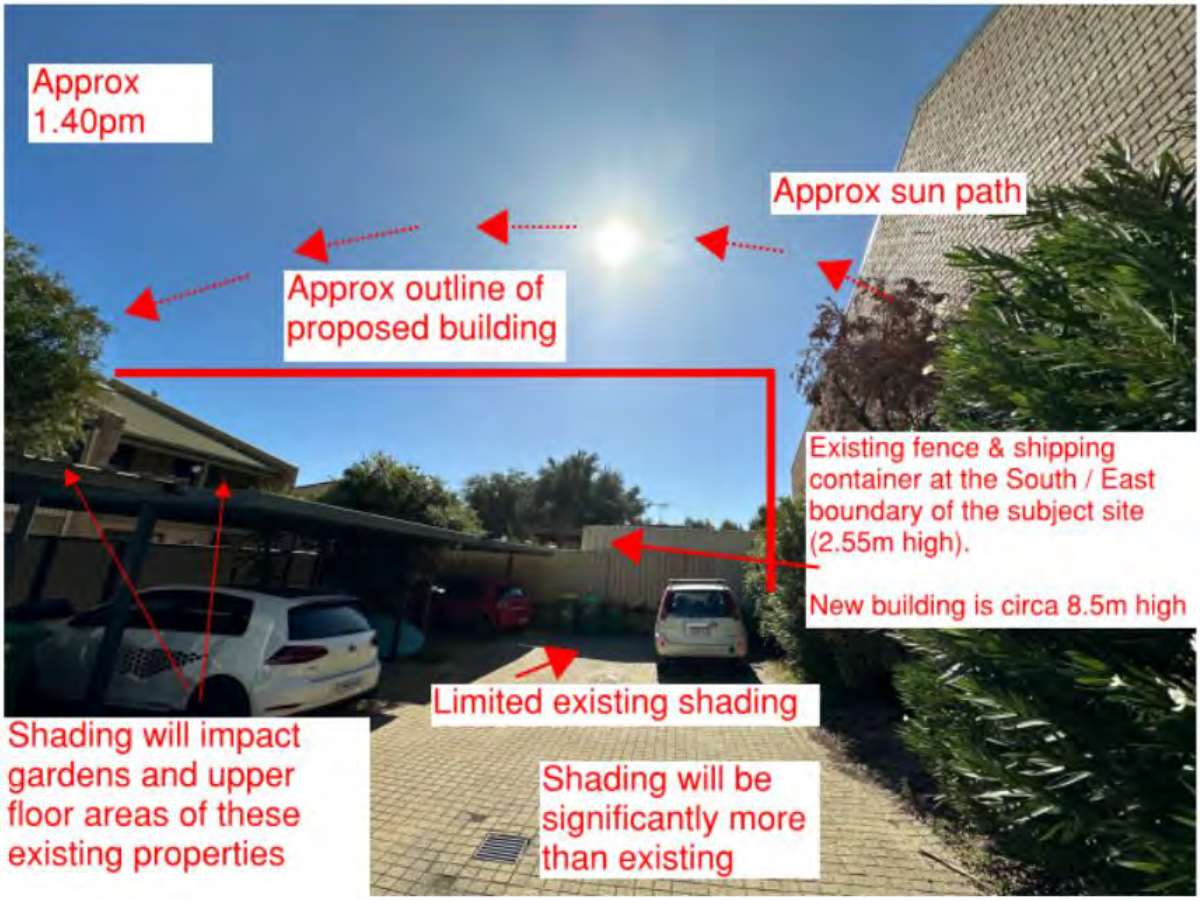


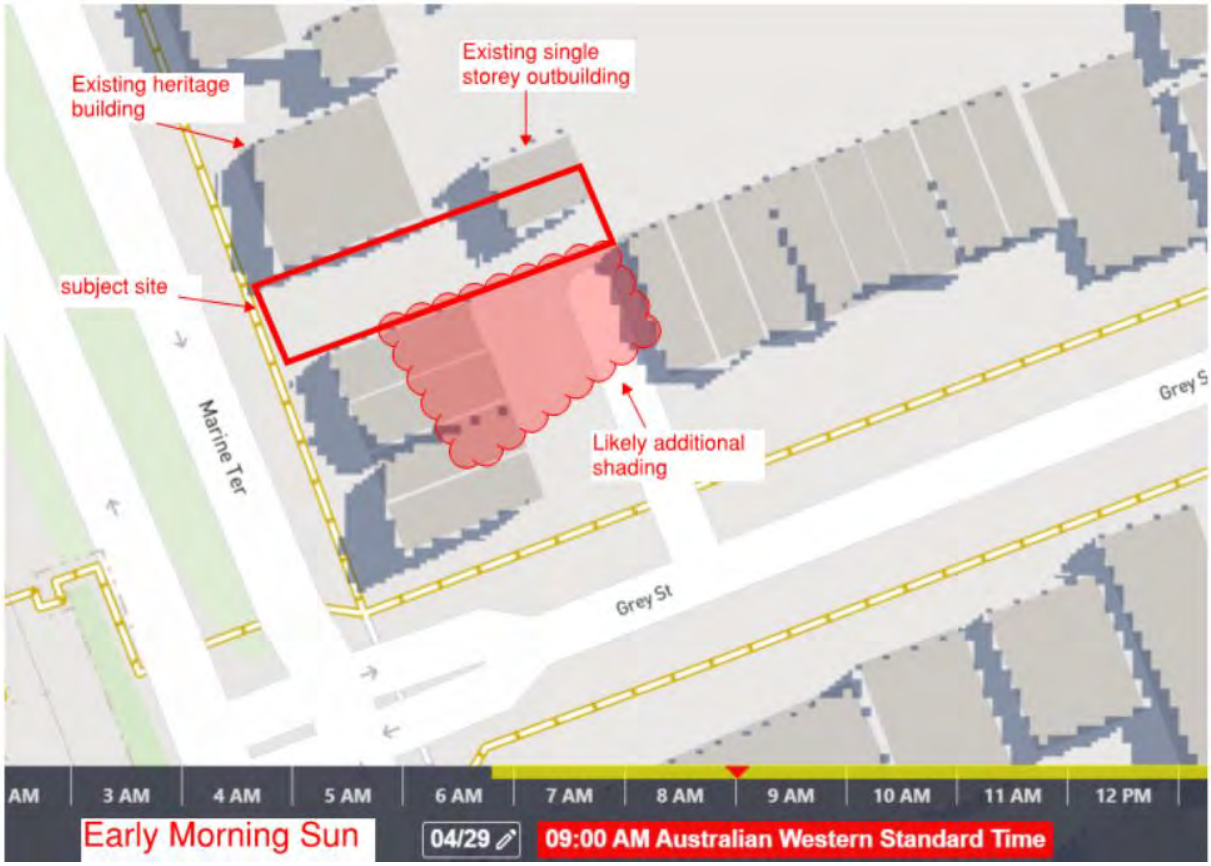


Without the resources available to the developer, the residents provide the below images and shading profiles utilising free web based software with added commentary to model the new development and the new shading profiles that this would create. <u>The height and extent of the proposed development will significantly affect current shading</u>.

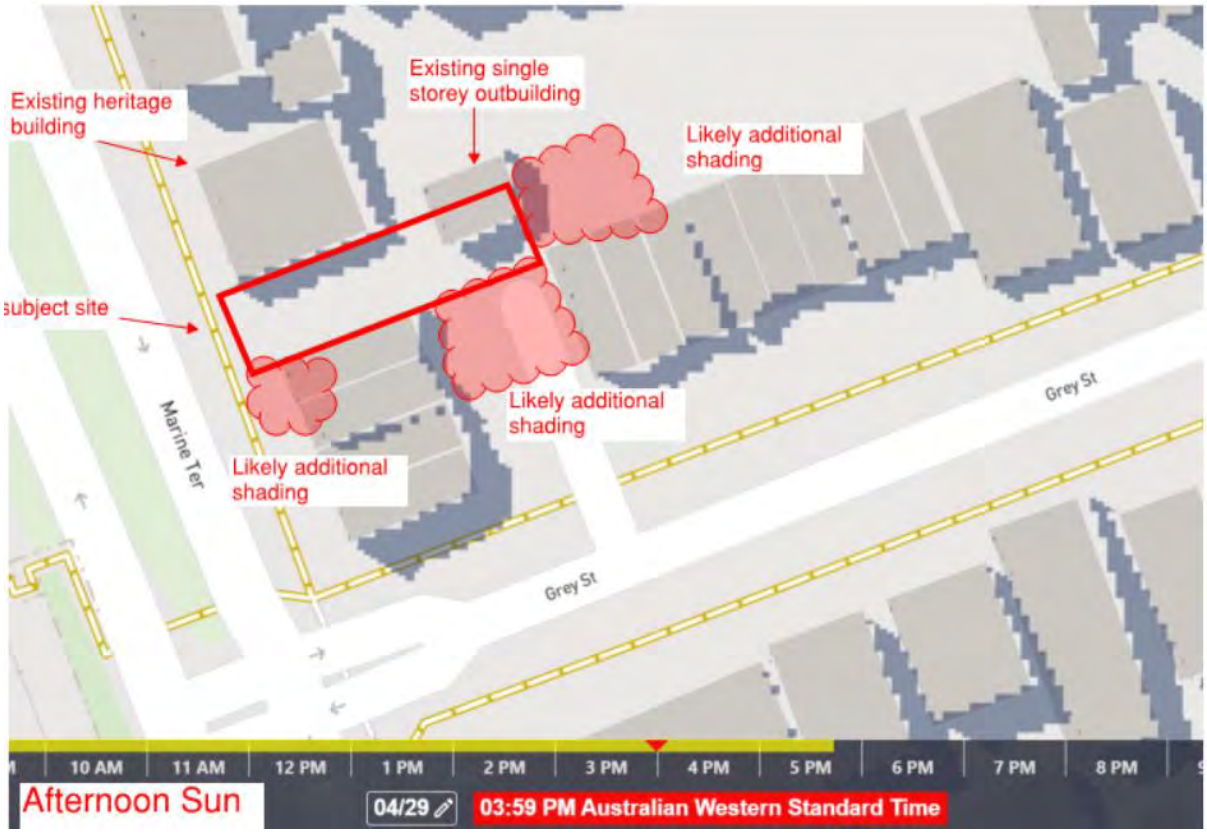


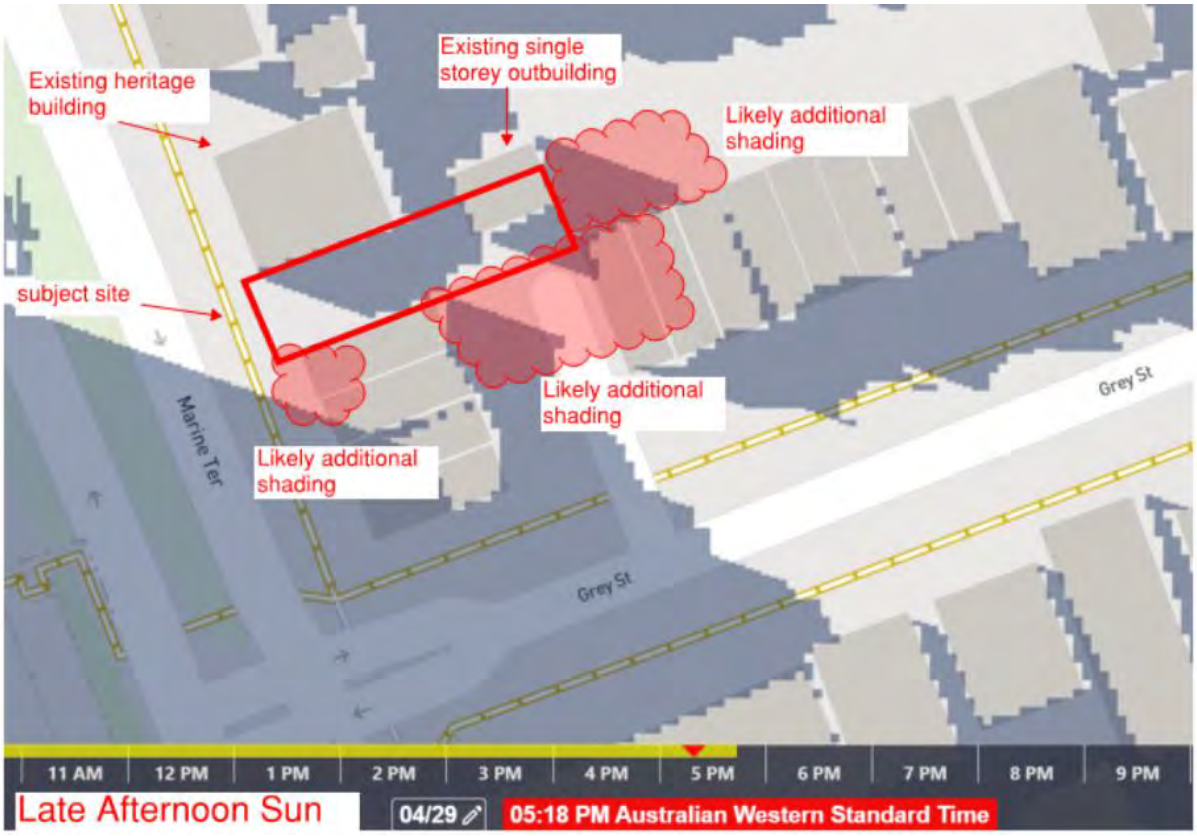
Existing fence & shipping container at the South / East boundary of the subject site (2.55m high). New building is circa 8.5m high


Approx
1.40pm
Approx sun path
Approx outline of
proposed building
Existing fence & shipping
container at the South / East
boundary of the subject site
(2.55m high).
New building is circa 8.5m high
Limited existing shading
Shading will impact
gardens and upper
floor areas of these
existing properties
Shading will be
significantly more
than existing


Existing heritage
building
Existing single
storey outbuilding
subject site
Marine Ter
Likely additional
shading
Grey St
Grey S
AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
Early Morning Sun
04/29
09:00 AM Australian Western Standard Time

Existing single storey outbuilding
Likely additional shading
Likely additional shading
Grey St
Grey St
Mews Rd
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
Midday Sun
04/29
12:25 PM Australian Western Standard Time


Existing heritage building
Existing single storey outbuilding
Likely additional shading
subject site
Marine Ter
Likely additional shading
Likely additional shading
Grey St
Grey St
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
Afternoon Sun
04/29
03:59 PM Australian Western Standard Time



Car Parking

Page 8 of the report by Urbanista Town Planning requests the City to depart from the planning framework for car parking.

Page 21 of the report identifies that the site requires 7 bays to comply with the framework. The development aims to provide 4 bays which is a shortfall of 3 bays.

The residents identify that parking at the development site is already oversubscribed and has been for many years.

Urbanista suggest:

- As the building and its land use are established use within the locality, it is considered an office use is a low impact use in terms of its parking.
- Casual, on-street parking is located along Marine Terrace and the side streets that allows for any visitors to the tenancy to park for a short period of time.
- Reduced car parking encourages the use of alternative forms of transport such as bicycle, motorbike parking and public transport (i.e., buses along South Terrace which is located within a walkable distance of approximately 200 metres east of the subject site).
- The site is significantly constrained due to the water corporation easement that runs through the site. This means it is not possible to construct a building over this portion of the lot. Instead, this area can only be used for car parking and as such, this car parking should be dedicated solely for the use of the dwelling to provide adequate separation between the two distinct uses.

The residents suggest that the statements made are disingenuous and lacking in local knowledge.

The images below show historic parking demand at the subject site is at or near capacity and well above the planning framework / proposed reduced provision.

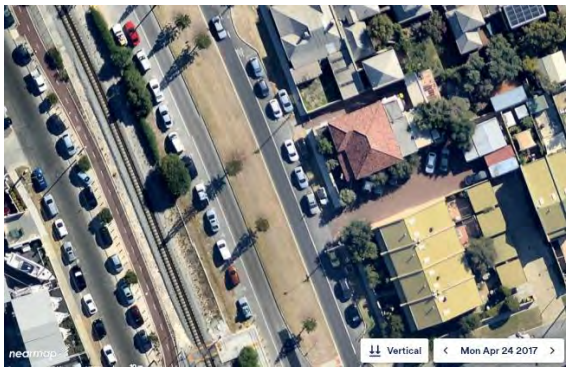
Response to Urbanista reasons for departure:

- The office is not low impact as can be seen by the photos below (parking is in high demand and oversubscribed to current framework guidelines).
- Casual parking at Marine Terrace is already in limited supply, the area is used by surrounding suburbs, and people from out of town who commute into Fremantle and onwards to Perth City via the rail network.
- Reduced parking does not encourage alternative use, demand in the locality appears to be increasing.
- Subdivision of the site and allocation of parking to the proposed residential dwelling completely ignores the current office demand – thus making the current office non-compliant.
- The sewer easement remains a matter for WaterCorp to comment on.

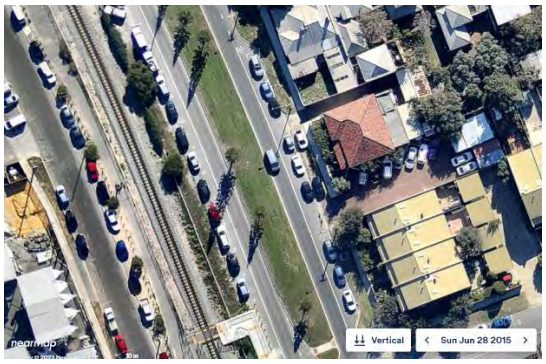
<u>Historic photos showing parking demand - 2012 to 2023</u>

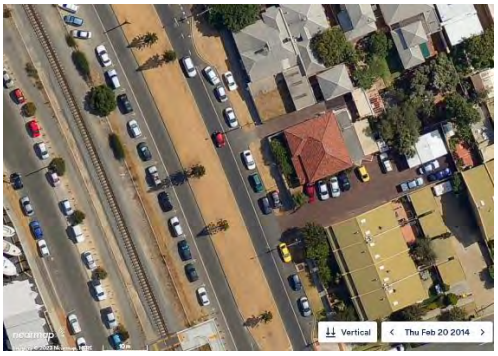
nearmap
Vertical
Wed Dec 15 2021

Vertical
Fri Nov 20 2020

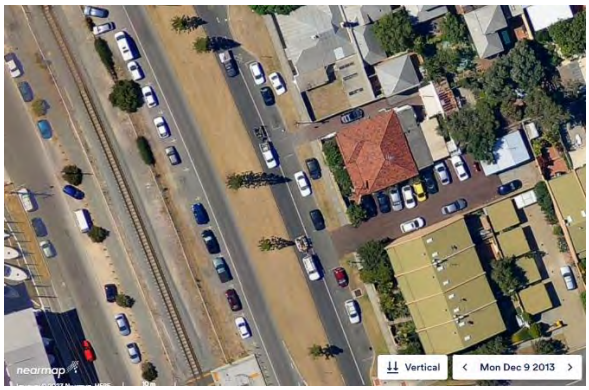

nearmap
Vertical
Mon Apr 24 2017

nearmap
Vertical
Thu Jun 30 2016


nearmap
Vertical
Sun Jun 28 2015


nearmap
Vertical
Thu Feb 20 2014

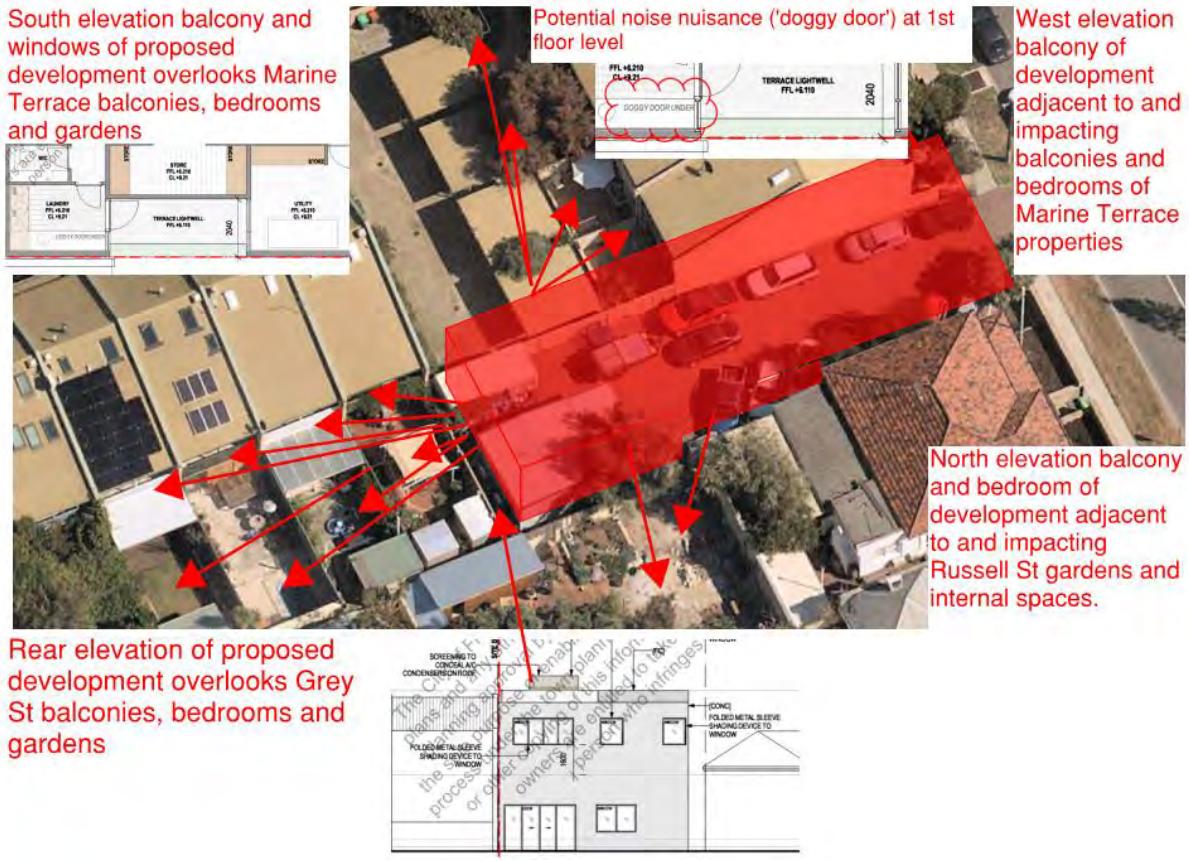
Vertical
Mon Jan 6 2014


nearmap
Vertical
Mon Dec 9 2013

Privacy

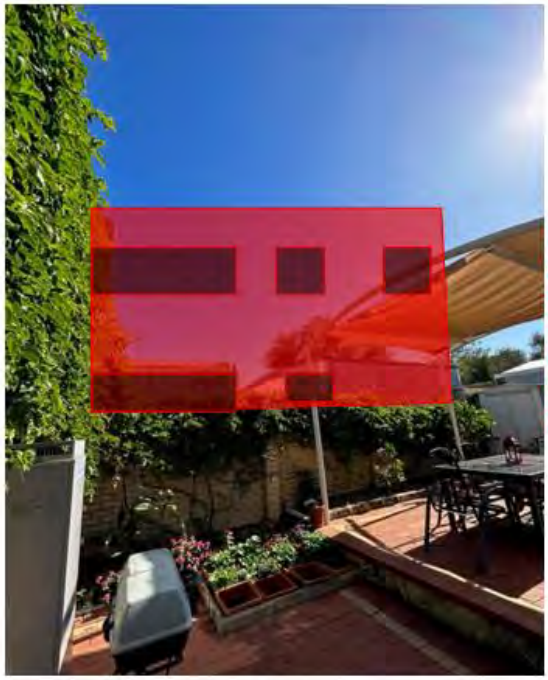
The residents suggest that the Planning Application and Urbanista report should have included elevations and aspects to properly advise the Planners of impacts to surrounding properties.

Without the resources available to the developer, the residents provide the below images to try and demonstrate privacy and loss of amenity issues that the proposed development would create.



Proposed development's windows and balconies overlook Marine Terrace, Grey St and Russell St gardens, balconies and bedrooms.

East Elevation Mock Ups (Grey St Properties)

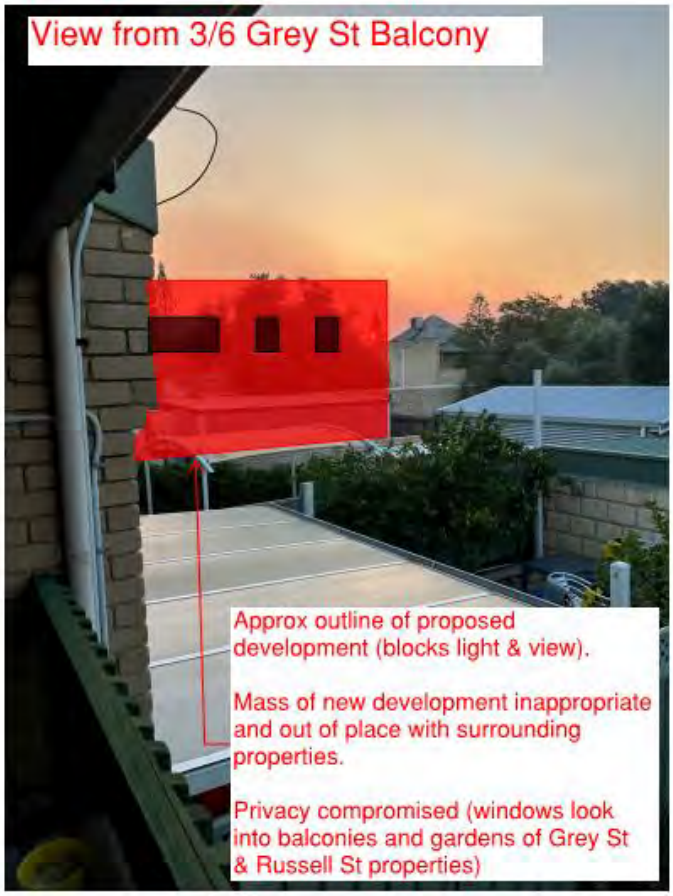


Rear of proposed development (east elevation) overlooks Grey St gardens, balconies and bedrooms.

East elevation of proposed development overlooks Grey St gardens, balconies and bedrooms.

Rear of proposed development overlooks Grey St gardens, balconies and bedrooms.

Approximate view from 1/6 Grey St Balcony with eastern elevation of proposed development.
Set back only 1.3m from boundary and windows overlook gardens and into balconies and bedrooms of Grey St properties.


View from 3/6 Grey St Balcony
Approx outline of proposed development (blocks light & view).
Mass of new development inappropriate and out of place with surrounding properties.
Privacy compromised (windows look into balconies and gardens of Grey St & Russell St properties)

Approx outline of proposed development (blocks light & view).

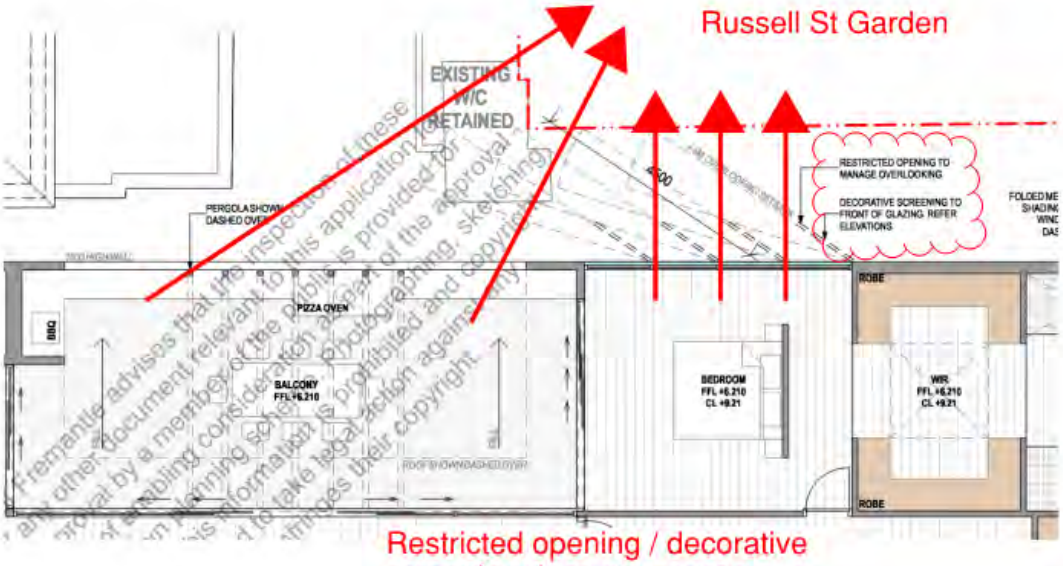
Mass of new development inappropriate and out of place with surrounding properties.

Privacy compromised (windows look into balconies and gardens of Grey St & Russell St properties)

North Elevation Mock Ups (Russell St Properties)

North elevation balcony of proposed development overlooks Russell St gardens and internal rooms.

Balcony & bedroom of proposed development overlook Russell St gardens and into houses



Restricted opening / decorative screening does not prevent direct line of sight into Russell St properties

South Elevation Mock Ups (Marine Terrace Properties)

South elevation balcony and utility room of proposed development overlooks Marine Terrace gardens, ground floor rooms, balconies and bedrooms.

South elevation balcony and utility room of proposed development overlooks Marine Terrace gardens, ground floor rooms, balconies and bedrooms.

Conclusion

The Development Application for the proposed development, by its own admission, does not comply with the Planning Framework.

Existing residents adjacent to the development will suffer loss of amenity and privacy and be subject to overlooking, shadowing, increased parking congestion and the like.

The residents request that the planners adhere to the Planning Framework and not allow departures for the sole benefit of a single developer.

The mock ups and images provided are a best attempt to convey the impact that this development would have on the surrounding properties. Should the Planners be seriously considering anything other than a rejection to the scheme, the residents would request that the Planners and relevant consultants to the development attend the site and adjacent properties to meet with the residents and view firsthand what the development would mean in the context of the existing residencies and living spaces.

Prepared with the input of the residents of:

Unit 1, 6 Grey Street

Unit 2, 6 Grey Street

Unit 3, 6 Grey Street

7 Russell Street

Other residents in the vicinity to comment following appropriate notice and consultation.

Heritage Impact Assessment

Address:	96 Marine Terrace, Fremantle
Application number:	DA0107/23
Proposal:	Conservation of house and new two storey grouped dwelling
Requesting officer:	Cardia Mariani
Date:	29/08/2023

96 Marine Terrace, Aerial photograph, Google Maps, 1/02/2023

INTRODUCTION

The purpose of this heritage comment is to assess the changes to the place that are proposed in the revised drawings stamped 30/8/23 for DA0107/23 and the affect that they will have upon the heritage values of 96 Marine Terrace. The proposed changes include:

- Conservation of heritage house c. 1901
  - Remove Post war alterations to exterior and reinstate the following elements:
    - front facing gable end and roof to projecting room
    - windows to facade
    - bullnose front verandah
    - roof cladding
    - Front fence
- New two storey grouped dwelling

HERITAGE LISTINGS

Heritage Place Name	House & Limestone Features, 96 Marine Terrace
State Register of Heritage Places	No
City of Fremantle Heritage List	Yes
City of Fremantle Heritage Area	No
Local Heritage Survey	Yes
Management Category	Level 3
Inherit database place record	21256
Further comment	-

RELEVANT PREVIOUS DEALINGS

Recent meetings or discussions:

- Pre lodgement discussion
- Site Visit
- Meeting at CoF offices

Previous relevant DAs:

- N/A

Previous relevant legal dealings:

- N/A

BACKGROUND

History

The following information was taken from the Place Record on the Inherit website:

House and Limestone Features, 96 Marine Terrace was built in 1901/02 for Alfred Borchet, a merchant of Fremantle. For a time, the house was known as “Tilbury House” and until the mid-1920s, its address was 109 Fitzgerald Terrace

By 1908, the house was owned by T O Watson and leased to a tenant. The following year, the house was bought by Samuel Hardcastle, who owned it until c. 1915. There were several changes in ownership until 1925, when House, 96 Marine Terrace was bought by Victor Silich.

In 1926, Mr Silich built a cottage on the lot (in future, No. 98) by converting existing stables and adding to them. The Silich family lived in the house (No. 96), while boarders or tenants lived in the cottage. The Silich family comprised Victor and Mandalena Silich, their two girls, four boys and nephew.

In 1929, Mr Silich would meet newly arrived immigrants from Yugoslavia at the wharf, take them home, help them buy clothes and train tickets. Many of these men would board with the Silich family for only one night before catching the train to the Goldfields or the south-west, where many of them worked cutting timber.

The Silich family also provided meals. Trestle tables would be set up in the long hallway, and according to family memories, at times there were 80 people to feed.

In 1934 the family moved to the Whitby Falls Coach House at Mundijong, where they stayed until 1940. Both the house and the cottage in Marine Terrace were leased during this time. From the late 1940s, the cottage was also occupied by members of the Silich family. In 1941, the cottage was given the street number of 98 Marine Terrace.

Mandalena Silich died in 1960 and Vicitor died in 1963. Victor Silich junior purchased the property in 1964. Between 1964 and 1972, the galvanised iron roof was replaced with tile and the bull nosed verandah was replaced. Most of the windows were changed.

Victor Silich junior sold the property in 1972, and the new owners demolished the cottage. Since that time, House, 96 Marine Terrace has been occupied by a number of businesses. It has been owned by the Cicerello family since 1980.

This place was included in the list of heritage places in the City of Fremantle identified by the Fremantle Society (1979/80) - BROWN -significant for making a positive contribution to the built environment of Fremantle.

This place was also identified in the "Heritage Report on 19th century limestone walls and steps in Fremantle" prepared by Silvana Grassadonia, for the City of Fremantle, 1986. Limestone walls were built around properties in Fremantle to prevent sand drift in response to an early building regulation dating from the 1830s. The use of limestone is part of the Fremantle landscape and gives the City coherence and character. Most of the limestone in small walls came from local quarries.

In the Fremantle Library Local History Collection there are several images of the house from the 1930s which show details of the original roof form, front verandah, bay window, front windows and front fence prior to changes made in the 1960s.

Physical Description

The section of Marine Terrace between Collie and South Streets has a mixed character of late 19th and early 20th century residential buildings set back from the street behind modest gardens and, Late Twentieth Century infill development much of which is multi storey and built up to the front site boundary.

96 Marine Terrace sits in the middle of a short block between Russell and Grey Streets and is set back behind a narrow front garden. On the north is a single storey house which faces Russell Street and has a secondary frontage facing Marine Terrace with a minimal setback to accommodate the eaves of the roof. On the south side is a 1980s, heritage inspired two storey block of four terrace houses dating from the 1980s. The terrace has a slightly greater setback than 96 Marine Terrace. All the buildings have verandahs lining most of their street frontage.

The following description of the house at 96 Marine Terrace was taken from the Place Record on the Inherit website:

> 96 Marine Terrace is a single storey, rendered masonry and tile house built in 1901/02 with an asymmetrical facade designed in the Federation Bungalow style of architecture with some modifications in the Post War Era.
>
> The walls are rendered masonry. The roof is hipped and clad with tiles. The facade has one projecting front room with double hung sash windows. The verandah has a separate tiled roof which extends over the protruding front room and is supported by timber posts and extra brackets. The front door has a fanlight and there are double hung sash windows to the right hand side. The house is elevated from street level.
>
> There is a high limestone wall to the front boundary of recent construction.

96 Marine Terrace Google Streetview, 2023

IMPACT ASSESSMENT

Impact on the heritage significance of the place

The proposed development of the place was assessed against the following values identified in the statement of significance for the place:

House, 96 Marine Terrace, is a typical masonry single storey house from c. 1901 that has undergone some modification during the Post-War era.	Positive impact
The place has aesthetic value for its contribution to the streetscape and the surrounding area.	Minor impact
It is representative of the typical workers' houses in the Fremantle area.	Positive impact
The place is an example of the Federation Bungalow style of architecture.	Positive impact
The place demonstrates the evolution of the area and the contribution made to Fremantle and its character by Migrants from Southern Europe.	Minor impact

Impact of the heritage values of the place

The impact of the proposed development of the place on the heritage values from the ICOMOS Burra Charter, 2013:

Aesthetic value	Minor impact	Condition	Positive impact
Historic value	No discernible impact	Integrity	No discernible impact
Scientific value	No discernible impact	Authenticity	No discernible impact
Social value	No discernible impact	Historical evolution	Minor impact
Rarity	No discernible impact	Streetscape	Minor impact
Representativeness	Positive impact		

Heritage Impact Comments

<u>House (c. 1901)</u>

The proposed conservation works to the c. 1901 house will generally have a positive impact on the heritage values of the place as it will reinstate the original roof form, front verandah and front windows. These items will be based on documentary evidence.

The proposed conservation works will remove the evidence of the post-war era renovations and the links to Post War European migration, but this is a secondary layer of significance which can be recorded and interpreted to retain the social and historic values.

Reinstatement of the original front fence with rendered masonry base and piers and permeable cast iron infill panels will also positively contribute to the character and heritage values of the house. The height of this fence needs to match the fence shown in the 1927 photographs rather than be upscaled to align with the height of the existing c. 1980s limestone boundary wall as shown on the drawings.

NOTE: The horizontal format window facing the front verandah is a replacement item from the 1960s renovations. Removal of cement render from the surrounding wall will most likely reveal the original window opening.

New grouped dwelling

The new dwelling is a two storey building that covers most of the southern half of the site and is separate from the c. 1901 house. The upper floor of the new dwelling cantilevers out over the ground floor and has a projecting wing at one end of the façade and a deck extending along the remainder. The deck has full height perforated aluminium folding screens to the façade but no roof. The roof of the upper floor is concealed by a parapet giving the building a simple rectangular massing.

In the original proposal the upper floor had a zero setback from the front boundary and the recessed ground floor was setback to align with the main front wall of the 1901 house. This did not comply with the requirements of LPP2.9 Residential Streetscape or LPP3.6 Heritage Areas. Following discussions with the applicant the design was revised so that the upper floor setback was increased to roughly align with the front setback to the verandah and projecting room of the adjacent 1901 house and the lower floor was setback to align with the wall to the back of the front verandah of the 1901 house.

The revised design for the proposed new development respects the scale and setbacks of the prevailing streetscape and will not significantly reduce views to the heritage house on the site or limit its contribution to the character of the Marine Terrace streetscape. The façade treatment of the upper floor of the new building with its projecting room and deck interprets and responds to the tradition form of the adjacent heritage house. The rectangular massing of the new building responds to commercial and industrial buildings in the surrounding streetscape.

The solid front fence in front of the new development is an existing fence. The new side returns to the front courtyard garden will have perforated screens in accordance with LPP2.7.

RECOMMENDATIONS:

The works proposed in this application are acceptable with conditions as overall they will have only a minor impact on the heritage values of House, 96 Marine Terrace

Conditions

Furter detail to be provided at building licence stage:

- Reinstated masonry and iron fence to front of heritage house
- Design of front window looking on to verandah

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URBANISTA
TOWN PLANNING

TWO-STOREY SINGLE HOUSE AND MODIFICATIONS TO EXISTING HERITAGE PLACE (OFFICE BUILDING)

96 (LOT 123) MARINE TERRACE, FREMANTLE

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30 March 2023

This report has been prepared by Urbanista Town Planning on behalf of the landowners for the proposed development over the Lot at No. 96 Marine Terrace, South Bunbury.

REV	AUTHOR	DATE	REVIEWED	DATE
A – DA lodgement	AB	28/03/23	PM	28/03/23

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URBANISTA TOWN PLANNING

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Level 1, 231 Bulwer Street, Perth, W.A. 6000
admin@urbanistaplanning.com.au | urbanistaplanning.com.au

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1 INTRODUCTION

Urbanista Town Planning are acting on behalf of the landowner to obtain development approval for a two-storey grouped dwelling to an existing heritage place.

In addition to this planning report, the following documentation is submitted to facilitate development approval:

- City of Fremantle Application Form, MRS Form 1 and Certificate of Title;
- Architectural drawings by Phillip Stejskal Architects; and
- A Heritage Impact Statement by Stephen Carrick Heritage Architect.

The detail provided in this report demonstrates that the application for the retention of the heritage building and two storey dwelling development should be approved by the City.

We look forward to working with the City to obtain approval for the proposed works.

2 THE PROPOSAL

Heritage Place

The development application seeks approval to modify the existing heritage building and to construct a two storey development on the adjacent vacant area of the site. The following works are proposed:

- A new roof to the existing heritage building to restore historic roof form.
- Removal of the lean-to addition at the rear to revert to the original building footprint.
- Original bullnose verandah to be reinstated.
- A new front fence.
- Garden beds are to be lowered to allow for air floor below the heritage building.

Single House

- The main entrance to the single house, featuring an entrance lobby, stairs and lift.
- A front courtyard year featuring a pedestrian area and outdoor shower.
- An undercroft car park, with two-way vehicular entry featuring a garage door, bin store area and space for two car parking bays.
- A ground floor studio located at the rear of the lot. The studio features a bedroom, bathroom, kitchenette, storage area and open space/studio area.
- A rear landscaping area.
- Two (2) balconies, one (1) at the front and one (1) to the northern side of the building featuring the dining area.
- A living, kitchen, scullery/store and office.
- Two (2) bedrooms, one with a walk in rob and ensuite.
- Additional bathroom, additional storage area and a utility room.
- A terraced lightwell area.

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The below images depict the layout of the upper floor of the single house and a perspective of the proposed single house alongside the existing heritage building on the subject site.

Figure 1 - Upper & Ground Floor for Single House

3 THE SITE & CONTEXT

The subject site (No. 96 Marine Terrace) has an area of 821m^2 and a frontage of 26.76 metres. The subject site is flat, and the property is an 'L' shaped lot, with an existing heritage building located on the northern most part of the lot. The southern portion of the lot is vacant.

There is also an existing demountable building and shipping container located at the rear of the lot. A solid limestone block wall space most of the frontage, which is typical characteristic other properties within the Fremantle locality.

An aerial image of the property in relation to the surrounding locality is provided below (site shaded blue).

The property is located directly across the road to a freight railway line, Blue HQ Fremantle (a boat storage facility) and approximately 150 east of Success Boat Harbour.

The adjacent street is characterised by a wide median/verge space and this portion of the road is lined with pine trees, another typical feature of the Fremantle locality.

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The subject site is zoned mixed use under the City of Fremantle's Local Planning Scheme No. 4. The property is also located in Local Planning Area 4 – South Fremantle and sub-area Marine Terrace: Norfolk Street to South Street. The below image depicts the respective planning areas the site is subject to.

Site Constraints

A sewer line is also located through the middle of the site, from the front to the rear. The below image depicts the location of the sewer line.

This constraint has influenced the design of the proposed dwelling on the vacant portion of the subject site. This is because Water Corporation does not support buildings over sewer lines and requires a 2 metre building clearance either side of a sewer line.

As such, a cohesive and meaningful building cannot be constructed on the vacant portion of the lot. On this basis, the proposed design of the dwelling has had to respond to this significant site constraint, with only a small portion of building being permitted at the front and rear of the lot.

The below image depicts the location of the sewer line through the vacant portion of the property (shaded blue).

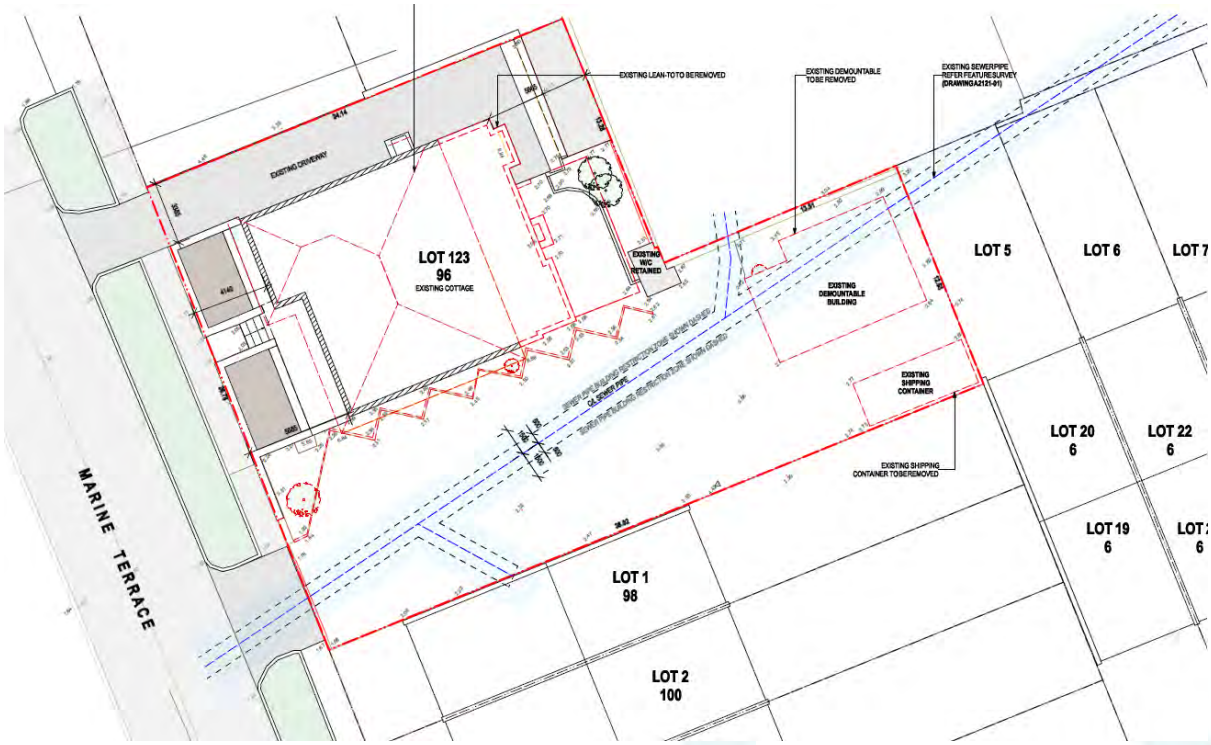

Figure 2 - Location of Sewer through Subject Site

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4 HERITAGE SIGNIFICANCE

The existing single house is listed on subject dwelling is listed on the following heritage lists:

- The City of Fremantle's Local Heritage Survey, Category 3 (Some Significance).
- he City of Fremantle Heritage List (Level 3), 18 September 2000.

The City's LPP 1.6 describes Management Category – Level 3 – Some Significance as follows:

> *The City of Fremantle has identified this place as being of some cultural heritage significance for its contribution to the heritage of Fremantle in terms of its individual or collective aesthetic, historic, social or scientific significance, and/or its contribution to the streetscape, local area and Fremantle. Its contribution to the urban context should be maintained and enhanced and its significant parts conserved.*

Statement of Significance

House, 96 Marine Terrace, is a typical masonry single storey house from c. 1901 that has undergone some modification during the Post-War era.

The place has aesthetic value for its contribution to the streetscape and the surrounding area. It is representative of the typical workers' houses in the Fremantle area. The place is an example of the Federation Bungalow style of architecture.

The place demonstrates the evolution of the area and the contribution made to Fremantle and its character by Migrants from Southern Europe.

Physical Description

96 Marine Terrace is a single storey, rendered masonry and tile house built in 1901/02 with an asymmetrical façade designed in the Federation Bungalow style of architecture with some modifications in the Post War Era.

The walls are rendered masonry. The roof is hipped and clad with tiles. The façade has one projecting front room with double hung sash windows. The verandah has a separate tiled roof which extends over the protruding front room and is supported by timber posts and extra brackets. The front door has a fanlight and there are double hung sash windows to the right hand side. The house is elevated above street levels. There is a high limestone wall to the front boundary of recent construction.

Historic Overview

The dwelling was built in 1901/02 for Alfred Borchet, a merchant of Fremantle. For a time, the house was known as "Tilbury House" until the mid-1920s, its address was 109 Fitzgerald Terrace. Several changes in ownership occurred between 1908 and 1925, when the house was purchased by Victor Silich.

In 1926, Mr Silich built a cottage on the lot (future house No. 98), by converting existing stables and adding to them. The Silich family lived in the house (No. 96), which boarder or tenants lived in the

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cottage. By 1929, Mr Silich would meet newly arrived immigrants from Yugoslavia at the wharf, take them home, help them buy clothes and train tickets. Many of the men who would board with the Silich family would eventually catch the train to the Goldfields or the south-west, where many of them worked cutting timber.

The Silich family also provided meals. Trestle tables would be set up in the long hallway, and according to family memories, at times, there were 80 people to feed.

After his mother and father passed away in 1960 and 1963 respectively, Victor Silich junior purchased the property in 1964. Between 1964 and 1972, the galvanised iron roof was replaced with tile and the bull nosed verandah was replaced. Most of the windows were also changed.

Victor Silich junior sold the property in 1972, and the new owners demolished the cottage. Since that time, the remaining dwelling has been occupied by several business. It has been owned by the Cicerello family since 1980.

This place was included in the list of heritage places in the City of Fremantle identified by the Fremantle Society (1979/80) for making a positive contribution to the built environment of Fremantle.

This place was also identified in the "Heritage Report on 19th century limestone walls and steps in Fremantle" prepared by Silvana Grassadonia, for the City of Fremantle, 1986. Limestone walls were built around properties in Fremantle to prevent sand drift in response to an early building regulation dating from the 1830s. The use of limestone is part of the Fremantle landscape and gives the locality coherence and character. Most of the limestone in small walls came from local quarries.

Integrity/Authenticity & Condition

The place has a medium degree of integrity (original intent mostly clear, current use compatible, high long term sustainability). Medium degree of authenticity with some original fabric remaining. The condition has been assessed as good.

Figure 3 - Street View Image of Subject Site

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5 HERITAGE FRAMEWORK & ASSESSMENT

As the existing dwelling is classified as 'Management Category – Level 3 – Some Significance' under the heritage framework, an assessment of the proposal against the provisions of the heritage framework is provided below.

Additionally, a Heritage Impact Statement has been prepared and findings of the report are contained in the assessment below.

State Planning Policy 3.5 – Historic Heritage Conservation

This Policy sets out the principles of sound and responsible planning for the conservation and protection of Western Australia's heritage and principally applies to heritage areas, buildings and structures. The objectives of the Policy are to conserve places and areas of historic significance, ensure development does not adversely affect the significance of heritage places and ensure heritage significance is given due weight in planning decision making.

In addition to these broad considerations, local governments should also have regard to the matters listed in in the below table. An assessment against these matters is also provided below.

Local Planning Policy 1.6 – Heritage Assessment and Protection

Notwithstanding an assessment of the proposed dwelling against the R-Codes, an assessment against LPP 1.6 must also be considered. This is on the basis that the proposed dwelling is located on the same lot as an existing heritage place/building and a change of use to this building is proposed.

Essentially, LPP 1.6 requires the preparation of a Heritage Impact Statement (HIS) for any development proposal which has the potential to have an impact on heritage significance of a place. On this basis, a HIS has been prepared and is submitted with this development application. Relevant sections of the HIS are discussed in further detail below.

Planning and Development Act 2005 & Deemed Provisions

The Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 Part 3 Clause 12 'Variations to Local Planning Scheme Provisions for Heritage Purposes' permits local government to vary any provisions within its Scheme where places of heritage value are retained, as follows:

> *(1) The local government may vary any site or development requirement specified in this Scheme to -*
>
> *(a) facilitate the built heritage conservation of a place entered in the State Register of Heritage Places under the Heritage Act 2018 section 42 or included on the heritage list; or*
>
> *(b) enhance or preserve heritage values in a heritage area.*
>
> *(2) A variation under subclause (1) may be unconditional or subject to any conditions the local government considers appropriate.*
>
> *(3) If the local government is of the opinion that the variation of site or development requirements is likely to affect any owners or occupiers in the general locality of the place or the heritage area the local government must —*

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(a) consult the affected parties by following one or more of the provisions for advertising under clause 64 (4);

(b) have regard to any views expressed prior to making its determination to vary the site or development requirements under this clause.

Given that the owner is refurbishing the existing heritage building at significance cost, which will add to the local area streetscape, the City is asked to apply discretion and support the following departures from the planning framework;

- Setbacks
- Car parking
- Overshadowing

On this basis it is contended that the proposed design has taken into consideration the site constraint to deliver a positive outcome for the subject site and the streetscape.

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Clause	Acceptable Development	Assessment Comments
Relevant considerations for development assessment		
The Model Scheme Text provisions require local government in considering applications for planning approval to have regard, amongst other things, to –		
6.5	*The conservation and protection of any place or area that has been registered in the register of heritage places under the Heritage Act or is the subject of a conversation order under the Act, or which is included in the heritage list under clause 7.1 of the scheme, or which is designated in a heritage area under clause 7.2 of the scheme.*	The proposal seeks to conserve the existing heritage place on the subject site. As noted in the heritage record and in comparing the current building form, several changes have occurred. The existing building is not an accurate reflection of its original form. The proposed modifications to the building will bring this building back to its original fabric and enhance the amenity associated with the heritage, within the locality. Additionally, the proposed single house will not adversely impact the heritage building. This is because the single house is not attached to the heritage building. This means that the heritage values associated with the building will remain entirely intact.
6.5	*Whether the proposed development will adversely affect the significance of any heritage place including any adverse effect resulting from the location, bulk, form, or appearance of the proposed development.*	The proposed single house is designed in a manner that does not result in an adverse impact on the existing heritage building for the following reasons: • The single house is entirely separated from the heritage building. • The single house is designed in a manner that ensures the ground floor is set back to allow for view corridors to the heritage building. • The upper floor design of the single house hangs over the ground floor of the building but is designed in a manner that is transparent to reduce any perceived impact of building bulk on the streetscape and minimises bulk obstructing view corridors to the heritage building. The below image depicts the sympathetic nature of the design of the single house to the heritage building. Further, the elevations depict that the underside of the verandah will align with the underside of the proposed building overhang for the single house (refer to below image).

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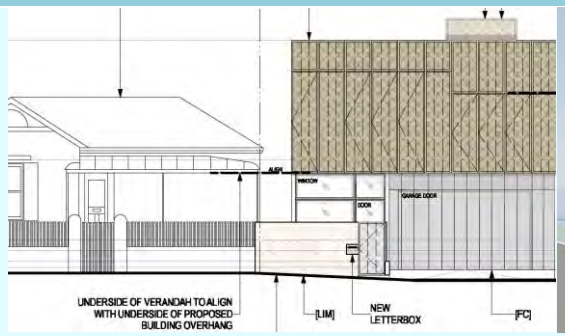
Clause	Acceptable Development	Assessment Comments
		 • In terms of the massive and treatment, the first floor balcony volume has been designed as a modern interpretation of the traditional bull-nose verandah – a light-weight addition intended to mediate sun and inclement weather, 'attached' to the front of house property. The balcony volume is clad in perforated aluminium, part of which are operable. The material is 'banded' vertically for strength and also to reference the traditional banding of the bullnose verandah. • The front fence associated the single house portion of the development is designed to tie in with the front fence associated with the heritage building. This design feature provides cohesion between the two buildings to make the development appear as one site. Further, it should be noted that this portion of the solid limestone wall is existing.
Alterations, extensions, change of use or demolition affecting a heritage place (including a place within a heritage place)		
6.5	• *The level of heritage significance of the place, based on a relevant heritage assessment.* • *Measures proposed to conserve the heritage significance of the place and its setting.* • *The structural condition of the place, and whether the place is reasonably capable of conservation.*	• The restoration works to the heritage place and its associated fabric ensure the ongoing protection of the building into the future. These works also align with the original description of the dwelling contained in the heritage record. • The separation of the single house from the heritage building ensures the ongoing conservation of the heritage building. • The heritage building is in a condition that restoration works can be contemplated. This ensures the ongoing conservation of the building. • The existing use will be ongoing and is not proposed to change in this development application.

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Clause	Acceptable Development	Assessment Comments
	• *Whether the place is capable of adaptation to a new use which will enable its retention and conservation.*	

Development control principles

The following development control principles should be applied in considering planning applications in relation to a place entered in a heritage list, a place or area entered in the state register, or a heritage area designated pursuant to a local planning scheme. The weight given to a heritage as a consideration will vary, depending on the degree of significant of a place or area, and relevant economic, social or environmental factors that may apply.

6.6	*Alterations, extensions or change of use affecting a heritage place.* • *Development should conserve and protect the cultural significance of a heritage place based on respect for the existing building or structure and should involve the least possible change to the significant fabric.* • *Alterations and additions to a heritage place should not detract from its significance and should be compatible with the siting, scale, architectural style and form, materials and external finishes of the place. Compatibility requires additions or alterations to sit well with the original fabric rather than simply copying or mimicking it.* • *In some cases, the conservation and protection of a heritage place may require a change of use to ensure a reasonable beneficial use of return. Sympathetic*	• The alterations to the existing heritage building only propose to restore the dwelling to its original design which is considered to enhance the cultural significance of the heritage place. • The alterations that have been made to the heritage building had detracted from the original design of the dwelling. The proposed works to this building will enhance the heritage values associated with the place. Specifically, the modifications to the roof and the verandah at the front will ensure the dwelling looks more in keeping with its original design. • No change of use is proposed. • As the dwelling is currently used as an office, it is considered the works to this building will enhance the existing use by ensuring the longevity of the building and its associated heritage fabric remains intact.

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Clause	Acceptable Development	Assessment Comments
	adaptation and change of use should be supported in such cases. • *Development should be in accordance with any local planning policies relating to heritage.*	

Figure 4 - Perspective of Development from Street

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6 DEVELOPMENT ASSESSMENT AND JUSTIFICATION

Objectives of the Zone

In order to determine the suitability of the proposal, an assessment against the objectives of the mixed use zone is provided in the below table.

Mixed Use Zone – Objective	Assessment Comment
Provide for a mix of compatible land uses including light, service and cottage industry, wholesaling, trade and professional services, entertainment, recreation and retailing of good and services in small scale premises, including showrooms, where the uses would not be detrimental to the viability of retail activity and other functions of the City Centre, Local Centre and Neighbourhood Centre zones.	Existing professional services are provided on the subject site through the office land use in the heritage building. The addition of a single house will enable the vacant part of the land to be used for residential purposes and will provide activation to the street and fit with the mixed use streetscape. Additionally, the provision of residential on the subject site will not cause a detrimental impact to the viability of retail activity in the City Centre, Local Centre and Neighbourhood Centre zones.
Provide for residential at upper level, and also at ground level providing the residential component is designed to contribute positively to an active public domain.	Although a single house is proposed, the design of the dwelling is not reflective of traditional single house proposals. This is because only the lobby/entry to the dwelling will be provided on the ground, with the predominant part of the dwelling being located on the upper floor. On this basis, it is considered the design of the dwelling is in keeping with this objective of the zone, to provide residential at upper levels. The small ground floor entry to the dwelling provides for activation to the street, particularly for pedestrian purposes.
Ensure future development within each of the mixed use zones is sympathetic with the desired future character of each area.	It is considered the proposal is sympathetic with the desired future character of the area for the following reasons: • The proposed buildings do not exceed the maximum building height, which means the proposal is in keeping with the established character of the area. • The proposed design of the development, particularly the design of the façade adds visual interest and fits with the mixed nature of the development along the street. • The proposed design provides for activation and passive surveillance to the street through the

	design of the balcony on the upper floor of the proposed dwelling. • The design employs the use of different colours and materials to add visual interest to the street, while fitting with the established context of the locality.
Ensure that development is not detrimental to the amenity of adjoining owners or residential properties in the locality.	The proposed development is sympathetic to the amenity of the adjoining properties for the following reasons: • The proposed height is in keeping with the surrounding properties. • The design of the development's aesthetic characteristics are sympathetic to the existing design cues in the locality. • The restoration of the existing heritage building will improve the outcome to the streetscape and promotes heritage values within the locality.
Conserve places of heritage significance the subject of or affected by the development.	The proposal not only proposes to maintain the existing heritage building, but also enhance and restore the building to its original form.

Objectives of the Marine Terrace Policy Area

In order to determine the suitability of the proposal, an assessment against the objectives of the Marine Terrace policy area is provided in the below table.

Marine Terrace Policy – Objective	Assessment Comment
1.1. The general character of the area should be distinctly inner urban.	The proposed restoration works to the existing heritage building ensures the heritage values of the place are maintained and that the ongoing presentation of the building to the street will be maintained. The provision of a new dwelling will provide for the inner urban feel to the locality by activating the vacant part of the lot and providing a streetscape outcome that is in keeping with the established character of the locality as a zone with a mix of buildings.
1.2 Marine Terrace should act as a seafront boulevard and a formal gateway entrance to the city.	The proposed design of the new dwelling will provide for a seafront boulevard design by ensuring passive surveillance to the upper floor balcony is a dominant design feature of the proposed façade of the building. This is ensures the development 'hugs' the interface

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	between the property and the street boundary and provides an active frontage that allows for passive surveillance and engagement with the street.
1.3 Development should be 'hard edged' relating directly to the street, both on the horizontal and vertical planes. Development should be of a scale appropriate to its setting and serve to close off the ends of the streetblocks abutting Marine Terrace. Incongruous isolated developments, and the overdevelopment of individual sites, will not be supported.	The proposed balcony façade provides for a hard edge to the Marine Terrace streetscape. The design achieves this design philosophy in the following manner: • The use of vertical lines and panelling associated with the balcony screening along the upper floor, that wraps around the front of the dwelling. • Accentuating the position of the balcony on the upper floor to exaggerate its vertical and horizontal alignment with the neighbouring dwellings to the south of the property. • Matching the upper floor levels with the neighbouring dwellings to the south to ensures the new development on the site is not incongruous with existing development.
1.4 Landscaping should be formal, consistent with the status of Marine Terrace as a 'boulevard entrance' to the city.	The existing front setback area associated with the heritage place provides an opportunity for meaningful landscaping in the front setback area to enhance the 'boulevard entrance' to the City.
1.5 All uses that are residential or have a general relationship to harbour activities both industrial and recreational would be encouraged, given the usual environmental standards.	A residential land use is proposed on the vacant portion of the lot.
Norfolk Street to South Street	
This area should retain a mixed use commercial/residential character. Acceptable uses could include serviced apartments, residential, marine industry and offices. A maximum height limit of three storeys should apply to sites capable of being redeveloped, as greater heights would be incongruous with the adjacent residential neighbourhoods. A number of the buildings in this area have local historic significance and the Council will encourage their retention and restoration.	Although the development is not strictly classified as mixed use development (i.e., commercial on the bottom, residential on the upper floors) however, the proposed development still spatially achieves a mixed use type of development. This is because two separate land uses are provided on the property. These land uses are designed to interact with one another and are also sympathetic to each other. The design has chosen not to pursue the 3 storey height maximum as it will also a detrimental impact on the amenity of the neighbour residential dwellings to the south. Limiting the bulk of the building associated

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	with the dwelling is appropriate in this instance, and this has been achieved by limiting the overall height. Furthermore, the proposal seeks approval for the restoration of the heritage place on the subject site, which is in keeping with the objectives of the Norfolk Street to South Street locality.

Land Use

As previously discussed, the subject site is zoned mixed use. The existing land use of 'office' is a 'P' (permitted) use in the mixed use zone.

The proposed land use of 'single house' is an 'A' use in the mixed use zone. This means that the use is not permitted unless the Council has exercised its discretion and has granted development approval after giving notice of the application (advertising) in accordance with Clause 64 of the *Planning and Development (Local Planning Schemes) Regulations 2015*, Schedule 2. On this basis, it is expected that the City of Fremantle will advertise this proposal for public comment.

Height

For 'Local Planning Area 4 – South Fremantle', LPS 4 specifies a maximum external wall height requirement of 7 metres for properties within the mixed use zone.

Furthermore, Sub Area 4.3.4 (Marine Terrace: Norfolk Street to South Street) of LPS 4 specifies that for properties between the Intersection of Norfolk Street to South Street that building height shall be limited to a maximum of three storeys (maximum external wall height of 10 metres as measured from ground level with a maximum roof plain pitch of 33 degrees).

It is considered the provision for a 10 metre maximum prevails over the 7 metre maximum on the basis that it is specific to the sub-area and other properties would have likely developed to this maximum. It is understood that this sub-area can enjoy more height due to its interface with Marine Terrace and being located across the road from industrial/commercial sites associated with the harbour.

An assessment of the development plans depicts a compliant wall height (being a maximum height of 8.5 metres at the front of the property. The proposed height of the single house matches with the dwellings to the south. Additionally, the architect has also designed a portion the datum of the proposed decorative screening along the front balcony to align with the neighbouring building wall to provide continuity between the proposed development and the adjoining buildings within the street block.

The below image depicts how the architectural design of the single house achieves this continuity between the proposed building and the existing buildings to the south.

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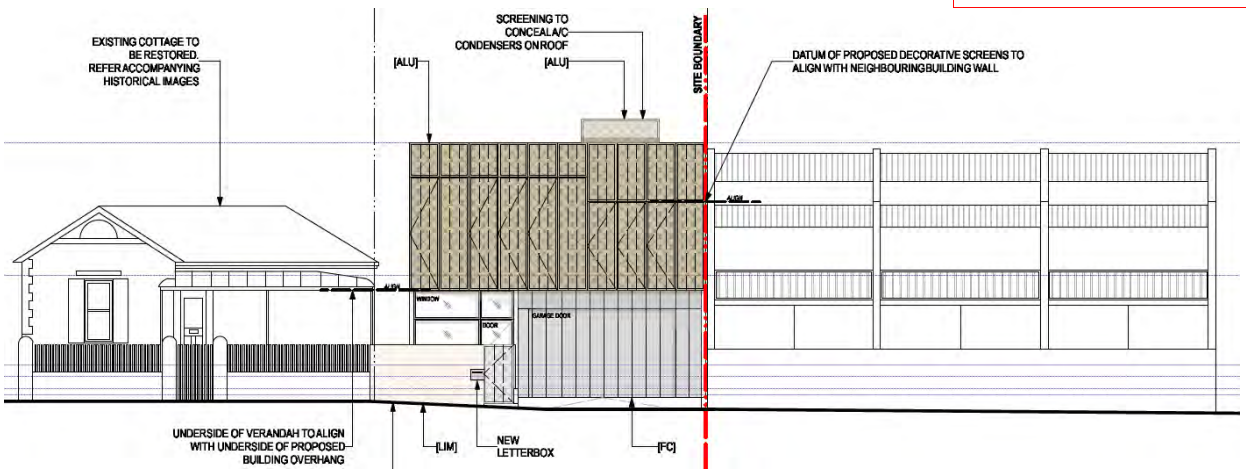

Figure 5 - Architectural Design of Single House

On this basis, it is considered the proposed height of the single house can be supported.

Car Parking

As discussed with the Duty Planner at the City of Fremantle on 1 March 2023, the existing heritage building is approved as an 'Office' land use. The Planner advised that there was no record of any car parking conditions (i.e., number of required bays) for this approved use.

Notwithstanding, an assessment to determine the required number of car parking bays for the office use is provided in the below table. Specifically, Table 2 of LPS 4 requires the following car parking ratio for 'office' *1 bay per 30m² of gross lettable area and 1 bay per 500m² for delivery bays.*

On this basis, the following car parking bays are required:

Bay Type	Provision	Required	Provided
Residential	Within 250 metres of a high frequency bus route; 1 bay required for 2+ bedroom dwelling	1 bay. None for ancillary dwelling required.	1 bay.
Office (Heritage Building)	*1 bay per 30m²* of GLA and *1 bay per 500m² for delivery bays*	GLA: 113m² 113/30 = 3.76 0.23 delivery bay required. 3.986 bays required. Total: 4 bays	3 bays Shortfall of 1 bay.
		Total Required: 5 bays overall	Total Provided: 4 bays overall Shortfall of 1 bay

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As also previously discussed, the *Regulations* provides discretion to vary any site or development requirement to facilitate the built heritage conservation of a place included on a heritage list. Given this, it is considered the car parking shortfall can be supported for the following reasons:

- As the building and its land use are established use within the locality, it is considered an office use is a low impact use in terms of its parking. Additionally, the reduced size of the building means (removing the rear lean-to addition) that less car parking is required for the use.
- Casual, on-street parking is located along Marine Terrace and the side streets that allows for any visitors to the tenancy to park for a short period of time.
- Reduced car parking encourages the use of alternative forms of transport such as bicycle, motorbike parking and public transport (i.e., buses along South Terrace which is located within a walkable distance of approximately 200 metres east of the subject site).
- The site is significantly constrained due to the water corporation easement that runs through the site. This means it is not possible to construct a building over this portion of the lot. Instead, this area can only be used for car parking and as such, this car parking should be dedicated solely for the use of the dwelling to provide adequate separation between the two distinct uses.

It is considered that a car parking shortfall can be supported on the basis that the subject lot is constrained, and there is adequate access to on-street parking and alternative transport options within the locality. On this basis, the proposal can be supported.

Compliance with Residential Design Codes

Noting that the properties to the east and the south are also zoned mixed use, it is reasonable to accept that strict compliance with the R-Codes should not be required. Notwithstanding, the proposed dwelling addition is located adjacent to existing residential properties to the east and south. On this basis, the proposed single house should be considered against the provisions of the *R-Codes Vol. 1* and *Draft R-Codes Vol. 1 2023* to determine the level of impact on the amenity of the adjoining neighbours.

As discussed above, the proposed height complies with provisions of LPS 4. Other matters such as, lot boundary setbacks, open space etc. are not strictly applicable to this site (as it is zoned mixed use) but are assessed against the R-Codes as the dwelling abuts residential development. The provisions are guide to determine if the proposed development is appropriate, rather than a deemed-to-comply assessment.

An assessment of the proposed dwelling reveals that it generally compliant with the provisions of the R-Codes however several matters such as street setbacks, overshadowing an fencing are discussed in greater detail below.

Street Setback

The below image depicts the existing streetscape on either side of the vacant portion of the subject site.

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Figure 6 - Adjacent Site's Boundary Wall

As depicted in the above image, the streetscape and its associated setback area is characterised by solid walls and some prominent landscaping/trees on the site and the neighbouring properties to the south.

Clause 4.2.5 of LPS 4 states that residential density in the mixed use zone may be increased up to R60 where residential development is part of a mixed use development, where, in the opinion of Council the proposal is not detrimental to the amenity of the area.

The lots to the south appear to be developed at an R35 to R40 density which would require a setback of 4 metres from the primary frontage. The dwellings on the lots to the south are oriented to face Marine Terrace and are setback approximately 4.5 metres from the front boundary.

It is therefore reasonable to assume that despite the vacant portion of the property being developed as a single house, the neighbouring primary street setback is a suitable guide as to what could be considered acceptable on the subject site despite noting that these sites could be developed up to a maximum R60 setback (which would permit a primary street setback of 2 metres).

These primary street setback provisions are also the same *State Planning Policy 7.3 – Residential Design Codes Volume 1 2023*.

The proposed single house is set back 5.35 metres on the ground floor and 0.6 metres on the upper floor. As the upper floor provides a reduce setback, consideration of the proposal against the relevant design principles for street setbacks from the *R-Codes Vol. 1 2023* is provided the below table.

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Design Principle	Assessment
P2.1 *Buildings set back from street boundaries an appropriate distance to ensure they:* • *contribute to, and are consistent with, and established streetscape;* • *provide adequate privacy and open space for dwellings;* • *accommodate site planning requirements such as parking, landscape and utilities; and* • *allow safe clearances for easement for essential service corridors.*	It is considered the proposed primary street setbacks meet the relevant design principles for the following reasons: • The setbacks along Marine Terrace vary between developments. This is because all properties along Marine Terrace are zoned mixed use. This zoning does not specify front setback requirements. Given this, the proposed setback will fit in the character of the mixed use zone. • The upper floor primary street setback allows for a balcony to be accommodated on the upper floor of the building. This will provide for passive surveillance and activation to the street and is seen as being beneficial to the overall streetscape. Additionally, as noted above, the overhanging balcony helps to frame views from the street to the existing heritage building to the north. • In considering that most an existing sewer line runs from the front to the rear of the vacant portion of the site and that water corporation do not typically permit development over sewers, the lot's developable area is significantly constrained as a result. This means the floor area of the dwelling needs to be accommodated entirely on the upper floor. • Similar to the above, the building's design responds to the necessary clearances associated with the sewer easement on the vacant portion of the lot.
P2.2 *Buildings mass and form that:* • *uses design features to affect the size and scale of the building;* • *uses appropriate minor projections that do not detract from the character of the streetscape;* • *minimises the proportion if the façade at ground level taken up by building services, vehicle entries and parking supply, blank walls, servicing infrastructure access and meters and the like; and*	It is considered the proposed primary street setbacks meet the relevant design principles for the following reasons: • The design of the wall of the ground floor is set back as far as possible from the front boundary to ensure there is a reduced bulk at the eye level along the street. Notwithstanding, the design ensures a strong and definable front entry to building is still provided. • A small portion of space is available on the ground floor to accommodate the entry and it is cleverly designed so as not to conflict with the sewer clearance area. This entry lobby also helps to anchor the overall design and how it presents to the street.

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• *positively contributes to the prevailing or future development context and streetscape as outlined in the local planning framework.*	• It is considered the front façade of the building is of high quality and will make a positive contribution to streetscape as it adds visual interest through the use of high quality materials and finishes and inventive building form to engage with the streetscape.

Lot Boundary Setbacks

The below table provides an assessment of the southern and eastern wall setbacks of the proposed single house.

Wall	Assessment	R-Code Requirement (2023)	Setback Provided	Complies/Does Not Comply
Southern Walls	• Length: 16 metres • Height: 8.5 metres at the front and 7.2 metres at the rear due to the sloping nature of the lot.	For R30-R40 a maximum height of 3.5 metres is permitted. Clause C3.4.5 permits boundary walls where they abut an existing or simultaneously constructed wall of similar or greater dimension where they do not cause an overshadowing impact. Table 3.4b permits a maximum two-thirds the length of the lot boundary the wall abuts, measured from behind the street setback.	An average height of 7.85 metres is proposed. A portion of this wall is permitted as it abuts a simultaneously constructed boundary wall, however it still exceeds 2/3 the length of the lot.	*Does not comply.*
Eastern Wall	• Length: 5 metres • Height: 3.9 metres	For two (2) storey walls, a setback of 1.5 metres is permitted. (Table C)	Setback 1.35 metres	*Does not comply.*

As the proposal does not meet the lot boundary setback provisions, consideration of the proposal against the relevant design principles from the *R-Codes Vol. 1 2023* is provided in the below table.

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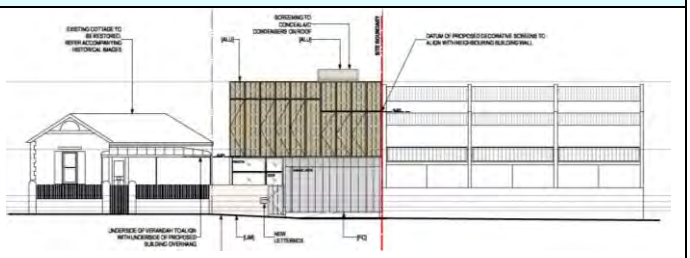
Design Principle	Assessment
P3.4.1 *Lot boundary setbacks reinforce the location's streetscape character and are consistent with the existing or desired built form local character.*	 • As depicted in the above elevation which depicts the streetscape, the side boundary wall setback allows for the continuation of the building form and massing to occur between the two lots. The design also makes use of vertical lines which is a characteristic featured in the adjoining buildings to the south. • There are many examples where buildings along Marine Terrace are characterised by side by side boundary walls. Given this, it is considered the proposal is in keeping with the established character of the locality.
P3.4.2 *The setback of development from lot boundary provides transition between sites with different land uses or intensity of development.*	Refer to the comments provided above – nil setbacks between sites is an established characteristic of the suburb.
P3.4.3	Not applicable (for buildings on the same lot).
P3.4.4 *Buildings are built up to lot boundaries where this:* *iii. makes more effective use of space for primary garden areas and/or private open space;* *iv. maintains adequate solar access to major openings and private open space of adjoining properties; and* *v. contributes positively to the prevailing or future development context and streetscape as outlined in the local planning framework.*	• Garden areas are provided within the front setback area of the ground floor. This space is made available by the fact that a 5.53 ground floor primary street setback is provided. • As the prevailing lot configuration in the locality is that properties have their longest lot boundaries in an east to west configuration. This means that most properties in the locality will likely be impacted by overshadowing. • The design of the side by side nature of the proposal with the adjoining dwellings to the south is consistent with the prevailing development context of the locality, in particular the mixed use zone along Marine Terrace, which allows a mix of development typologies.

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Overshadowing

The below image depicts the extent of the overshadowing as a result of the dwelling addition on the vacant portion of the lot.

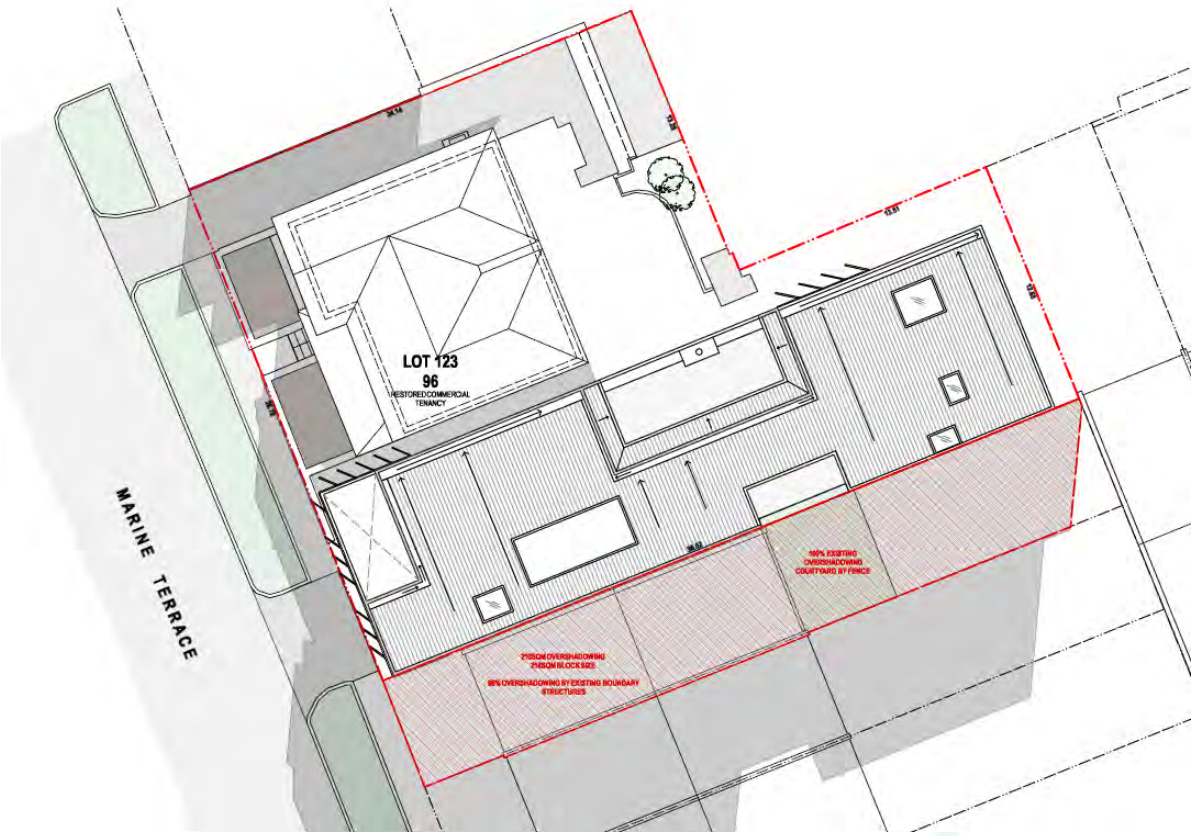

Figure 7 - Overshadowing Diagram

As previously noted, the vacant portion of the subject site is significantly constrained by the existing sewer line that runs diagonally through the property. Additionally, the proposed design does not seek to max out the permissible height under the Scheme.

A further review of the existing overshadowing situation between the subject site and the property to the south, it should be noted that the existing boundary fence and the parapet wall associated with the dwelling to the south overshadows the dwelling's lot by 55 per cent. Additionally, the fence also overshadows approximately half of the outdoor living area associated with the dwelling to the south.

As discussed above, the *Regulations* allow decision makers to vary any site or development requirement on the basis the proposal is to facilitate the built heritage conservation of a place. As the proposal seeks to minimise the impact of any development on the heritage place associated with the office building, it is considered appropriate to apply this discretion when considering the overshadowing to the southern neighbouring property.

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Further, the proposed design of the dwelling also does not seek to develop the vacant portion of the site to the maximum height limit of three (3) stories as prescribed in the Scheme. The design of the dwelling also ensures it matches in with the heights and vertical lines present in the built form associated with the grouped dwellings to the south.

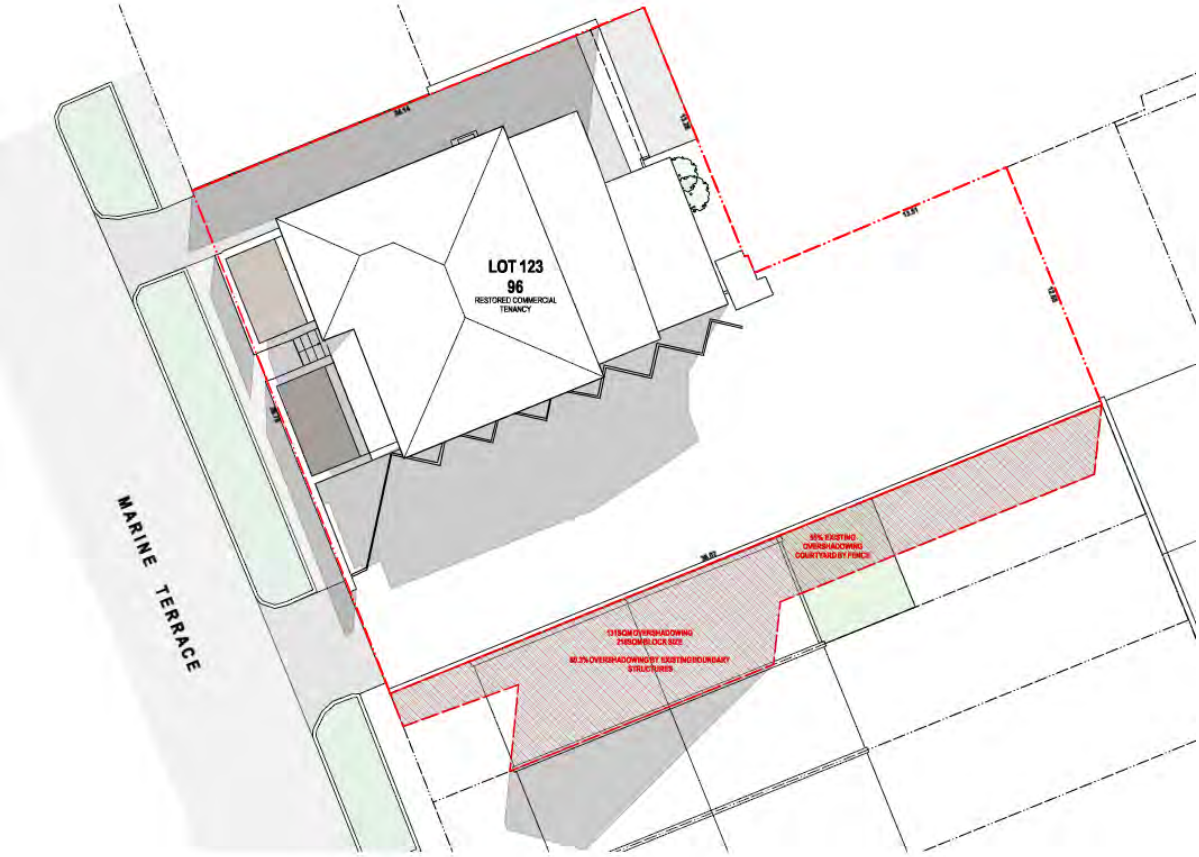

Figure 8 - Overshadowing Diagram of Existing Fence

In addition to the above, the existing lot configuration and pattern within the locality should be noted in the overshadowing assessment. This is because the lots and this lot specifically, have their longest boundaries along the southern side of lot. This makes means it is reasonable to assume there will be some overshadowing because of any development proposed on the vacant portion of the subject site.

In addition to reducing the overall height of the dwelling, to further respond to this lot configuration constraints i.e., the east-west configuration, the design seeks to minimise overshadowing by ensuring a flat roof is proposed to the dwelling.

As the subject site and the adjoining properties to the south are zoned mixed use, it is considered the overshadowing is acceptable as most of the lots in the locality are configured in a manner in an east-west orientation. This means most properties in the locality will be overshadowing by the buildings from the northern orientation.

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CONCLUSION

The detail provided in this report demonstrates that the application for the retention of the heritage building and two storey dwelling development should be approved by the City.

In addition, the proposed single house on the vacant portion of the subject site is considered acceptable on the basis that its form is in keeping with other mixed use sites along Marine Terrace and the amenity of the neighbouring residential properties will not be compromised. The setbacks and building bulk are considered acceptable and appropriate for the site.

We look forward to working with the City to finalise this matter and obtain development approval. Should you have any questions in relation to the details provided in this submission, please contact Andra Biondi on 6444 9171 or andra@urbanistaplanning.com.au.

Yours sincerely,

Petar Mrdja
Director

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DA0107/23

30 March 2023

stephen
carrick
architects

HERITAGE IMPACT STATEMENT

96 MARINE TERRACE, FREMANTLE

PROPOSED RESTORATION OF EXISTING
BUILDING + NEW TWO STOREY
RESIDENTIAL DEVELOPMENT

DATE: 10 MARCH 2023

VERSION: FINAL

PREPARED FOR:

PETAR MRDJA
DIRECTOR, URBANISTA TOWN PLANNING

CITY OF FREMANTLE
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30 March 2023

This Heritage Impact Statement has been prepared in accordance with the scope of services described in the contract or agreement between Stephen Carrick Architects and the Client. The report relies upon data collected upon a site visit, referenced documents and photographs taken at or under the particular times and conditions specified herein.

Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and Stephen Carrick Architects accepts no responsibility for its use by other parties.

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EXECUTIVE SUMMARY

This Heritage Impact Statement (HIS) has been prepared by Stephen Carrick Architects for Petar Mrdja, Urbanista Town Planning to assess the proposed development for 96 Marine Terrace, Fremantle. Urbanista has been commissioned by the owners, Greg and Rhonda Bader, to coordinate and submit a Development Application to the City of Fremantle. The proposal has been prepared by Philip Stejskal Architecture. This report focuses on assessing the heritage impact of the proposal on the existing place.

The proposal is separated into the following two components:

1. Alterations to the Existing Place for commercial use
   - Remove the existing demountable building
   - Remove the existing shipping container
   - Remove lean-to to rear of the existing house
   - Remove front verandah and reinstate bullnose verandah to match the original detailing
   - Remove roof and reinstate gable roof form to match the original detailing
   - Alterations to the front limestone fence to match the original detailing

2. New contemporary two storey residence to the south of the existing house

The impact has been assessed against the following criteria and documentation:

- Design Criteria
- Statement of Significance (96 Marine Terrace)
- Design Guidelines Fremantle, D.G.F16 (Marine Terrace Policy)
- State Planning Policy 3.5

Following the assessment of the heritage impact of the proposal, the consultants professional opinion is that the proposal is considered acceptable. This opinion is formed following the consideration of all the relevant documentation; the proposal and, most importantly, the impact of the proposal on the cultural heritage values of 96 Marine Terrace, Fremantle.

Following the assessment of the impact of the proposal on the cultural heritage values of 96 Marine Terrace, Fremantle it is recommended that consideration is given to the following actions:

1. This Heritage Impact Statement should be considered by the client. If accepted by the client, this HIS should form part of the proposal.

2. This Heritage Impact Statement should be considered by the City of Fremantle as part of their evaluation of the Development Application.

3. A photographic record of the existing building should be undertaken and provided to the City of Fremantle.

4. The detailing to the proposed two-storey development should remain refined and simple to reflect the contemporary nature of the new development. This design approach should be maintained when the documentation is prepared for a Building Permit.

5. More information and details on the extent of restoration works (specifically gable fretwork, bullnose banding, walls, windows, window shutters, roof finish, verandah) should be provided at a later stage.

6. Consideration should be given to restoring the decorative iron infill to the front boundary fence as illustrated in photographic evidence.

7. Consideration should be given to the interpretation of the migrant history of the place as highlighted in the Statement of Significance for the place.

8. Provide a photographic record to the City of Fremantle following completion of the works.

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1 INTRODUCTION

The following section provides an introduction to this Heritage Impact Statement. The section is divided into the following sub-sections:

1.1 Introduction
1.2 Acknowledgements
1.3 Consultant Qualifications
1.4 Location Plan

1.1 INTRODUCTION

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   - Remove roof and reinstate gable roof form to match the original detailing
   - Alterations to the front limestone fence to match the original detailing

2. New contemporary two storey residence to the south of the existing house

This report provides background information on the place; a description of the site including listings and significance; a description of the proposal; an assessment of the potential impact of the proposal on the cultural heritage values and design criteria; and, recommendations arising from the assessment.

The preparation of this Heritage Impact Statement for a place of cultural heritage significance is consistent with best practice in heritage conservation.

A site inspection from the public domain was undertaken by Stephen Carrick Architects on the 25th February 2023. The inspection included the visual assessment of the current context, streetscape, and physical condition of the building and surrounding site. The existing building was viewed from the street only. Photographs have been included as part of this assessment.

The following information has been provided or accessed for the preparation of this Heritage Impact Statement:

- HCWA Inherit Database: P21256 House & Limestone Feature(s), 96 Marine Terrace
- A-00 Cover Sheet, February 2023, Job Ref.: 2121-00, prepared by Philip Stejskal Architecture.
- A-01 Feature Survey (courtesy MNG), February 2023, Job Ref.: 2121-01, prepared by Philip Stejskal Architecture.
- A-02 Existing Site Plan, February 2023, Job Ref.: 2121-02, prepared by Philip Stejskal Architecture.
- A-03 Proposed Site Plan, February 2023, Job Ref.: 2121-03, prepared by Philip Stejskal Architecture.
- A-04 Proposed Ground Floor Plan, February 2023, Job Ref.: 2121-04, prepared by Philip Stejskal Architecture.
- A-05 Proposed First Floor Plan, February 2023, Job Ref.: 2121-05, prepared by Philip Stejskal Architecture.
- A-06 Proposed Roof Plan, February 2023, Job Ref.: 2121-06, prepared by Philip Stejskal Architecture.
- A-07 Proposed Elevations, February 2023, Job Ref.: 2121-07, prepared by Philip Stejskal Architecture.
- A-08 Proposed Elevations, February 2023, Job Ref.: 2121-08, prepared by Philip Stejskal Architecture.
- A-09 Existing Overshadowing, February 2023, Job Ref.: 2121-09, prepared by Philip Stejskal Architecture.
- A-10 Proposed Overshadowing, February 2023, Job Ref.: 2121-10, prepared by Philip Stejskal Architecture.

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- A-11 Proposed Parking Scenario, February 2023, Job Ref.: 2121-11, prepared by Philip Stejskal Architecture.
- A-12 Historical Images (img. courtesy Fremantle Library), February 2023, Job Ref.: 2121-12, prepared by Philip Stejskal Architecture.
- A-13 Proposed 3Ds, February 2023, Job Ref.: 2121-13, prepared by Philip Stejskal Architecture.
- Design Intent Statement

This Heritage Impact Statement has been prepared in accordance with the principles, processes and practice as outlined in the ICOMOS Burra Charter 2013 and the State Heritage Office, 'Guide to Heritage Impact Statements' (2019). Definitions of terms are in accordance with the Burra Charter.

1.2 ACKNOWLEDGEMENTS

The consultant would like to acknowledge the assistance of the following in the preparation of this Heritage Impact Statement:

- Petar Mrdja: Urbanista Town Planning
- Philip Stejskal: Philip Stejskal Architecture
- Georgia Jeps: Philip Stejskal Architecture
- Greg and Rhonda Bader: Owner

1.3 CONSULTANT QUALIFICATIONS

Stephen Carrick is a registered architect with extensive experience and expertise having worked in private practice in Sydney from 1985 to 1992, for the Western Australian Government from 1992 to 2009 and from 2009 in private practice specialising in all aspects of heritage conservation work. Stephen is a former Acting Director of the Heritage Council of WA and was responsible for managing the Development Referrals Program, Assessment and Registration Program, Grant Funding and the Heritage Advisory Program within the Heritage Council. Stephen has previously been responsible for conservation programs for sites such as the World Heritage listed Fremantle Prison.

Stephen has over 30 years experience in architecture as well as the conservation and management of heritage sites. Stephen's experience and expertise have been developed from extensive work on large and small heritage projects in both metropolitan and regional Western Australia.

Stephen Carrick Architects is an architectural practice focussing on all aspects of heritage, and conservation architecture and architectural projects. The practice has specific expertise in conservation works, conservation planning, residential and commercial projects. They are experienced in the requirements for the preparation of Heritage Impact Statements.

Stephen Carrick Architects have previously prepared Heritage Impact Statements for:

- The former Cue Public Buildings
- Pinjarra City Markets, Kalgoorlie
- Hotel Rottnest, Rottnest Island
- Manjimup Timber Museum
- Mersey Point Jetty, Shoalwater
- 173 William Street, Northbridge
- 4 Hubert Street, Guildford
- The McKenzie's Buildings, Kalgoorlie
- 56-58 Carrington Street, Palmyra.
- 289 Murray Street, Perth
- 8 Parker Road, Northbridge
- 5 Dene Street, Mount Lawley
- 44 Holmfirth Street, Menora
- 30 Merrifield Avenue, Kelmscott
- 10 Rokeby Road, Subiaco
- 54 Wood Street, Inglewood
- 130 James Street, Northbridge
- Fairbridge Chapel, Pinjarra
- 330 Crawford Road, Inglewood
- 18-22 Coghlan Road, Subiaco
- 18 Bindaring Parade, Claremont
- 36 Gill Street, East Fremantle
- Fremantle Technical College Annexe - Fmr Infants and Girls School
- 34 Market Street, Guildford
- 5 Bay View Terrace, Mosman Park
- Rokeby Road South Precinct, Subiaco
- 290 Beaufort Street, Perth
- St. John's Lutheran Church
- 32 High Street, Fremantle
- Matilda Bay Brewery (fmr), North Fremantle
- 22 Tamarisk Way, Woorree
- 296 Fitzgerald Street, North Perth
- 104-106 Beechboro Road South, Bayswater

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1.4 LOCATION PLAN

96 Marine Terrace, Fremantle is located on the east side of Marine Terrace between Russell Street, to the north, and Grey Street, to the south. Marine Terrace is a two way traffic street with a wide central medium strip with grass and Norfolk Island pine trees. The site faces west towards Mews Road and the Success Boat Harbour. A freight rail line runs parallel and between Marine Terrace and Mews Road. The buildings to the west along Mews Road are predominately for marine infrastructure and contain boat docks and storage units that service Success Boat Harbour.

Site Plan

Existing House & Limestone Features

Lot 123, No.96 Marine Terrace, Fremantle

Image Source:
Near Maps, Satellite Image
<https://apps.nearmap.com/maps/#/@-32.0613289,115.7479423,18.00z,360d/V/20230118>
(date accessed: 7th February 2023)

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Location Plan

Lot 123, No.96 Marine Terrace, Fremantle

Image Source:
Google Maps, Satellite Image

(date accessed: 7th February 2023)

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2 HERITAGE LISTINGS

The following section outlines the current heritage listings for 96 Marine Terrace, Fremantle. The section is divided into the following sub-sections:

2.1 Listings
2.2 State Register of Heritage Places
2.3 National Trust of Australia (WA)
2.4 Local Heritage Survey (LHS)
2.5 Heritage List

2.1 LISTINGS

National Heritage List (Commonwealth)	No
State Register of Heritage Places	No
National Trust of Australia (WA)	No
Local Heritage Survey (LHS)	Yes
Heritage List	Yes
Heritage Area	No

2.2 STATE REGISTER OF HERITAGE PLACES

The Heritage Council of Western Australia maintains a heritage database, 'InHerit'. The database contains information on statutory and non-statutory heritage listings, and the results of heritage surveys and studies. Inclusion on the State Register carries statutory requirements.

96 Marine Terrace, Fremantle is not included on the Heritage Council of Western Australia's State Register of Heritage Places.

2.3 NATIONAL TRUST OF AUSTRALIA (WA)

National Trust classification provides community recognition of a place as having cultural heritage significance. It does not carry any legal requirements.

96 Marine Terrace, Fremantle is not classified by the National Trust of Australia (WA).

2.4 LOCAL HERITAGE SURVEY (LHS)

A Local Heritage Survey (previously known as a Municipal Heritage Inventory) is an ongoing database that records and provides information on places of cultural heritage significance located within the municipality.

96 Marine Terrace, Fremantle is included in the City of Fremantle's Local Heritage Survey with a Management Category 3 (Some Significance). Management Category 3 has the following definition:

"The City of Fremantle has identified this place as being of some cultural heritage significance for its contribution to the heritage of Fremantle in terms of its individual or collective aesthetic, historic, social or scientific significance, and /or its contribution to the streetscape, local area and Fremantle. Its contribution to the urban context should be maintained and enhanced."

2.5 HERITAGE LIST

The City of Fremantle Local Planning Scheme No. 4 Heritage List comprises of properties which are of cultural heritage significance and worthy of conservation.

96 Marine Terrace, Fremantle is included on the City of Fremantle's Heritage List.

2.6 HERITAGE AREA

The City of Fremantle Local Planning Scheme No. 4 has 18 heritage areas. These are areas where special planning control is needed to conserve and enhance the cultural heritage significance and character of an area.

96 Marine Terrace, Fremantle is not located within any of the City of Fremantle's Heritage Areas.

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3 HISTORICAL OVERVIEW

The following overview of historical and physical development has been extracted (in full) from the Heritage Council of Western Australia's InHerit Database entry for P21256 House & Limestone Feature(s), 96 Marine Terrace, Fremantle.

House and Limestone Features, 96 Marine Terrace was built in 1901/02 for Alfred Borchet, a merchant of Fremantle. For a time, the house was known as "Tilbury House" and until the mid 1920s, its address was 109 Fitzgerald Terrace.

By 1908, the house was owned by T O Watson and leased to a tenant. The following year, the house was bought by Samuel Hardcastle, who owned it until c. 1915. There were several changes in ownership until 1925, when House, 96 Marine Terrace was bought by Victor Silich.

In 1926, Mr Silich built a cottage on the lot (in future, No. 98) by converting existing stables and adding to them. The Silich family lived in the house (No. 96), while boarders or tenants lived in the cottage. The Silich family comprised Victor and Mandalena Silich, their two girls, four boys and nephew.

In 1929, Mr Silich would meet newly arrived immigrants from Yugoslavia at the wharf, take them home, help them buy clothes and train tickets. Many of these men would board with the Silich family for only one night before catching the train to the Goldfields or the south-west, where many of them worked cutting timber.

The Silich family also provided meals. Trestle tables would be set up in the long hallway, and according to family memories, at times there were 80 people to feed.

In 1934 the family moved to the Whitby Falls Coach House at Mundijong, where they stayed until 1940. Both the house and the cottage in Marine Terrace were leased during this time. From the late 1940s, the cottage was also occupied by members of the Silich family. In 1941, the cottage was given the street number of 98 Marine Terrace. Mandalena Silich died in 1960 and Victor died in 1963. Victor Silich junior purchased the property in 1964. Between 1964 and 1972, the galvanised iron roof was replaced with tile and the bull nosed verandah was replaced. Most of the windows were changed.

Victor Silich junior sold the property in 1972, and the new owners demolished the cottage. Since that time, House, 96 Marine Terrace has been occupied by a number of businesses. It has been owned by the Cicerello family since 1980.

This place was included in the list of heritage places in the City of Fremantle identified by the Fremantle Society (1979/80) - BROWN -significant for making a positive contribution to the built environment of Fremantle.

This place was also identified in the "Heritage Report on 19th century limestone walls and steps in Fremantle" prepared by Silvana Grassadonia, for the City of Fremantle, 1986.

Limestone walls were built around properties in Fremantle to prevent sand drift in response to an early building regulation dating from the 1830s. The use of limestone is part of the Fremantle landscape and gives the City coherence and character. Most of the limestone in small walls came from local quarries.

The following description has been prepared by Stephen Carrick Architects:

Photographic evidence from 1927 shows the building as a single storey residence with an asymmetrical elevation and hip and gable roof. The bullnosed verandah was painted in contrasting bands and the gable end had decorative timberwork with timber shutters to the front window. The front fence was previously a low limestone wall with limestone piers and a central timber gate. Above the limestone base and between the piers is decorative iron infill panels. A mature Norfolk Island pine tree was planted in the front yard.

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4 PHYSICAL DESCRIPTION

The following section records the physical description of 96 Marine Terrace, Fremantle. This section is divided into the following sub-sections:

4.1 Site and Setting
4.2 External
4.3 Condition
4.4 Existing Drawings
4.5 Photographs

4.1 SITE AND SETTING

96 Marine Terrace is located approximately 22 kilometres south west of the Perth CBD in the City of Fremantle.

The site is located approximately 650 metres south of the State Heritage Listed West End Heritage Area, and about 650m southwest of the World Heritage Listed Fremantle Prison.

96 Marine Terrace, Fremantle is located on the east side of Marine Terrace between Russell Street, to the north, and Grey Street, to the south. Marine Terrace is a two way traffic street with a wide central medium strip with grass and Norfolk Island pine trees. The site faces west towards Mews Road and the Success Boat Harbour. A freight rail line runs parallel and between Marine Terrace and Mews Road. The buildings to the west along Mews Road are predominately for marine infrastructure and contain boat docks and storage units which service the Success Boat Harbour.

To the north of the subject site are mixed uses with typical development being commercial to the ground floor and residential above. The style of architectural development is mixed with contemporary development and some retention of turn of the twentieth century buildings.

To the corner of Russell Street is a single storey Federation Bungalow with a corrugated steel hip roof, brick chimneys and a return verandah. The residence has brick, rendered and painted walls and features a stucco finish to the upper walls. The site boundary has a low limestone fence. Adjacent to the subject site is a two storey limestone building with a corrugated steel hip roof that is well set back from the street alignment.

To the north of Russell Street is a single storey shop with a rendered parapet and an adjoining two storey residence that is accessed from Russell Street.

To the south of the subject site is a row of two storey face brick townhouses with brick dividing walls and a corrugated steel gable roof. High brick fences are located to the front boundary. Further south are single, two and three storey commercial and residential buildings. Some buildings have a nil setback to the front boundary and are predominantly masonry, rendered and painted with parapets to the roof line.

Photographs are located in Section 4.5.

4.2 EXTERNAL

The subject property is a single storey building with an asymmetrical façade with a tiled hip main roof and a separate tiled lower roof over the verandah. The building is elevated from the street level and screened by a high limestone boundary fence. The walls are masonry, rendered and painted and the timber verandah posts are chamfered with simple decoration. Timber windows are double hung with some fixed glazed sections. The front door has glazed panels to the upper section and solid panels to the lower. The entry door has sidelights and a highlight.

To the north of the site is a driveway and to the south is an open area with angled parking bays and small native trees. To the rear of the site appears to be further structures and storage.

The place is currently occupied by environmental and archaeological company Terra Rosa Consulting.

4.3 CONDITION

As viewed from the street, 96 Marine Terrace, Fremantle appears to be in good condition. It appears to be occupied and maintained.

4.4 EXISTING DRAWINGS

'Existing' Drawings prepared by Philip Stejskal Architecture are included on the following pages.

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PHILIP
STEJSKAL
ARCHITECTURE
website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT

GREG & RHONDA BADER

96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3:
NTS

DATE:
XX/XX/23

JOB REF:
2121-00

DRAWN:
GJ

ARCHITECT REG No:
-

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1 XX/XX/23 DA APPLICATION

DRAWING :
COVER SHEET

ISSUE : A

DWG No. : A-00

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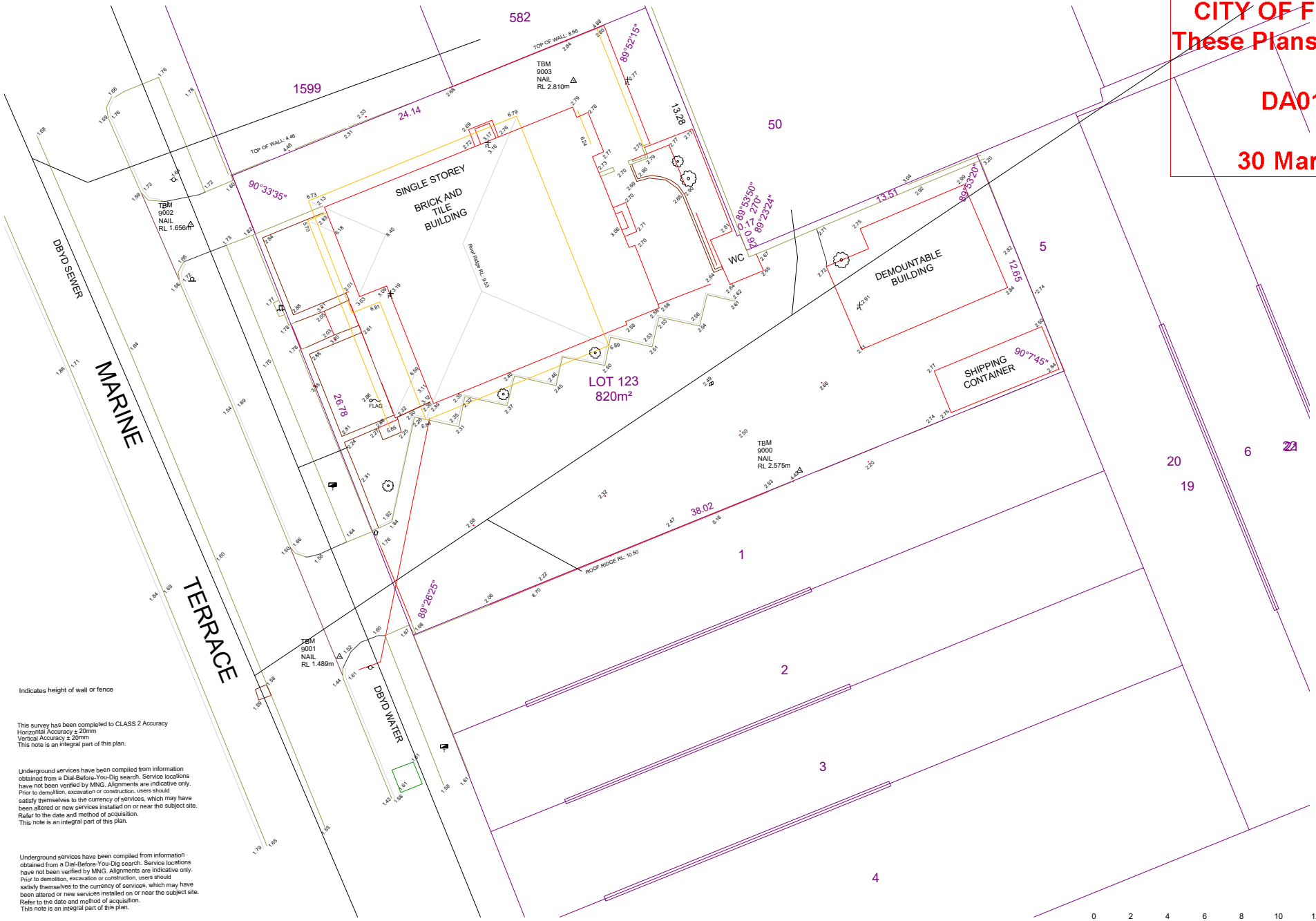

Indicates height of wall or fence

This survey has been completed to CLASS 2 Accuracy
Horizontal Accuracy ± 20mm
Vertical Accuracy ± 20mm
This note is an integral part of this plan.

Underground services have been compiled from information obtained from a Dial-Before-You-Dig search. Service locations have not been verified by MNG. Alignments are indicative only. Prior to demolition, excavation or construction, users should satisfy themselves to the currency of services, which may have been altered or new services installed on or near the subject site. Refer to the date and method of acquisition.
This note is an integral part of this plan.

Underground services have been compiled from information obtained from a Dial-Before-You-Dig search. Service locations have not been verified by MNG. Alignments are indicative only. Prior to demolition, excavation or construction, users should satisfy themselves to the currency of services, which may have been altered or new services installed on or near the subject site. Refer to the date and method of acquisition.
This note is an integral part of this plan.

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N

PHILIP
STEJSKAL
ARCHITECTURE

website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT GREG & RHONDA BADER 96 MARINE TERRACE FREMANTLE, WA 6160	SCALE AT A3: 1:200	DRAWING : FEATURE SURVEY (COURTESY MNG)
	DATE: XX/XX/23 / JOB REF: 2121-01	ISSUE : A / DWG No. : A-01
	DRAWN: GJ / ARCHITECT REG No: -	

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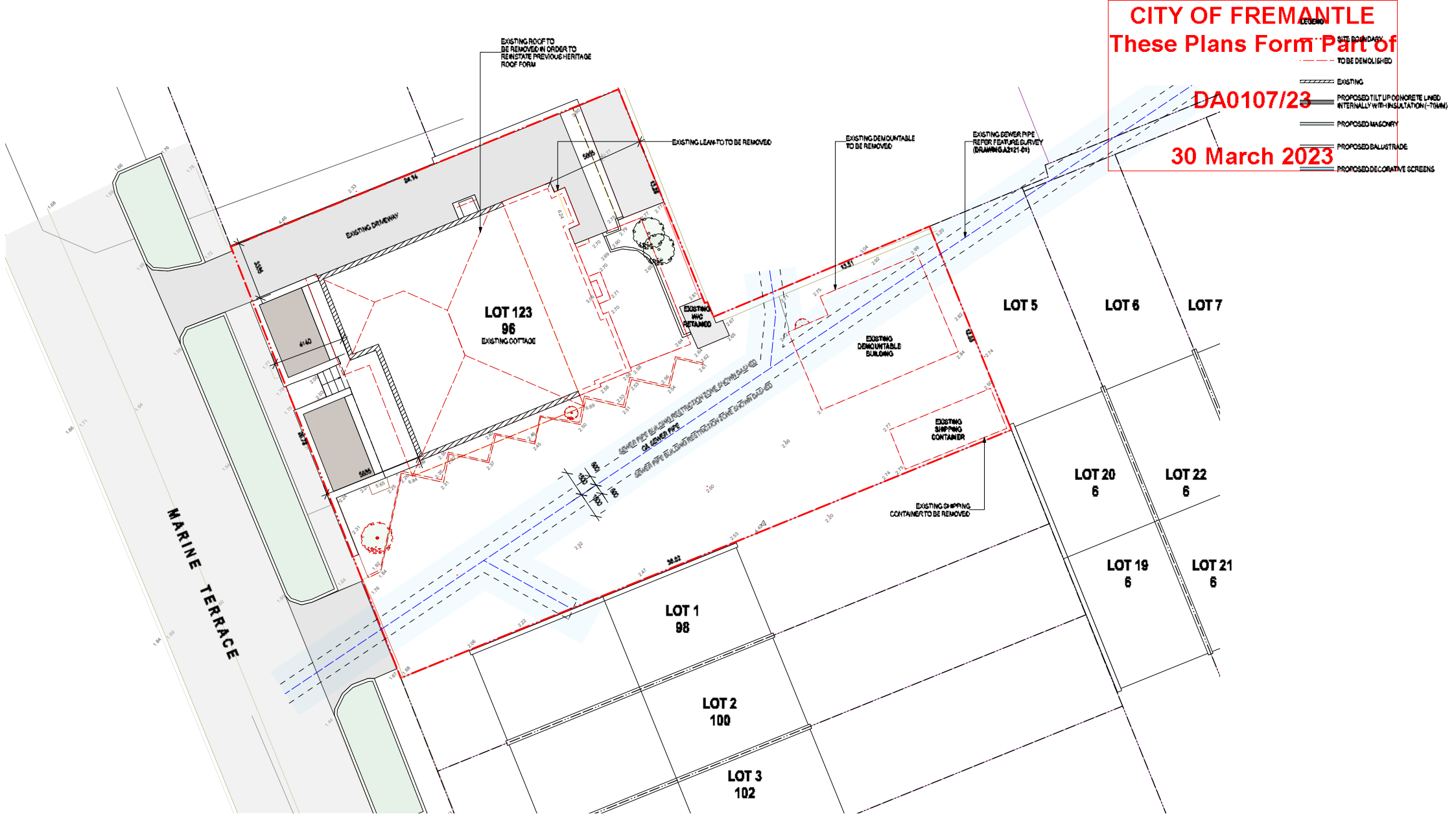

PHILIP STEJSKAL ARCHITECTURE

website: www.architectureps.com.au
email: studio@architectureps.com.au
reg: 2486

SITE/CLIENT
GREG & RHONDA BADER
96 MARINE TERRACE
FREMANTLE, WA 6160

SCALE AT A3: 1:200
DATE: XX/XX/23
JOB REF: 2121-02
DRAWN: GJ
ARCHITECT REG No: -

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1 XX/XX/23 DA APPLICATION

DRAWING : EXISTING SITE PLAN
ISSUE : A
DWG No. : A-02

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4.5 PHOTOGRAPHS

01 96 Marine Terrace, Fremantle

02 Proposed site for redevelopment

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03 Northern driveway

04 Southern boundary wall to neighbouring townhouses

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05 98-104 Marine Terrace

06 Street context- current view of subject site from north

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07 Street context- current view of subject site from south

08 Street context- 106b Marine Terrace (south of site)

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09 Street context- Boat storage along Mews Road (west of site)

10 Street context- Marina buildings along Mews Road (west of site)

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11 Street context- 88 Marine Terrace (north of site)

12 Street context- 92 Marine Terrace (north of site)

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5 SIGNIFICANCE

5.1 STATEMENT OF SIGNIFICANCE

The following Statement of Significance is an extract from the InHerit Database entry for Place Number 21256 House and Limestone Feature (s), 96 Marine Terrace, Fremantle.

96 Marine Terrace, Fremantle has cultural heritage significance for the following reasons:

- *House, 96 Marine Terrace, is a typical masonry single storey house from c. 1901 that has undergone some modification during the Post-War era;*
- *The place has aesthetic value for its contribution to the streetscape and the surrounding area;*
- *It is representative of the typical workers' houses in the Fremantle area;*
- *The place is an example of the Federation Bungalow style of architecture; and*
- *The place demonstrates the evolution of the area and the contribution made to Fremantle and its character by Migrants from Southern Europe.*

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6 PROPOSAL

Philip Stejskal Architecture has prepared a Development Application for alterations and additions to Lot 123, 96 Marine Terrace, Fremantle.

The proposal is separated into the following two components:

1. Alterations to the Existing Place for commercial use
   - Remove the existing demountable building
   - Remove the existing shipping container
   - Remove lean-to to rear of the existing house
   - Remove front verandah and reinstate bullnose verandah to match the original detailing
   - Remove roof and reinstate gable roof form to match the original detailing
   - Alterations to the front limestone fence to match the original detailing

2. New contemporary two storey residence to the south of the existing house

The following drawings illustrate the proposal:

- A-03 Proposed Site Plan, February 2023, Job Ref.: 2121-03, prepared by Philip Stejskal Architecture.
- A-04 Proposed Ground Floor Plan, February 2023, Job Ref.: 2121-04, prepared by Philip Stejskal Architecture.
- A-05 Proposed First Floor Plan, February 2023, Job Ref.: 2121-05, prepared by Philip Stejskal Architecture.
- A-06 Proposed Roof Plan, February 2023, Job Ref.: 2121-06, prepared by Philip Stejskal Architecture.
- A-07 Proposed Elevations, February 2023, Job Ref.: 2121-07, prepared by Philip Stejskal Architecture.
- A-08 Proposed Elevations, February 2023, Job Ref.: 2121-08, prepared by Philip Stejskal Architecture.
- A-09 Existing Overshadowing, February 2023, Job Ref.: 2121-09, prepared by Philip Stejskal Architecture.
- A-10 Proposed Overshadowing, February 2023, Job Ref.: 2121-10, prepared by Philip Stejskal Architecture.
- A-11 Proposed Parking Scenario, February 2023, Job Ref.: 2121-11, prepared by Philip Stejskal Architecture.
- A-12 Historical Images (img. courtesy Fremantle Library), February 2023, Job Ref.: 2121-12, prepared by Philip Stejskal Architecture.
- A-13 Proposed 3Ds, February 2023, Job Ref.: 2121-13, prepared by Philip Stejskal Architecture.

The following statement (in *italics*) has been provided by Philip Stejskal Architecture and outlines the design intent.

The project attempts to breathe new life into a complex site along Marine Terrace, currently consisting of a historically significant cottage alongside a long-vacant Watercorp easement. For many years the vacant part of the lot has deterred potential development due to complexities surrounding the sewer that traverses it from East to West. The cottage has had many layers applied over the original, with little remaining evidence of what it once was.

The new owners' desire has been to redevelop the property to 1) restore the cottage to its former and original identity as one of the area's early dwellings, and, 2) to populate the vacant part of the site with a raised dwelling that 'hovers' over the sewer easement.

A further desire has been to create a development, which makes reference to the eclectic nature of the area, and realises aspects of the strategic aspirations noted in the Town Planning Scheme for the area – characterised by "hard-edged" development "relating directly to the street" and "distinctly inner urban" (Items 1.2 / 1.3 of D.G.F16).

In response to these goals, our proposal seeks to implement a number of restorative changes to the dwelling, being to i) restore original rooflines, ii) restore original bull-nose verandah, iii) restore original window format and mouldings, iv) restore original wall finish, v) restore original front fence / gate arrangement, vi) remove lean-to structures that have accreted over time.

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In complement to these changes, the other part of our proposal – the insertion on the vacant part of the site – aims to provide practical amenity on a lot that is particularly challenged due to existing services constraints, yet in a way that a) respects the restored cottage / southern neighbour, and, b) makes a fitting contribution to its immediate context, both, in terms of what is there now and what is envisaged to be there from a policy perspective.

A key design driver for the new structure was the adoption of existing datums from adjoining structures. For example, the first floor volume aligns with the underside of the new bull-nose verandah. The setback of the new entrance sits in alignment with the corresponding wall on the cottage. The articulation of the screens to the first floor picks up on an existing datum to the southern neighbour, whilst the existing balcony floor level is continued by the underside of a bulkhead spanning the garage of the proposed dwelling.

In terms of massing and material treatment, the first floor balcony volume has been designed as a modern interpretation of the traditional bull-nose verandah – a light-weight addition intended to mediate sun and inclement weather, 'attached' to the front of house proper. Visually, the new balcony volume commences in alignment with the adjoining bull-nose verandah, even though it extends out slightly further to achieve the "hard edge" pursued by D.G.F16. The balcony volume is clad in perforated aluminium, parts of which are operable. The material is 'banded' vertically for strength and also to reference the traditional banding of the bullnose verandah. The perforations have been designed to make this element feel visually light and breezy, yet without losing the clarity of the simple rectilinear shape, which harks back to the historically utilitarian nature of the area, and the historical presence of sheds on this actual part of the site. Other parts of the design seek to strengthen this particular reference, such as the large "96" imprinted on the entrance wall and the textured concrete walls proposed as the main structural element. The bronze colour of the screens themselves forms a bridge between many an eclectic past – rusted metal of former corrugated structures in the area, needles of the ubiquitous Norfolk Pine, timber hulls of ships in the harbour.

We have sought to design a proposal that solves a significant technical challenge in order to house a family for the sustainable long-term, whilst also intentionally celebrating history through the restoration of an existing Freo cottage and nods to its eclectic past.

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The purpose of this section is to assess:

- How the proposed restoration works to the existing heritage building, and new development on site will impact the design criteria and cultural heritage values of the individual place outlined in the existing documentation?
- What measures are proposed to ameliorate any adverse impacts of the proposed development?
- Will the proposed development result in any heritage conservation benefits that might offset any adverse impacts?

The impact has been assessed against the following criteria and documents:

- 7.1 Design Criteria
- 7.2 Statement of Significance for 96 Marine Terrace, Fremantle
- 7.3 Design Guidelines D.G.F16 (Marine Terrace Policy)
- 7.4 State Planning Policy 3.5

7.1 DESIGN CRITERIA

To achieve a successful development that is compatible with an area of cultural heritage significance the following design criteria are considered appropriate:

- Scale;
- Form;
- Siting;
- Materials and colour; and
- Detailing.

These criteria are defined below and a comment on the proposed development to 96 Marine Terrace, Fremantle is provided against each criteria.

Scale
The scale of building is its size in relation to surrounding buildings or landscape. New design should recognise the predominant scale; including height; bulk; density and grain of the setting and then respond sympathetically.

Comment:
Existing House
The existing house is a single storey building with a hipped roof. The proposal includes reinstating the original hip and gable roof and reinstating the bullnose verandah to the front facade. The existing single story scale is being maintained.

The proposed alterations to the existing building are considered to have a positive impact on the heritage values of the place. The alterations will not negatively impact on the scale and will return the building to its original proportions.

Proposed Development
The proposal includes a new contemporary two storey residence to the south of the existing house. The residence will have a finished roof height of 8500mm. The existing neighbouring property to the south, 98-104 Marine Terrace, is a row of two storey town houses. The proposed development will have a similar height to that of the neighbouring property.

The scale of the proposed development is considered to be appropriate within the street and does not negatively impact on the overall streetscape scale.

Form
The form of a building is its overall shape and volume and the arrangement of its parts. New design should be sympathetic with the predominant form of its neighbours.

Comment:
Existing House
The proposed alterations to the existing building aim to reconstruct and restore the roof form and verandah to better represent the original design intent.

The post war alterations are proposed to be removed with the 1901 form being reinstated. This will enhance the specific building form and the Marine Terrace streetscape.

Proposed Development
The proposed two storey development is rectilinear in form and clearly of a contemporary design. The form reflects new development as evident in the streetscape and development to Mews Road.

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Siting
New buildings in a valued historic context should add sympathetically to the local streetscape and the grain of the area. The qualities of the streetscape can be reinforced by conforming to existing front and side setbacks and the general location of new buildings on site and the complementary treatment of street edges.

Comment:
Existing House
The existing house is being retained and restored and the current setbacks will remain intact. The existing house reflects the qualities of the former Marine Terrace streetscape.

Proposed Development
The proposed ground floor is set back to align with the existing house to the north and townhouses to the south. The first floor is cantilevered above with a 605mm front setback. The ground floor setback along with the cantilevered first floor allows sight lines to the existing house to be maintained at pedestrian level.

The siting of the proposed development incorporates the variance of setback lines present in the street. Setbacks vary from nil setback to approximately 5.5 metres. Based on this variance and due to the retention of sight lines, the siting of the proposed development is considered acceptable.

Materials and Colour
Within a locality of consistent character there are usually predominant building materials, textures and ranges of colour, particularly in detail and decoration. Good infill buildings should recognise characteristic materials, textures and colours used locally and in adjacent buildings. These should be re-interpreted and incorporated as part of the new building.

Comment:
Existing House
The tiled roof to the existing house is proposed to be replaced with corrugated steel sheets.

Confirmation of the extent of materials being replaced and selected colour choices should be provided at a later stage. Items such as the existing concrete verandah and the possible return of timber decking should be considered.

Proposed Development
The materials proposed to the two storey residence includes concrete panels with sections of decorative screens.

The proposed material selection is considered acceptable as the materials are clearly contemporary. The material selection adds visual interest to an already mixed development streetscape.

Detailing
Common details within an area establish neighbourly resemblance and contribute to its special character. Details that contribute to the character of a conservation area or heritage item should be identified. They can inform or inspire the design of the new building.

Modern details can reinterpret traditional details and create new relationships between old and new. Contemporary detailing of materials and junctions can provide levels of visual interest that contribute positively to the character of a place.

If an area has a consistent planting scheme or plant types, new planting schemes should recognise and reinforce their height, form and character.

Comment:
Existing House
The principle of the restoration of original details is supported and considered a positive enhancement to the place and streetscape. More information on items, such as gable fretwork, bullnose banding, windows, walls and window shutters, should be provided at a later stage.

Consideration should be given to returning elements of decorative iron infill fencing between the proposed masonry piers, as illustrated in photographic evidence.

Proposed Development
The detailing of the proposed development reflects the contemporary design approach. This detailing is clearly evident in the decorative aluminium screens.

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7.2 STATEMENT OF SIGNIFICANCE

The following statement of significance is an extract from the InHerit Database entry for Place Number 21256 House and Limestone Feature (s), 96 Marine Terrace, Fremantle.

96 Marine Terrace, Fremantle has cultural heritage significance for the following reasons:

- *House, 96 Marine Terrace, is a typical masonry single storey house from c. 1901 that has undergone some modification during the Post-War era;*

  Comment:
  The existing house is being retained and restored. Many of the Post War alterations are to be removed. The proposal includes reinstating the original roof form and verandah details and is considered to be a positive heritage outcome.

- *The place has aesthetic value for its contribution to the streetscape and the surrounding area;*

  Comment:
  The existing building and the limestone elements are being retained. The conservation works proposed to the existing building are considered to have a positive impact on its aesthetic value.

  The proposed development will be contemporary in nature and provide a point of visual interest within the existing mixed inner urban streetscape.

- *It is representative of the typical workers' houses in the Fremantle area;*

  Comment:
  The house is currently occupied for commercial use. The available historic information indicates that the building has been occupied by commercial businesses since c1970s. Although the proposed use will be commercial, the place will maintain its residential scale, appearance and features. The proposed alterations will have a positive impact on the features of a typical workers house.

- *The place is an example of the Federation Bungalow style of architecture; and*

  Comment:
  The house has undergone a number of alterations in the 1960s-70s which included the replacement and restructure of the original roof. The building is not currently characteristic of a typical Federation Bungalow styled house. The proposed alterations to the house will restore the original roof pitch and reinstate the gable form and the bullnose verandah which will have a positive impact on the architectural style of the building.

- *The place demonstrates the evolution of the area and the contribution made to Fremantle and its character by Migrants from Southern Europe.*

  Comment:
  The original house is being retained. The proposed reinstatement of original features will assist in representing characteristics typical in early 20th Century Fremantle. The connection the house has with the migrant history of Fremantle should be encouraged and represented through interpretation.

  The proposed two storey development will continue to evolve Fremantle's story.

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7.3 DESIGN GUIDELINES D.G.F16 (MARINE TERRACE POLICY)

The following section includes relevant policies relating to the proposed development. A comment has been provided against the policies.

The objective of this policy is to encourage a form and scale of development appropriate to Marine Terrace's character as a sea-front forming an edge between the City and the ocean. Development should not adversely affect residential uses in adjoining streets. The identification and fostering of heritage elements on and adjacent to Marine Terrace also forms an integral part of the policy.

1.1 The general character of the area should be distinctly inner urban.

1.2 Marine Terrace should act as a seafront boulevard and a formal gateway entrance to the city.

1.3 Development should be 'hard edged' relating directly to the street, both on the horizontal and vertical planes. Development should be of a scale appropriate to its setting and serve to close off the ends of the streetblocks abutting Marine Terrace. Incongruous isolated developments, and the overdevelopment of individual sites, will not be supported.

1.4 Landscaping should be formal, consistent with the status of Marine Terrace as a 'boulevard entrance' to the city.

1.5 All uses that are residential or have a general relationship to harbour activities both industrial and recreational would be encouraged, given the usual environmental standards. In more detail the three sections of Marine Terrace should have the following roles and characteristics:

(i) Norfolk Street to South Street
This area should retain a mixed use commercial/ residential character. Acceptable uses could include serviced apartments, residential, marine industry and offices. A maximum height limit of three storeys should apply to sites capable of being redeveloped, as greater heights would be incongruous with the adjacent residential neighbourhoods. A number of the buildings in this area have local historic significance and the Council will encourage their retention and restoration.

Comment:
The architect's design intent and overall approach has addressed the design guidelines.

The 'inner urban' nature of the area has been interpreted to represent the mixed use nature of Marine Terrace and encourage city/ urban living. The proposal combines both residential and commercial occupancy reflecting the aspirations of the area and is considered to be an appropriate response.

The 'hard edged' guideline has been interpreted through the places form and setbacks. The approach is considered appropriate and reflects the minimal and nil setbacks throughout the area.

The two storey residential dwelling is in keeping with the recommended guidelines for the section between Norfolk Street and South Street. The retention and restoration to an original form of the existing heritage place is considered a positive outcome and an appropriate response within the streetscape.

The 'seafront boulevard entrance' associated with Marine Terrace will not be negatively impacted by this proposal. It is our opinion that the proposed works to the existing place as well as the new contemporary development will have a positive aesthetic contribution to the existing mixed development and provide visual interest within the streetscape as well as restoring an existing 1901 Federation Bungalow.

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7.4 STATE PLANNING POLICY 3.5

Places on the Heritage List or in a Heritage Area enjoy special protection under the planning scheme. Heritage listings and areas do not prohibit any development of a place - it means that changes made should respect and be sympathetic to the heritage values of the place.

The City of Fremantle utilises the State Planning Policy 3.5- Historic Heritage Conservation (Clause 6.6) when considering the impact of a proposal on a heritage place.

The following considerations have been deemed relevant to this proposal. A comment has been provided following the relevant policy statements.

Alterations, extensions or change of use affecting a heritage place

- *Development should conserve and protect the cultural significance of a heritage place based on respect for the existing building or structure, and should involve the least possible change to the significant fabric.*
- *Alterations and additions to a heritage place should not detract from its significance and should be compatible with the siting, scale, architectural style and form, materials and external finishes of the place. Compatibility requires additions or alterations to sit well with the original fabric rather than simply copying or mimicking it.*
- *In some cases, the conservation and protection of a heritage place may require a change of use to ensure a reasonable beneficial use or return. Sympathetic adaptation and change of use should be supported in such cases.*
- *Development should be in accordance with any local planning policies relating to heritage.*

Demolition of a heritage place (including a place within a heritage area)

- *Demolition of a State heritage place is rarely appropriate and should require the strongest justification. Demolition of a local heritage place should be avoided wherever possible, although there will be circumstances where demolition is justified. The onus rests with the applicant to provide a clear justification for it.*
- *Demolition approval should not be expected simply because redevelopment is a more attractive economic proposition, or because a building has been neglected. Consideration of a demolition proposal should be based upon the significance of the building or place; the feasibility of restoring or adapting it, or incorporating it into new development; the extent to which the community would benefit from the proposed redevelopment; and any local planning policies relating to the demolition of heritage places.*

<u>Comment:</u>
The existing house is being retained and restored.
The proposed alterations to the existing house are in keeping with the desired approach to a heritage place outlined in the State Planning Policy 3.5.

The proposed restoration works will conserve the original fabric and reinstate the original form, details and materials that were originally evident in 1927 and 1940 photographic evidence.

The proposed alterations will enhance the Marine Terrace streetscape and have a positive impact on the cultural heritage values of the place.

The existing building has been a commercial premise for an extended period of time and therefore continuing this use is acceptable.

Specific details of the overall restoration to 96 Marine Terrace will need to be provided.

CITY OF FREMANTLE
These Plans Form Part of
DA0107/23
30 March 2023

8 CONCLUSION

This Heritage Impact Statement (HIS) has been prepared by Stephen Carrick Architects for Petar Mrdja, Urbanista Town Planning to assess the proposed development for 96 Marine Terrace, Fremantle. Urbanista has been commissioned by the owners, Greg and Rhonda Bader, to coordinate and submit a Development Application to the City of Fremantle. The proposal has been prepared by Philip Stejskal Architecture. This report focuses on assessing the heritage impact of the proposal on the existing place.

The proposal is separated into the following two components:

1. Alterations to the Existing Place for commercial use
   - Remove the existing demountable building
   - Remove the existing shipping container
   - Remove lean-to to rear of the existing house
   - Remove front verandah and reinstate bullnose verandah to match the original detailing
   - Remove roof and reinstate gable roof form to match the original detailing
   - Alterations to the front limestone fence to match the original detailing

2. New contemporary two storey residence to the south of the existing house

The following documentation of the proposed development was provided by Philip Stejskal Architecture:

- Proposed Drawing Set, dated February 2023, Job Ref.: 2121-00 to 2121-13, prepared by Philip Stejskal Architecture.
- Design Intent Statement

96 Marine Terrace, Fremantle is included on the City of Fremantle's Heritage List and Local Heritage Survey with a Management Category Level 3 (Some Significance).

This Heritage Impact Statement is prepared in line with best practice to assist with the assessment of the Development Application for a place included on a Local Heritage List.

Following the assessment of the heritage impact of the proposal through consideration of Design Criteria; Statement of Significance; Fremantle Design Guidelines D.G.F16 (Marine Terrace Policy) & State Planning Policy 3.5 the consultant's professional opinion is:

1. The retention and restoration of the existing house is an important and positive heritage outcome for the site and the Marine Terrace streetscape. The reinstatement of the original form and detailing will have a positive impact on the building and acknowledge the places cultural heritage values.

2. The continued use and the functional alterations are an important and positive conservation outcome for the building.

3. The two storey scale and form of the new development is representative of the surrounding buildings and representative of the mixed use nature of the area. The aesthetic qualities of the proposal will have a positive impact on the streetscape appeal and provide visual interest.

4. The proposed development incorporates the variance of setback lines present in the street. The proposed ground floor setback aligns with the existing house to the north and townhouses to the south. The combination of the ground floor setback and cantilevered first floor still allows sight lines to the existing house to be maintained at pedestrian level.

5. In line with the City of Fremantle policy for places of some significance the proposals contribution to the inner urban context is maintained and enhanced.

6. In our professional opinion, the proposed restoration works to the existing building and the proposed two storey development are cognisant and respectful of the cultural heritage values of the place. Based on the heritage impact the proposal is considered acceptable.

CITY OF FREMANTLE
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9 RECOMMENDATIONS

Following the assessment of the impact of the proposal on the cultural heritage values of 96 Marine Terrace, Fremantle it is recommended that consideration is given to the following actions:

1. This Heritage Impact Statement should be considered by the client. If accepted by the client, this HIS should form part of the proposal.

2. This Heritage Impact Statement should be considered by the City of Fremantle as part of their evaluation of the Development Application.

3. A photographic record of the existing building should be undertaken and provided to the City of Fremantle.

4. The detailing to the proposed two-storey development should remain refined and simple to reflect the contemporary nature of the new development. This design approach should be maintained when the documentation is prepared for a Building Permit.

5. More information and details on the extent of restoration works (specifically gable fretwork, bullnose banding, walls, windows, window shutters, roof finish, verandah) should be provided at a later stage.

6. Consideration should be given to restoring the decorative iron infill to the front boundary fence as illustrated in photographic evidence.

7. Consideration should be given to the interpretation of the migrant history of the place as highlighted in the Statement of Significance for the place.

8. Provide a photographic record to the City of Fremantle following completion of the works.

CITY OF FREMANTLE
These Plans Form Part of

DA0107/23

30 March 2023

stephen
carrick
architects

C2312-4 MARINE TERRACE, NO. 96 (LOT 123), FREMANTLE – ALTERATIONS TO EXISTING HERITAGE BUILDING AND A TWO STOREY SINGLE HOUSE – (ED DA0107/23)
Attachment 8 – Site Photos

Photo 1: Subject site as viewed from Marine Terrace

Photo 2: Subject site and adjoining dwellings to the south

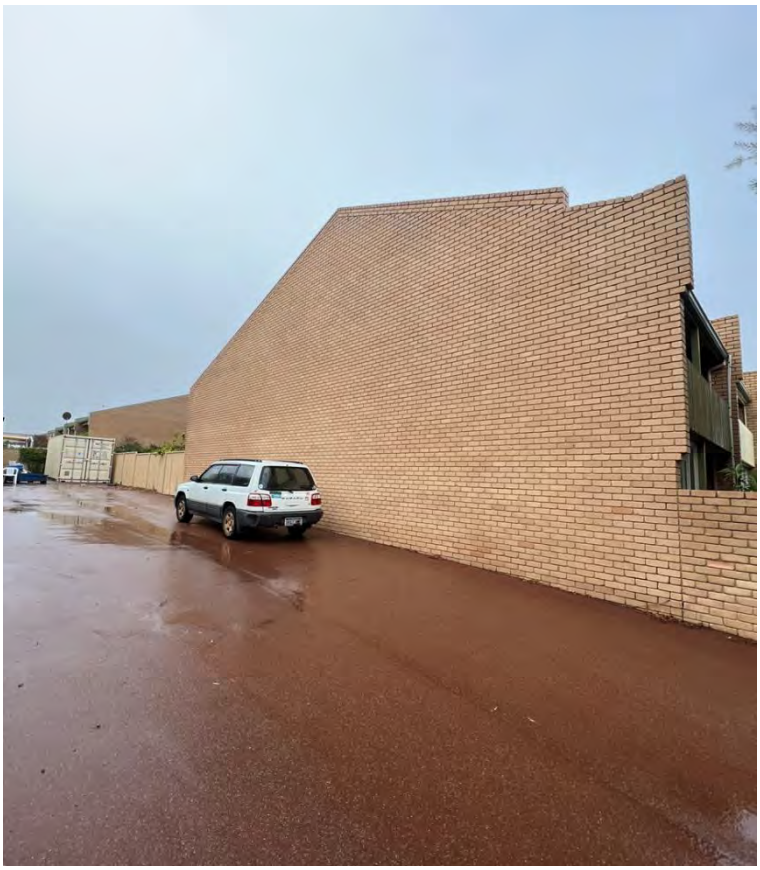

Photo 3: Existing boundary wall located to the south of the subject site

Photo 4: Existing heritage dwelling (office) and primary street fencing including retaining wall

Photo 5: Across the road from the subject site

Photo 6: Property to the south of the subject site showing existing boundary wall.

Photo 7 – Photo of subject site looking north

CITY OF FREMANTLE

LOCAL PLANNING POLICY 2.4

BOUNDARY WALLS IN RESIDENTIAL DEVELOPMENT

ADOPTION DATE: 22 October 2008
AMENDED: 23 June 2010 and 06 May 2014
AUTHORITY: LOCAL PLANNING SCHEME NO.4

STATUTORY BACKGROUND

This local planning policy has been prepared under Part 2 of the City of Fremantle Local Planning Scheme No. 4 (LPS4) and Part 7 of State Planning Policy 3.1: Residential Design Codes, August 2013 (R-Codes).

APPLICATION

This policy applies to the assessment of boundary walls in residential development as provided by clause 5.1.3 P3.2 and C3.2 A2 of the R-Codes.

This policy applies in addition to any other applicable requirements under Local Planning Scheme No. 4, the Residential Design Codes and any other relevant Local Planning Policy.

POLICY

Deemed-to-comply requirements

The deemed-to-comply provisions of clause 5.1.3 C3.2 of the R-Codes are replaced with the following:

Walls may be built up to a lot boundary behind the street setback (specified in Table 1 and in accordance with clauses 5.1.2, 5.2.1 and 5.2.2 of the R-Codes), within the following limits and subject to the overshadowing provisions of clause 5.4.2 and Figure Series 11 of the R-Codes:

i. Where the construction of a boundary wall/s is specifically permitted by the City's Local Planning Scheme No. 4 or another Local Planning Policy; or

ii. Where the wall is proposed to abut an existing or simultaneously constructed boundary wall of similar or greater dimensions; or

iii. Where the wall is proposed to abut a property that is not used for residential purposes; or

iv. Where the wall is proposed on a lot, not including a battleaxe lot, with a frontage (as defined by the Residential Design Codes) of less than 10 metres and complies with the following:

i) In areas coded R20 and R25, walls not higher than 3.5m with an average of 3.0m or less, up to a maximum length of the greater of 9m or one-third the length of the balance of the lot boundary behind the front setback, to one side boundary only; or

ii) In areas coded R30 and higher, walls not higher than 3.5m with an average of 3m for two-thirds the length of the balance of the lot boundary behind the front setback, to one side boundary only.

or

v. Where both the subject site and the affected adjoining site are created in a plan of subdivision submitted concurrently with the development application.

Design Principle assessment

Design principle 5.1.3 P3.2 of the R-Codes states:

'P3.2 Buildings built up to boundaries (other than the street boundary) where this:

- *Makes more effective use of space for enhanced privacy for the occupant/s or outdoor living areas;*
- *Does not compromise the design principle contained in clause 5.1.3 P3.1;*
- *Does not have any adverse impact on the amenity of the adjoining property;*
- *Ensures direct sun to major openings to habitable rooms and outdoor living areas for adjoining properties is not restricted; and*
- *Positively contributes to the prevailing development context and streetscape.'*

In considering a proposed boundary wall against the design principle of the R-Codes, Council will be satisfied that the boundary wall meets the criteria of the third point above where, after considering the proposal against the criteria of points 2, 4 and 5, Council considers that the proposed boundary wall presents no *significant* adverse impact on the amenity of the adjoining property.

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Part 5 – Design elements for all single house(s) and grouped dwellings; and multiple dwellings in areas coded less than R40

5.1 Context
5.2 Streetscape
5.3 Site planning and design
5.4 Building design
5.5 Special purpose dwellings

Design principles ***Development*** *demonstrates compliance with the following* ***design principles*** (P)	Deemed-to-comply ***Development*** *satisfies the following* ***deemed-to-comply*** *requirements* (C)
	C3.3 Where the subject **site** and an affected adjoining site are subject to a different density codes, in accordance with clause 5.1.3 C3.2, the length and **height** of the **boundary wall** on the boundary between them is determined by reference to the lower density code. C3.4 Where **boundary walls** and retaining walls are proposed concurrently and the boundary wall is located immediately above the retaining wall: i. clause 5.3.7 does not apply; and ii. the boundary wall **height** is to include the height of the retaining wall for the purpose of clause 5.1.3 C3.2, with the exception of a retaining wall approved through a plan of subdivision. Note: Pillars and posts with a horizontal dimension of 450mm by 450mm, or less, do not constitute a **boundary wall**. Retaining walls do not constitute boundary walls for the purpose of this clause. **Setbacks** for retaining walls are to be calculated in accordance with clause 5.3.7.
5.1.4 Open space P4 **Development** incorporates suitable **open space** for its context to: • reflect the existing and/or desired streetscape character or as outlined under the **local planning framework**; • provide access to natural sunlight for the **dwelling**; • reduce **building** bulk on the **site**, consistent with the expectations of the applicable density code and/or as outlined in the local planning framework; • provide an attractive setting for the buildings, **landscape**, vegetation and streetscape; • provide opportunities for residents to use space external to the dwelling for outdoor pursuits and access within/around the site; and • provide space for **external fixtures** and essential facilities.	C4 **Open space** provided in accordance with **Table 1** (refer **Figure Series 6**). The site of the **grouped dwelling**, for the purpose of calculating the open space requirement, shall include the area allocated for the exclusive use of that **dwelling** and the proportionate share of any associated **common property**.

2023 UPDATE of Heritage list and local heritage survey

Attachment 1 – Assessment of places

1. Blinco Cottage, 8 Swanbourne Street, Fremantle

Why was the property identified for review?	Owner request
City of Fremantle Heritage List	No
Heritage Area	Memorial Reserve Precinct Heritage Area
Local Heritage Survey	Yes – Inherit
Management Category	No
Existing statement of significance	No
Background	Existing place record in Inherit suggests that the place has been identified in the past as a place of interest.
History	Constructed around 1901 for Henry and Martha Blinco. Henry Blinco was a Pensioner Guard who served at the Convict Establishment and then a warder at Fremantle Prison. He also constructed the nearby house Lenaville, 186 High Street.
Physical description	Single storey stone and brick quoin house with a Colorbond hipped roof. The roof has two brick chimneys with corbelling and the bull nosed verandah which encircles the building has chamfered timber posts and a cast metal frieze. Original paint finishes and features inside. There is an early well in back yard

8 Swanbourne Street, 2023	Original paint finishes restored, 2023
Authenticity	High
Integrity	High
Comment	This is a place of considerable heritage significance to Fremantle
Recommendation	Add to Heritage List LHS Management Category - Level 2. Contributory Place in Heritage Area
Proposed new statement of significance	The place has heritage significance as a good example of a large single storey limestone house dating from around 1901. The place has aesthetic value as a good example of a Victorian Georgian style house with encircling verandahs and for its contribution to the streetscape of the surrounding area and the setting of Monument Hill. The place has a close association with Henry Blinco, original owner of the property and Principal Warder of Fremantle Gaol. The place is a good example of the more substantial houses that were built on larger blocks on the higher ground around Fremantle in the Gold Rush Era.

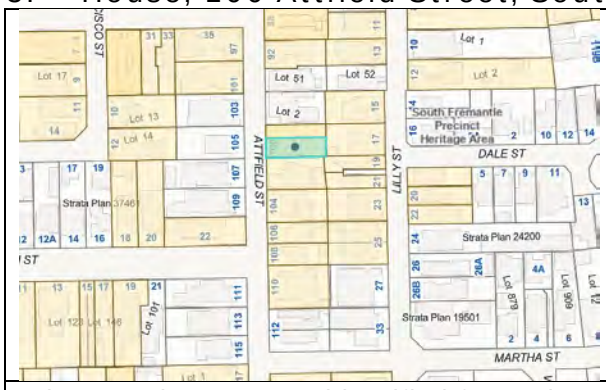
2 Stewart & Lloyds Office, 140 Stirling Highway

Why was the property identified for review?	CoF commissioned heritage assessment identifies place as having Considerable Significance.
City of Fremantle Heritage List	No
Heritage Area	North Fremantle Precinct Heritage Area

Local Heritage Survey	No
Management Category	No
Existing statement of significance	No
Background	DA0431/19 for demolition of all buildings on site lodged. CoF commissioned an independent Heritage Assessment of the place which concluded that the Office building demonstrated considerable significance and importance to Fremantle (the other buildings were found to have little significance). The DA was approved on condition that 'the office building on the corner of Stirling Highway and McCabe Street does not form part of this demolition approval and is to be retained to the satisfaction of the City of Fremantle.'.
History	Stewarts & Lloyds Office (fmr) was constructed 1956/57 to designs by architect Geoffrey Summerhayes and two more matching bays were added to the east end in 1972. The adjacent Amenities Building was constructed in 1963. The massive factory units to the east were built in 1962 and extended in 1972. Stewart and Lloyds rebranded as Tubemakers in the Late Twentieth Century. One Steel was the last major occupier of this site in the 2000s. In 2023 there are plans to redevelop the site for residential use and there is a draft Structure Plan which is being considered by DPLH.
 Stewart and Lloyds 1957, SLWA	 1965, SLWA
Physical description	Stewarts & Lloyds Office (fmr) is a double storey commercial building in the Post War International Style. It is of steel frame construction with reinforced concrete panels and a regular pattern of fenestration along both the north and south elevations. The entry foyer and staircase are finely detailed showing the influence of the International Style.
Authenticity	High
Integrity	Low
Comment	This is a place of considerable heritage significance to Fremantle and should be included on the Heritage List

Recommendation	Add to Heritage List as – Stewart & Lloyds Administration Offices LHS Management Category - Level 2. Contributory Place in Heritage Area
Proposed Statement of Significance	Proposed: (from 2019 Heritage Assessment) Stewarts & Lloyds (fmr), built in 1956/57 in the Post War International style has cultural heritage significance for the following reasons; • The place is a fine intact example of the Post War International architectural style with its distinctive cubiform shape and regular rhythm of fenestration along its key elevations; • The place has historic value for its association with prominent architect Geoffrey Summerhayes, one of the early proponents of the principles of the Bauhaus school in Western Australia; • The place is closely associated with steel tube manufacturing firm Stewarts and Lloyds established in Fremantle since early 20th century. The functions of this place continued until the end of the 20th century under different company names; • Due to its distinctive architectural form and its elevated position, the place demonstrates local landmark values along this section of Stirling Highway; and, • The place has historic value for its association with the development of industry in North Fremantle in the period following World War Two.

3. House, 100 Attfield Street, South Fremantle

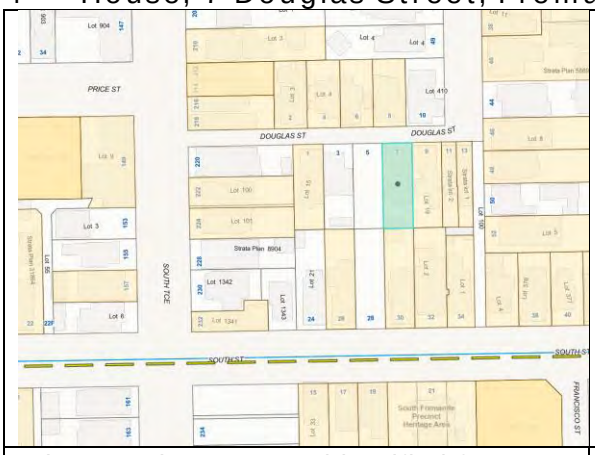


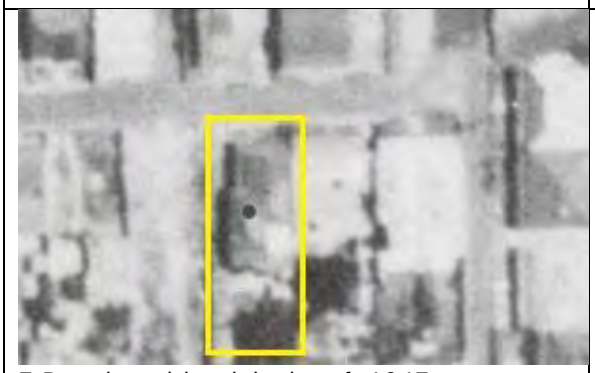
Why was the property identified for review?	Owner request to change LHS Management Category from L3 to L2.
City of Fremantle Heritage List	Yes
Heritage Area	South Fremantle Precinct
Local Heritage Survey	Yes
Management Category	Level 3
Existing statement of significance	House, 100 Attfield Street, is a rendered masonry and iron single storey house dating from c 1900. The place has

	aesthetic value for its contribution to the streetscape and the surrounding area. It is representative of the typical workers' houses in the Fremantle area. The place is an example of the Federation Bungalow style of architecture.
Background	Information provided by owner on conservation of place and accurate reinstatement of missing or damaged features of house.
History	House, 100 Attfield Street was built in 1900. External modifications undertaken in 1970s. After the place was added to the first MHI the owners undertook extensive conservation works which included the reinstatement of original features such as face brickwork and decorative render details, front timber verandahs with fretwork valences and ornate bargeboards and finials.
100 Attfield Street, c. 1915	LHS Place record, 100 Attfield Street, 2009
Physical description	Single storey, brick and iron house built in 1900 with an asymmetrical facade designed in the Federation Bungalow style of architecture. The house has unusual decorative render motifs and ornate timber verandah with detailed fretwork

	2023
Comment	The house has undergone extensive conservation works since original listing to reveal and reinstate unusual and highly decorative features. This work has elevated the significance of this place.
Recommendation	Add to Heritage List LHS Management Category - Level 2. Contributory Place in Heritage Area
Proposed statement of Significance	House, 100 Attfield Street, is a finely detailed, single storey limestone with brick quoin and iron house dating from c. 1900. The place has aesthetic value for its unusual decorative brick, render and timber features as an individual example in Fremantle and for its contribution to the streetscape and surrounding area. It is an unusual example of the modest inner suburban houses in the Fremantle area. The place is a modest but good example of the Federation Bungalow style of architecture.

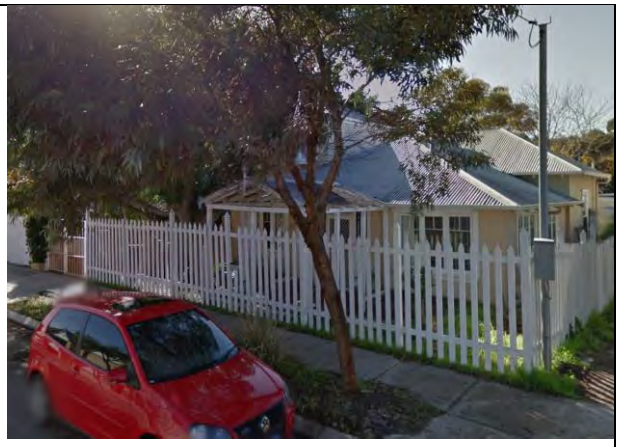
4 House, 7 Douglas Street, Fremantle

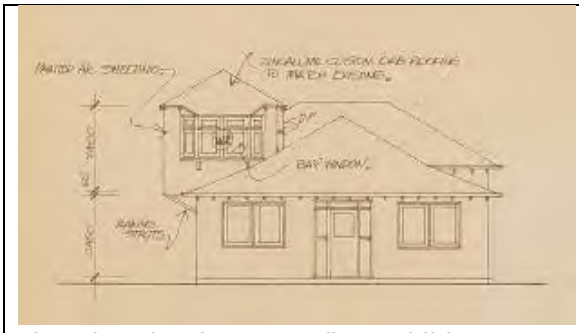
	
Why was the property identified for review?	Owner request to remove place from Heritage List.
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Level 3

Existing statement of significance	Recommended for deletion 2010 - Below Threshold/Significantly Altered
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	Constructed by 1905. Substantially modified in 1960s including removal of hipped and gabled roof and replacement with lower pitched hipped roof. Also rendering of exterior, masonry enclosure of side verandah, modification of front verandah, replacement of all windows and doors and replacement of timber floors with terrazzo.
 7 Douglas with original roof, 1947	 7 Douglas with new roof after 1970
 7 Douglas, Fremantle Society Survey, 1979	
Physical description	Single storey rendered masonry house with low pitch hipped roof clad in corrugated steel sheeting and separate front verandah.
Integrity	High – original use
Authenticity	Low – much modified
Comment	Considerably altered, difficult to see original form, difficult to recover original form, does not meet threshold for Heritage List. Is not part of an identified heritage area.
Recommendation	Remove from Heritage List Change LHS Management Category from Level 3 to Historic Record Only.
Proposed statement of significance	House, 7 Douglas Street, a single storey rendered masonry and clay tile house with

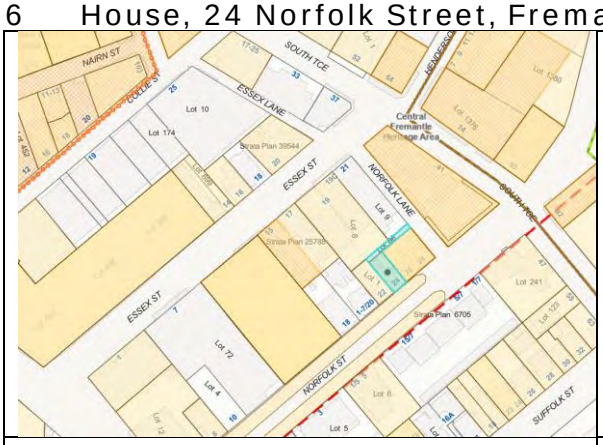
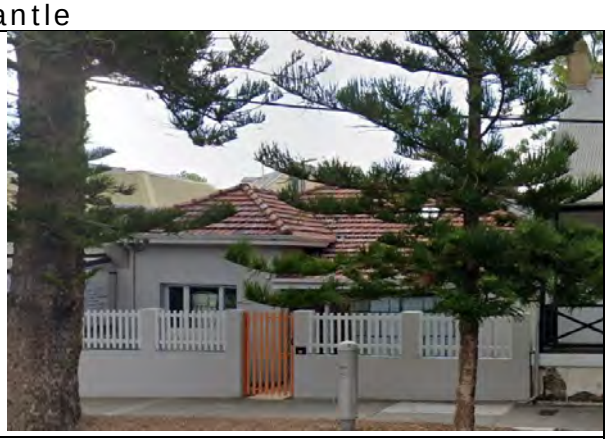
	little cultural heritage due to the extent of alteration in the late Twentieth Century.

5 House 20 Hickory Street, South Fremantle

	
Why was the property identified for review?	Owner request to remove place from Heritage List
City of Fremantle Heritage List	Yes
Heritage Area	South Fremantle Precinct
Local Heritage Survey	Yes
Management Category	Level 3
Existing statement of significance	Recommended for deletion 2010 - below threshold - significantly altered
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	House 20 Hickory Street first appears in the rate books in 1897 as a one room cottage. 1954 Metropolitan Sewerage Map shows a timber framed asbestos house with a projecting front room with verandahs on three sides. The front verandahs have been enclosed by 1983 when the first floor extension was added. In 1989 the rear lean to was demolished and the interior of the house was reconfigured. The site was subdivided in 1998.
Metropolitan Sewerage Map 2099, 1954	20 Hickory, Fremantle Society Survey 1979

 Elevation showing upper floor addition, DA506/83, CoF Archives	House with upper floor addition, 2023
Physical description	A single storey asbestos clad timber framed house with a hipped roof clad in corrugated steel sheeting. The front verandas have been fully enclosed with original front door and windows relocated to external wall and the wall behind removed. Upper floor extension built over the main part of the house. Considerable internal change.
Integrity	High, still serves original use
Authenticity	Low, much modified
Comment	Considerably altered, difficult to recover original form, does not meet threshold for Heritage List but contributes to the character of the area.
Recommendation	Remove from Heritage List Change LHS Management Category from Level 3 to Historic Record Only.
Proposed statement of significance	20 Hickory Street is a single storey, fibrous cement sheet clad timber framed house with a corrugate steel roof which has little heritage significance due to the extent of alteration.

6 House, 24 Norfolk Street, Fremantle

	
Why was the property identified for review?	Owner request to remove place from Heritage List because approved for demolition.
City of Fremantle Heritage List	Yes
Heritage Area	Central Fremantle Heritage Area
Local Heritage Survey	Yes
Management Category	Level 3

Existing LHS statement of significance	House, 24 Norfolk Street, is a typical rendered masonry and tile single storey house dating from c1940s. The place has aesthetic value for its contribution to the streetscape and the surrounding area. It is representative of the typical workers' houses in the Fremantle area.
Background	Independent Heritage Assessment prepared for DA398/15 (Mfiles 3232827) recommend removal from the MHI (now LHS).
History	Documentary evidence indicates that there was a blacksmith's shop and two cottages on this site in the late 19th to early 20th Century but by 1907 the were only 'foundations' on site. In 1940/41 the existing house was constructed. It was modified in 1981 by the Australian Fishing Industry Council for use as an office. In 2016 DA0393/15 for demolition of the existing building and construction of three storey mixed use development was approved. Work was never started on this project and the approval has now lapsed.
Physical description	Modest single storey rendered masonry Post-War house with a hipped tiled roof. The front verandah has been enclosed, window hood removed and windows and door replaced.
Integrity	Low – no longer used as residence
Authenticity	Moderate –external change
Statement of Significance (from 2016 Heritage Assessment)	"House, 24 Norfolk Street, is a typical modest rendered and painted brick and tile single storey former residence built 1940/41. The house is considered of no particular architectural merit and also has limited aesthetic value in terms of its remaining significant fabric, or contribution to the streetscape and the surrounding area. It has limited historic value as a modest single storey house built during World War II. Also there is a loss of associations as the place is no longer being used as a residence."
Comment	This place does not meet the threshold for inclusion on the Heritage List however, the place has been identified as having archaeological value
Recommendation	Remove from Heritage List

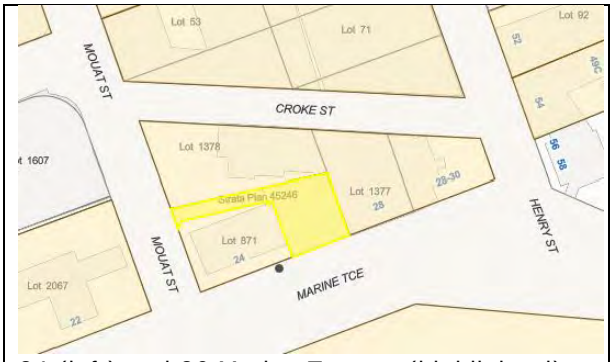
	Change LHS Management Category from Level 3 to Historic Record Only.
Proposed statement of significance	House, 24 Norfolk Street, is a typical rendered masonry and tile single storey house dating from c1940s. The place has limited aesthetic value for its contribution to the streetscape and the surrounding area.

7 House, 9 Barnett Street, Fremantle

Why was the property identified for review?	Owner request to remove place from Heritage List
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Historic site - recognise
Existing LHS Statement of significance	Recommended for deletion 2010.
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	Originally part of the site of Dr Barnett's Residence (c. 1896). Land remained vacant until sub-division in 1950. Aerial photos show that a hipped roof house had been constructed on the site by 1953 but this had been demolished by 1981.Existing two storey brick house constructed in the 1990s.
Physical description	Two storey face brick Late 20th Century house with hipped corrugated steel roof and carport/ deck.
Comment	Originally part of the site of Dr Barnett's Residence. Existing house dates from 1990s. No fabric associated with Barnett Residence remains on site. Highly unlikely to have any archaeological potential due to extent of ground disturbance.
Recommendation	Remove from Heritage List Change the LHS Management Category from Historic Site to Historic Record Only
Proposed statement of significance	9 Barnett Street has historical interest as part of the original site of Dr Barnett's Residence,

	13 Barnett Street. The place has little culture heritage significance.

8. 24 and 26 Marine Terrace

 24 (left) and 26 Marine Terrace (highlighted)	24 (left) and 26 Marine Terrace (right) 2021
Why was the property identified for review?	Owner request for review of listing of 26 Marine Terrace after subdivision into 24 and 26 Marine Terrace
State Register of Heritage Places	West End, Fremantle HCWA No. 3131
City of Fremantle Heritage List	Yes
Heritage Area	West End Heritage Area
Local Heritage Survey	Yes
Management Category	Level 2
Background	Heritage Assessment prepared for DAP003/21 describes the building on what is now 26 Marine Terrace as having little heritage value and approval was given to substantially modify the structure.
History	In the 1870s Marine Terrace was reclaimed from South Bay with a sea wall and in 1876 construction began on a hall for the Fremantle Masons. The hall remained in use for 75 years until a new Hall was built on the corner of Chalmers and High Streets. The place was purchased by the Navy Club in 1956 and the following year they constructed a new addition on vacant land to the east of the old hall. In 1986 a second floor was added to the 1957 additions and a third floor in the 1990s. The former Masonic Hall was conserved in the 1990s and missing features such as the balustraded parapet and portico were reinstated. In 2022 26 Marine Terrace was subdivided into 24 Marine (Fmr Freemasons' Hall) and 26 Marine (Post-War additions).

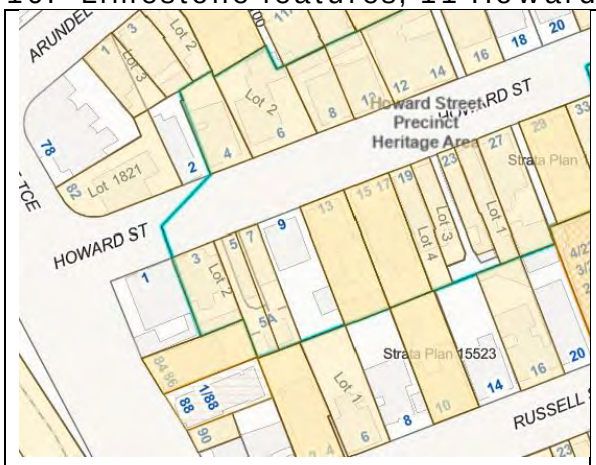
 Fremantle Masonic Hall (c. 1870s) ES00117, FHC	 Navy Club, 1995, FHC. Former Masonic Hall (left) and Post War additions on the right
Physical description	The former Masonic Hall, is a two storey rendered building with a balustraded parapet in the Victorian Georgian style. It has a central portico on the facade with two columns at each corner and a triangular gable; entrance is via the front steps. The ground floor has ashlar effect rendering with a cornice and the first floor is smooth rendered. The adjacent building is a three storey rendered masonry apartment block with a low pitch roof behind a parapet.
Statement of Significance	The heritage values in the existing Statement of significance largely relate to the two storey 1870s building on 24 Marine Terrace. The attached three storey apartment building on 26 Marine Terrace has historic interest but little heritage significance.
Comment	There is no significant heritage building fabric located on the new 26 Marine Terrace
Recommendation	Retain 24 Marine Terrace on the Heritage List and update the address. Remove 26 Marine Terrace from the Heritage List and change the LHS Management Category from L2 to Historic Record Only
Propose statement of significance for 26 Marine Terrace	26 Marine Terrace is of historical interest for its association with the Navy Club between 1957 and 1990s. The existing building fabric has little cultural heritage significance.

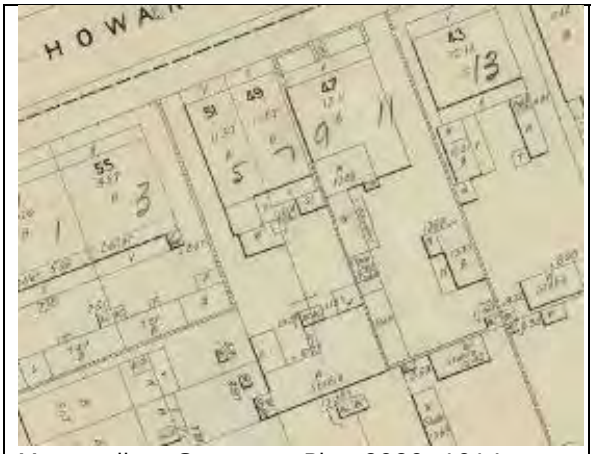
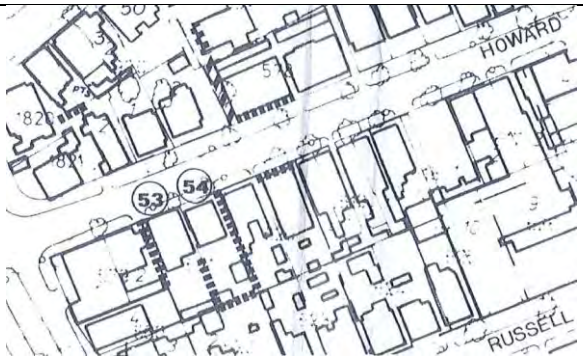
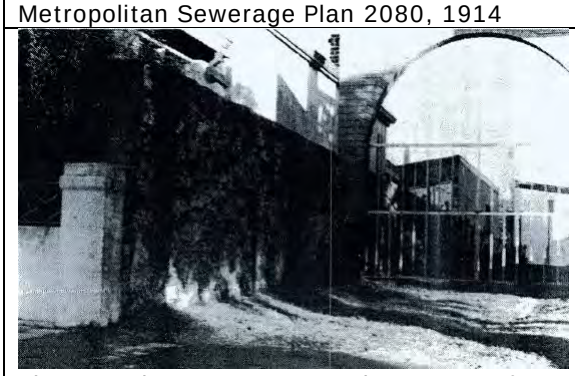
9. 2/85 & 3/85 Wray Avenue, Fremantle

Why was the property identified for review?	Owner requested that the blocks at the rear of the 85 Wray be removed from the Heritage List
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Level 2
Background	The site has recently been subdivided into 1/85 Wray (containing the stone house) and 2/85 Wray and 3/85 Wray containing the new houses.
History	The stone house at 85 Wray Avenue had been constructed by 1900. In 2028 the rear of the site was redeveloped with additions made to the rear of the stone house and two new houses constructed behind.
Physical description	1/ 85 Wray Avenue is a single storey, limestone, brick and iron house with a symmetrical facade designed as an example of the Victorian Georgian style of architecture. The walls are limestone with red brick quoins. The roof is hipped and clad with corrugated iron. The façade is symmetrical with a central front door and double hung sash windows. The verandah has a separate corrugated iron roof supported on timber posts. 2/85 Wray and 3/85 Wray are face brick and render houses with a skillion roof clad in corrugated steel sheeting.
Comment	2/85 and 3/85 Wray do not contain any heritage fabric and should be removed from the Heritage List.
Recommendation	Retain 1/85 Wray Avenue on the Heritage List and LHS and modify the address Remove 2/85 and 3/85 Wray from the Heritage List Retain 2/85 and 3/85 Wray on the LHS but update the history and change the LHS Management Category to Historic Record Only
Proposed statement of significance for 1/85 Wray Avenue	Retain unaltered

Proposed statement of significance for 2/85 and 3/85 Wray Avenue	This place is of historical interest as the original backyard of 85 Wray Avenue. The existing building fabric has little cultural heritage significance. The site has low archaeological potential due to the extent of recent ground disturbance

10. Limestone features, 11 Howard Street, Fremantle

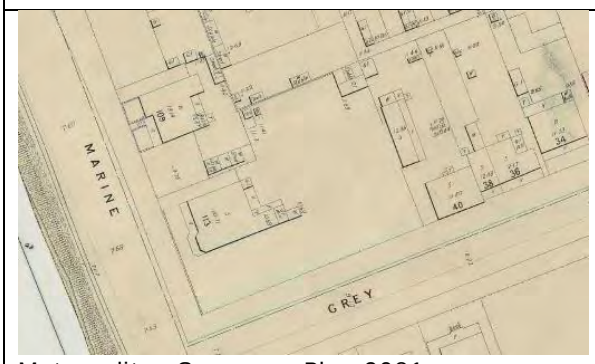
	9 Howard Street, 2023
Why was the property identified for review?	Identified by Heritage Officer.
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Limestone feature(s)
Existing Statement of significance	Recommended for deletion 2010 - unable to locate
Background	House numbing in Howard Street has changed making the limestone features difficult to locate
History	A brick house with a front verandah is shown on 1914 Metropolitan Sewerage Plan together with limestone walls on side and rear site boundaries. Originally numbered 47, later handwritten numbers added to the plan after the street was renumbered in the 1930s show that the place was numbered 9 - 11 Howard Street. Aerial photos from 1947 to the current day show a consistent footprint and hipped roof form to the house but there is no other evidence to record how it looked prior to the 1970s. Limestone side and rear boundary walls adjoining 7 and 13 Howard and 6 Russell were identified in report 19th C Limestone walls". This report was used to compile the original MHI in 2000.

 Metropolitan Sewerage Plan 2080, 1914	 Part of Map 10, showing limestone features at 9-10 Howard Street, 19th century limestone walls and steps in Fremantle.
 Photograph 54, 9-11 Howard Street, 19th century limestone walls and steps in Fremantle.	 East boundary wall at 9 Howard Street, 2023
Physical description	Two storey face brick house with a hipped and gambrel roof and a rendered and painted two storey colonnaded verandah with arches and a corbel balustrade to the facade. The height of the house suggests that it may possibly be a heavily modified earlier house similar in scale to 3 Howard Street. High rendered limestone walls are located on the east, west and south boundaries of 9 Howard Street. The east and west wall are visible from the Howard Street
Statement of Significance	Use of limestone as part of the Fremantle landscape gives the City coherence and character. Limestone walls are one commonly encountered example of use of this stone as a building material, most of them dating from the 19th century and early years of the 20th century. The rendered limestone walls at 9-11 Howard Street date from the late nineteenth to early twentieth century and contribute to the character of Fremantle and the Howard Street Heritage Area.
Comment	The 2010 recommendation to remove the listing was most likely added because there is now no 11 in Howard Street. Previously the property was numbered 9-11 Howard,

	and this may be the origin of the incorrect address. The original house at 9-11 Howards has been demolished or heavily altered and does not meet the threshold for inclusion on the Heritage list. The limestone features described in the listing for 11 Howard are existing at 9 Howard Street and should be included on the Heritage List.
Recommendation	Change address of place on Heritage List from 11 to 9 Howard Street and update record.
Proposed statement of significance	9 Howard Street, is a group of three rendered capstone limestone boundary walls from late nineteenth to early twentieth century. These walls have aesthetic and historic significance to Fremantle because they contribute to the heritage character of the landscape and urban form of the city.

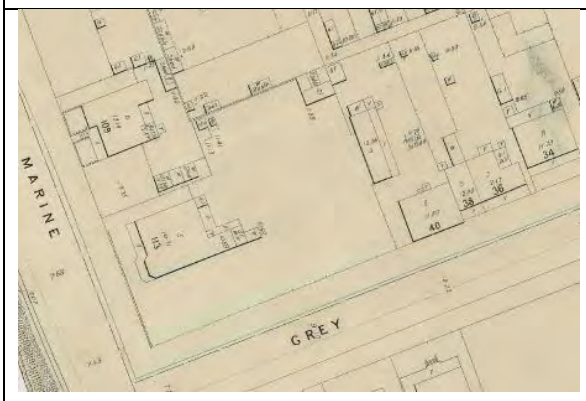
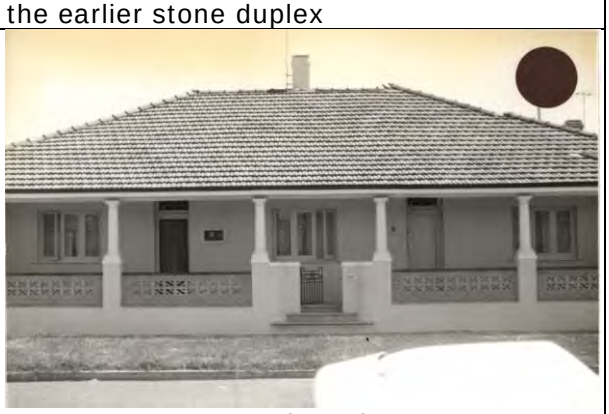
11. House (demolished), 100 Marine Terrace

Why was the property identified for review?	Identified by heritage officer as a place requiring review.
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Level 3
Existing Statement of Significance	Demolished - recommended for deletion 2010
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	Metropolitan Sewerage Plan 2081 shows a large stone house on big block the corner of Grey Street and Marine Terrace. Historic aerial photographs show the original house in 1947 but it had been demolished by 1981 and the existing

	terrace houses constructed between 1985 and 1989.
 Metropolitan Sewerage Plan 2081	 Aerial photograph 1965
Physical description	One of a terrace of four, two storey face brick townhouses with a gabled corrugated steel roof and a double height front verandah showing the stylistic influence of heritage nostalgia.
Integrity	Low
Authenticity	None
Comment	Part of a block of 1980s terrace houses, original house demolished. Given the extent of ground disturbance for the construction of the existing terrace houses it is unlikely that that the place has archaeological potential.
Recommendation	Remove from Heritage List Change the LHS Management Category from Level 3 to Historic Record Only
Proposed Statement of Significance for 98, 100, 102 and 104 Marine Terrace	This place has historic interest as the site of a stone house (c. 1940 – 1980) but the existing building fabric on site has little heritage significance.

12 House (demolished), 6 Grey Street

Why was the property identified for review?	Identified by Heritage Officer as requiring review - similar to 100 Marine Terrace
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Historic site
Existing Statement of Significance	Demolished

Background	This place was added to the original MHI as a historic/ Archelogical site.
History	Metropolitan sewerage map 2081 shows a stone house on 40 Grey (later 4 Grey) and a stone duplex on 36 & 38 Grey (later 6 Grey) on this site. Historic aerial photographs show that 4 Grey had been demolished by 1965. A FS Survey photograph shows 6 Grey Street in 1979 and it appears to have been modified in the Post War era. 6 Grey had been demolished by 1989 for the existing terraces.
Physical description	A terrace of eight, two storey face brick townhouses with a gabled corrugated steel roof and a double height front verandah showing the stylistic influence of Late Twentieth Century Heritage Nostalgia. There is no surviving fabric on site from the earlier stone duplex
	 6 Grey Street, Fremantle Society Survey 1979
Integrity	Low
Authenticity	None
Comment	No fabric survives from the original stone duplex and given the extent of ground disturbance for the new terrace houses the site has low archaeological potential.
Recommendation	Remove from Heritage List Change the LHS Management Category from Historic / Archaeological Site to Historic Record Only
Proposed Statement of Significance for 1/6-8/6 inclusive Grey Street	This place has historic interest as the site of two earlier stone houses which were demolished in the middle of the Twentieth Century but the existing building fabric on site has little heritage significance.

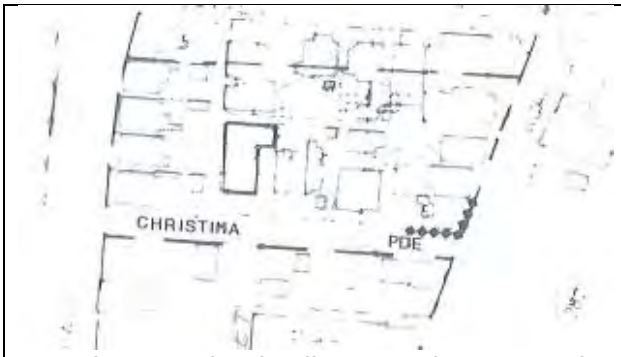
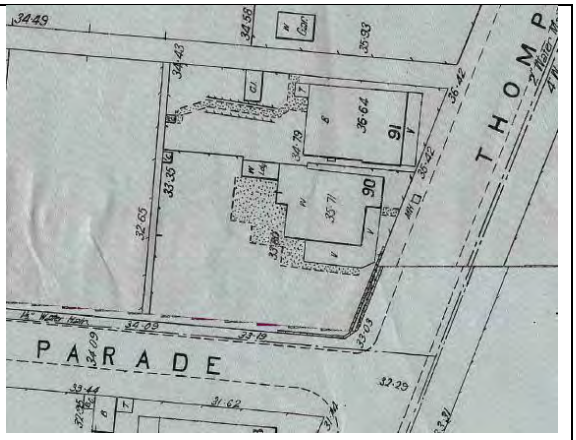
13. Limestone Feature(s), 85 Solomon Street

Why was the property identified for review?	Identified by heritage officer for review.
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Limestone Feature(s)
Existing LHS statement of Significance	Recommended for deletion 2010 - not extant
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	Historic aerial photographs show that the existing house and limestone retaining walls on the site were constructed between 1953 and 1965. Prior to this time the site was part of a large area of vacant land. This place was identified in the "Heritage Report on 19th century limestone walls and steps in Fremantle" as containing a retaining wall and steps. This document was used in the compilation of the original Municipal Heritage Inventory.
 Part of Map 10, showing limestone features at 85 Solomon Street, 19th century limestone walls and steps in Fremantle.	 Aerial photograph 1965 showing house at 85 Solomon shortly after construction.
Physical description	Single storey rendered brick Post-War era house with an undercroft garage and a hipped tile roof. The front garden is retained with a limestone block wall in a modern construction style.

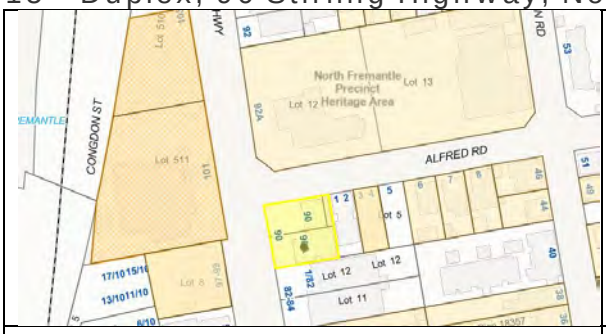
Comment	The limestone features are extant but they are of recent construction and like the house on site they have little heritage significance. This place should be removed from the Heritage List and the LHS management category should be changed to Historic Record Only.
Recommendation	Remove from Heritage List Change the LHS Management Category from Limestone features to Historic Record Only
Proposed Statement of Significance	85 Solomon Street, a single storey brick and tile Post-War era house with an undercroft garage and limestone garden walls has little heritage significance.

14 Limestone Feature(s), 90 Christina Parade

Why was the property identified for review?	Identified by officer
City of Fremantle Heritage List	Yes
Heritage Area	North Fremantle Heritage Precinct
Local Heritage Survey	Yes
Management Category	Limestone feature(s)
Existing LHS statement of significance	There is no 90 Christina Parade. The limestone feature is associated with the house at 90 Thompson Road and has been included in that entry. This entry to be deleted.
Background	Recommended for deletion as part of an earlier review but not formally adopted by Council.
History	There is a wall on the corner of Christina Parade and Thompson Road on a Metropolitan Sewerage plan dated 1940. The wall on the corner with Thompson is the only limestone wall in Christina Parade identified in the "Heritage Report on 19th century limestone walls and steps in Fremantle,1986" which was used to compile the original MHI in 2000. This wall in located at 90 Thompson Road. .

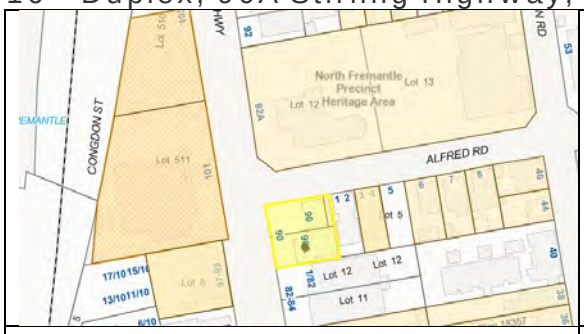
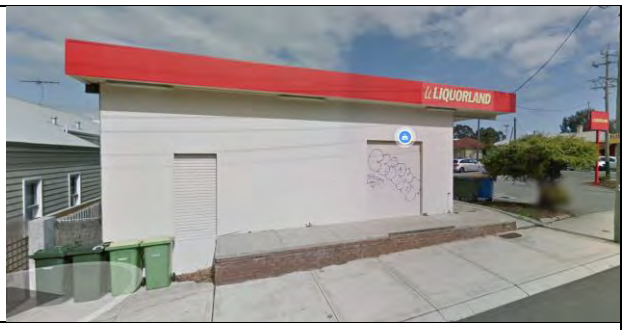
 Part of Map 3, showing limestone features at the corner of Christina Parade and Thompson Road, 19th century limestone walls and steps in Fremantle.	 Metropolitan Sewerage Plan 2027, 1940.
Physical description	A 1800mm high capstone limestone boundary wall constructed in a traditional squared random rubble bond with a weathered top.
Comment	There is no place with the address 90 Christina Parade. It is likely that the address was incorrectly entered in the original MHI and it should be 90 Thompson Road instead. 90 Thompson Road is separately included on the HL & LHS as House and Limestone Features and contains a weatherboard cottage (c. 1905) with a high limestone retaining wall on Christina Place and Thompson Road boundaries. Inherit Number 22509
Recommendation	Remove from Heritage List Retain the heritage listing for 90 Thompson Road and update.

15 Duplex, 90 Stirling Highway, North Fremantle

	
Why was the property identified for review?	Identified by officer as demolished place that has not been removed from Heritage List.
City of Fremantle Heritage List	Yes
Heritage Area	North Fremantle Precinct
Local Heritage Survey	Yes
Management Category	Historical record only
Existing Statement of significance	

Background	Inherit place record includes note: 'Demolished'
History	There was a traditional corner shop and house on this site. It was demolished in the 1970s for the construction of the current commercial building.
Physical description	Single storey, late nineteenth century commercial building
Statement of Significance	Late nineteenth century building with little to no heritage significance. The site is unlikely to contain undisturbed archaeological material.
Comment	No evidence of original shop and house on site.
Recommendation	Remove from Heritage List

16 Duplex, 90A Stirling Highway, North Fremantle

	
Why was the property identified for review?	Identified by officer as demolished place that has not been removed from Heritage List.
City of Fremantle Heritage List	Yes
Heritage Area	North Fremantle Precinct
Local Heritage Survey	Yes
Management Category	Historic record only
Background	Inherit place record includes note: 'Demolished'
History	There was a shop and house on this site. It was demolished in the 1970s.
Physical description	Single storey, late nineteenth century commercial building
Statement of Significance	Late nineteenth century building with little to no heritage significance. The site is unlikely to contain undisturbed archaeological material.
Comment	No evidence of original shop and house on site.
Recommendation	Remove from Heritage List

17 Limestone feature(s), 285 High Street, Fremantle

Why was the property identified for review?	Identified by Heritage officer as having been legally demolished
City of Fremantle Heritage List	Yes
Heritage Area	No
Local Heritage Survey	Yes
Management Category	Limestone feature(s)
Existing statement of significance	Use of limestone as part of the Fremantle landscape gives the City coherence and character. Limestone walls are one commonly encountered example of use of this stone as a building material, most of them dating from the 19th century and early years of the 20th century. It is not known how old this particular wall is.
Background	Heritage assessment prepared as part of DA0316/22 supports demolition as Limestone features do not meet the threshold for inclusion on Heritage List.
History	Historical aerial photos show that 285 High Street was developed with a single house between 1953 and 1956. The place was identified in "Heritage Report on 19th century limestone walls and steps in Fremantle,1986" which was used to compile the original MHI in 2000. The limestone walls were identified as the side boundary fences. In 2022 planning approval was given to demolish the house and retaining walls because further heritage investigation found that they had little heritage significance.
Physical description	Demolished
Comment	Removal from the HL recognises the council decision to allow demolition.
Recommendation	Remove from Heritage List Change the LHS Management Category from Limestone feature(s) to Historic Record Only
Proposed statement of significance	285 High Street, the site of a Post-War era fibrous cement sheet clad timber framed house with a hipped tile roof and limestone retaining walls has historic interest only.

18 Fremantle TAFE, 11-15 Grosvenor Street, Beaconsfield

Why was the property identified for review?	Identified by Heritage officer as having been legally demolished
City of Fremantle Heritage List	Yes
Heritage Area	Suth Fremantle Heritage Area
Local Heritage Survey	Yes
Management Category	Level 3
Existing statement of significance	Social significance to the local community as a tertiary educational facility.
Background	DA0549/22 approved for the demolition of all buildings on site after heritage assessment found that the place had little heritage significance.
History	Fremantle TAFE, a ten acre campus of 11 educational buildings set in landscaped grounds was constructed in 1968 to replace the Fremantle Technical School. The design by Hobbs Winning & Leighton shows the influence of the Post-War International Style The complex was modified and refurbished in the 1970s and 1980s and large buildings added in 1981 and 1983. After a major restructuring of technical education in W.A. in 2016, Fremantle TAFE was closed, and the buildings vacated. The site remained vacant and was badly vandalised over the next few years. Demolition approved in 2022 and the site was cleared of buildings.
Physical description	Vacant site. The place has low archaeological potential due to the extent of ground disturbance.
Comment	Removal from the HL recognises the council decision to allow demolition.
Recommendation	Remove from Heritage List Change the LHS Management Category from Level 3 to Historic Record Only
Proposed statement of significance	11-13 Grosvenor, the site of the Post War International style Fremantle TAFE, has historic interest but has little heritage significance as all buildings and structures have been demolished.

HOCKING
HERITAGE +
ARCHITECTURE

Stewarts & Lloyds (fmr), 140 Stirling Highway, North Fremantle

Heritage Assessment

Introduction

Stewarts & Lloyds (fmr), located at 140 Stirling Highway, North Fremantle was constructed 1956/57 to designs by architect Geoffrey Summerhayes. The property has stood almost unaltered on its current location and has become a local landmark along this section of Stirling Highway. The double storey building is of steel frame construction with reinforced concrete panels and a regular pattern of fenestration along both the north and south elevations.

The following heritage assessment has been based on the guidance prepared by Department of Planning, Lands and Heritage for the assessment of places for inclusion in Local Heritage Surveys.

The heritage assessment concludes that Stewarts & Lloyds (fmr), demonstrates a Category 2: Considerable Significance and is of importance to the local area.

Place Name	Stewarts & Lloyds (fmr)
Place Number (InHerit)	N/A
Other Reference Numbers	
Address	Lot 2 (140) Stirling Highway, North Fremantle DP 26695
Location Description	Cnr McCabe Street, on the eastern side of Stirling Highway Forms the northern boundary of North Fremantle with the north boundary of the site having a visual relationship with Town of Mosman Park.
Other Names	Stewart and Lloyds Administration Offices Tubemakers Australia OneSteel
Place Type	Group of buildings incorporating office building and warehouse
Primary Local Government	City of Fremantle
Titles and Survey	C/T 1257/643, Lot 2 Diagram 26695
GIS Coordinates	32.022527mS, 115.754016mE
Use	Original: Office and warehouse Current: Gym, vacant office and warehouse
Construction Materials	Steel frame Reinforced Concrete Glass Brick Asbestos roof cladding (now replaced)
Architectural Style	Post War International Defined by Apperley, Irving and Reynolds as "cubiform shapes clad with curtain walls. Emphasis on large glass areas. Plain smooth wall areas with areas of contrasting textures.

	Steel and reinforced concrete frame allowed height and to support glass curtain walls. Key practitioners included Reginald Summerhayes & Associates
Historic Themes	Demographic Settlement and Mobility: Depression and Boom Transport and Communications: Rail and light rail transport Occupations: Manufacturing and Processing People: Innovators
Values	
Aesthetic	The place is representative of the Post War International architectural style resulting in a distinctive cubiform shape with regular rhythm of fenestration along its key elevations. The place has been little altered and clearly demonstrates its original design intent. Due to its distinctive architectural form and its elevated position, the place demonstrates local landmark values along this section of Stirling Highway.
Historic	The place has historic value for its association with the development of industry in North Fremantle in the period following World War Two when local manufacturing was widespread. The location of the factory alongside the railway line demonstrates the importance of this relationship to the success of the manufacturing industry in accessing materials and distribution of finished goods. The place has historic value for its association with prominent architect Geoffrey Summerhayes, one of the early proponents of the principles of the Bauhaus school in Western Australia. The place is an excellent intact example of the principles of the Bauhaus movement as practiced by Geoffrey Summerhayes and is associated with the post war period of experimentation. The place is closely associated with manufacturing firm Stewarts and Lloyds established in Fremantle since early 20th century. The functions of this place continued until the end of the 20th century under different company names.
Social	The place has social value for the management and staff of Stewarts and Lloyds and the subsequent companies who worked at the premises from 1957 until the late 1990s manufacturing specialists products for Western Australian industry. The place has social value for North Fremantle as its presence since 1957 has contributed to the community sense of place through its dominant presence in the townscape and as an employer for many local residents.
Research	----------
Statement of Significance	Stewarts & Lloyds (fmr), built in 1956/57 in the Post War International style has cultural heritage significance for the following reasons;

- The place is a fine intact example of the Post War International architectural style with its distinctive cubiform shape and regular rhythm of fenestration along its key elevations;
- The place has historic value for its association with prominent architect Geoffrey Summerhayes, one of the early proponents of the principles of the Bauhaus school in Western Australia;
- The place is closely associated with steel tube manufacturing firm Stewarts and Lloyds established in Fremantle since early 20th century. The functions of this place continued until the end of the 20th century under different company names;
- Due to its distinctive architectural form and its elevated position, the place demonstrates local landmark values along this section of Stirling Highway; and,
- The place has historic value for its association with the development of industry in North Fremantle in the period following World War Two.

Documentary Evidence

The buildings located at 140 Stirling Highway constructed c1957 demonstrate the growth of the manufacturing industry in Western Australia in the post-World War II period. The radically different style of this building also demonstrates a prevailing mood in the community of breaking with past traditions and embracing new techniques, materials and stylistic influences.

North Fremantle had always been closely associated with industry from the earliest days of colonial settlement. Its location alongside the river with direct rail access to the port made it a logical site for industry. Workers lived in nearby cottages often interspersed amongst the factories. The settlement had its own sense of identity and was gazetted as a separate municipality in 1895 before amalgamating with the City of Fremantle in 1961.

The Commonwealth Government owned large portions of land north of North Fremantle as part of the defences established during World War I and II. Other large parcels of land in the vicinity were University of WA endowment lands, which had limitations on development.

Figure 1 Portion of Cancelled Public Plan North Fremantle 18A cancelled 1970, Courtesy SROWA cons_5698_item_0655.

An aerial photograph of North Fremantle in 1947 shows the subject site between the developed areas of North Fremantle to the south and the large tracts of undeveloped land to the north.

Figure 2 Aerial photograph 1947. Courtesy Landgate

From the early 20th century, Stewarts & Lloyds Pty Ltd had premises in Price Street, South Fremantle[1] where they manufactured steel pipes and wrought iron. The company had administration offices in 959-961 Hay Street Perth designed by architect Reginald Summerhayes in 1932.[2]

Stewarts & Lloyds were an Australian wide company with their origins in a UK company of the same name. The company was a member of the Tubemakers of Australia Limited group of companies, and manufactured products such as steel pipes, boiler and stay tubes and water bore casing.

In 1905, Stewarts and Lloyds had an office in Perth, Queen Street Fremantle and Kalgoorlie. By 1910 they had premises in Price Street Fremantle on the corner of Beach Street (later Marine Terrace).[3]

1 *The West Australian,* 24 May 1904, p. 5.
2 Wise's Post Office Directories, 1949. See SLWA image 095528PD stating Summerhayes designed the building for Stewarts and Lloyd.
3 *The West Australian,* 24 May 1904, p. 5.

In 1912, Stewarts and Lloyds (Australia) Pty Ltd. had an office at 886 Hay Street Perth which operated by carrying stocks in the premises at Fremantle and Kalgoorlie or various merchants which carried their stocks. The Sunday Times 13 October 1912 stated 'Messrs, Stewarts and Lloyds (Australia) Ltd. are the sole contractors to the Western Australian Government for tubes and fittings, and their manufactures are also very largely used by all the leading mines and agriculturalists'.[4]

In 1932 a new building was erected for Stewarts and Lloyds (Australia) Ltd in Hay Street Perth. The Architect was Reginald Summerhayes.

Figure 3 Stewarts and Lloyds, 1932, SLWA online image 095528PD

Reginald Summerhayes (1897-1965) worked in partnership with his father, Edwin Summerhayes (1868-1944).) in his practice, E. Summerhayes and Associates. Reg Summerhayes continued the practice following his father's death and was subsequently joined by his son, Geoffrey Summerhayes in 1953. The three generations of architects in the Summerhayes family designed buildings for a wide range of functions and their many buildings reflect the development of building styles in Western Australia across the twentieth century.[5]

During World War Two, Stewarts and Lloyds undertook shell case manufacturing as part of the war effort and in the post war period their business needed larger premises to accommodate their expanding manufacture. Stewarts and Lloyds like many businesses related to construction and agriculture were subject to unprecedented demands because of the economic growth and population boom in the 1950s.

4 *The Sunday Times,* 13 October 1912, p.6.
5 Taylor, Dr John J., Reginald Summerhayes (1897-1965), Western Australian Architect Biographies, https://repository.architecture.com.au/download/chapters/wa-chapter/wa-biographies/rsummerhayesforaia-wa-3.pdf, accessed June 2020.

The land in North Fremantle would have been attractive for new development with its access to the rail line for workers and for movement of supplies and products. The site enabled the two sections of the company, the factory and the administration offices, to be located at one site.

Figure 4 Advertising for Stewarts and LLoyds, The Western Mail, 16 December 1954, p. 57.

In July 1956, plans were prepared for Stewarts & Lloyds for a proposed new two storey office building in Stirling Highway North Fremantle for Stewarts & Lloyds. The plans were prepared by Summerhayes & Associates. By 1957 the new contemporary office building was constructed. A series of promotional photographs were taken from October 1957 of the interior and exterior were likely to have been promotional images for Stewarts and Lloyds, and for the architects. Notation on the negatives held by the State Library of WA include the description, Horner Building and Equipment, who may have been the builder.

These photographs suggest that the building was a feature for the architects and the occupiers to promote and celebrate. At this time there were few buildings of this style in Western Australia.

State Library of Western Australia

Figure 5 Stewarts and Lloyds, 1957, SLWA online image 239,187PD

State Library of Western Australia

Figure 6 Stewarts and Lloyds, 1957, SLWA online image 239,195PD

State Library of Western Australia

Figure 7 Stewarts and Lloyds, 1957, SLWA online image 239,191PD

State Library of Western Australia

Figure 8 Stewarts and Lloyds, 1957, SLWA online image 239,189PD

State Library of Western Australia

Figure 9 Stewarts and Lloyds, 1957, SLWA online image 239,190PD

It is probable that the design of the building was the responsibility of Geoffrey Summerhayes who had joined his father Reginald's practice in 1953 after studying in Western Australia and Princeton, USA. One commentator of Geoffrey Summerhayes work states,

> *his best known works from his varied practice are his 'white box' houses and commercial buildings. … Although they seem like 'white boxes' at first impression, these buildings always contain highly developed , even tense asymmetries in the planning and spatial arrangements and great textural richness such as the use of white-painted off-form concrete. His work always has powerful public-private delineations and a controlled openness to the sun, light and space of WA.*[6]

The Stewarts and Lloyds administration offices is an early expression of this stylistic quality. Summerhayes design style is likely to have been influenced by his studies at Princeton USA in 1951 and 1952, which was a hub for European academics and intellectuals in the post war period.

The dominant design ethic of these European émigrés was that of the Bauhaus school, founded in 1919 by Walter Gropius in Germany. As described by Michele Kolb, daughter of Otto Kolb one of the key figures in the 'New Bauhaus'.

> *The school believed in teaching a new way of seeing in which the character of a building was perceived as the totality of its*

6 Anderson, Simon 'Geoffrey Summerhayes', *The Encyclopaedia of Australian Architecture*, ed Philip Goad and Julie Willis, Cambridge University Press, 2012, p.667.

> *parts. The key principle of the new architecture—"form follows function"—combined architecture and engineering, its principal mission a radical simplification that would provide an architecture for the masses. The core principles are that construction should be rational, functional, honest and simple in form and should embrace emerging technology.*[7]

Additional land comprising of Lot 312 was purchased by Stewarts & Lloyds in 1962 and the factory units to the north were built shortly after. Aerial photographs show that the factory units were not present in 1961.

A photograph of the building in 1965 shows the new factory building to the rear and no change to the administration offices.

State Library of Western Australia

Figure 10 Stewarts and Lloyds, 1965 SLWA online image 227268PD

The City of Fremantle building files record that only relatively minor additions or alterations have been undertaken to the administration building since its original construction. In 1963, a new covered area was constructed, and in 1964 a new storeroom. [8]

Additional plans were prepared in 1969 for further additions to the warehouse for bays 4 and 5 and a concrete strip. Construction was undertaken by Atlas Builders.

Proposed plans for additions to the office building were designed and prepared by Summerhayes & Associates in February 1972 and were

7 Kolb, Michele 'Princeton Bauhaus Modern', *Princeton Magazine* http://www.princetonmagazine.com/princeton-bauhaus-modern/ accessed June 2020.

8 City of Fremantle Building Files, provided by the City of Fremantle. Plans dated 1960-1972, held by the Curtin University Library indicate a long association between Stewarts and Lloyds and Summerhayes. Messrs Stewarts & Lloyds (Distributors) Pty Ltd, North Fremantle, 1960-1972, File ID CUL00132/4, Summerhayes Architecture Collection. Curtin Library http://espace.library.curtin.edu.au/R?func=dbin-jump-full&local_base=era01summerhayes&object_id=264173

approved by Fremantle Council in November 1972. The builder was D. J Andrews.

As a commercial site during 2002 owners OneSteel sought advice regarding rezoning for residential subdivision and development. Plans showing multiple dwellings were designed and prepared by Hillman Architects were submitted to the City. The City of Fremantle held a workshop, however these plans were not officially lodged or approved.

The former administration building for Stewarts and Lloyds has subsequently been used by a variety of tenants, separate to the factory space.

Landgate 1961

Landgate 1965

Landgate 1977

Landgate 2020

Integrity/authenticity	Integrity: Moderate Whilst much of the space in the office building is now vacant, it has been used as offices until recent times and as a dance studio. The uses introduced stud partitioning which can be removed and the original office use is capable of being reinstated. Authenticity: High The asbestos roof has been replaced but the majority of the fabric is original. Where repairs have been undertaken the introduction of new materials has not diminished the aesthetics of the building.
Physical Description	Stewarts & Lloyds (fmr) is located on the eastern side of the main road in an elevated position that emphasises its presence in the streetscene. The building is further setback from the pavement behind a small area of lawn with a large pine tree. The retaining wall is of concrete construction with original steel low fence enclosing the garden. The return frontage of the building extends along McCabe Street with the retaining wall and steel fencing continuing along this boundary line. Concrete steps with steel tubular handrails are positioned approximately mid-way along the McCabe Street boundary. The 140 Stirling Highway site also contains a large warehouse to the immediate north of the office building, connected to the office building at ground level by a brick wall which has now been painted. The warehouse building presents in three gabled bays with brick construction to the lower 2/3 of the elevation and klip-lok metal cladding to the upper third. The metal clad roofs contain dormer style skylights to the southern planes of each roof.

The warehouse was constructed a couple of years later than the office building with aerial photographs from 1961 showing two roofs to the warehouse and a third having been added by the 1970s.

A third smaller building which can be seen on the McCabe Street frontage completes the main phase of development on the site. This small building demonstrates similarities to the office building in terms of functional design, brick colour and window style. This building contained the staff changing rooms and eating areas.

Office Building

Stewarts & Lloyds (fmr) is a long rectangular building that demonstrates rhythm and symmetry to its main elevations. The functional building is divided into bays with the majority of the office accommodation on the upper level with ancillary uses to the lower level. Parking was also incorporated at ground level with the office section above. When the place was originally constructed there were only four bays to the east of the main entrance, by 1974 this had been increased to eight bays. The additional four bays have been constructed in the same form as the original utilising the same palette of materials.

From Stirling Highway, the building presents with a somewhat blank elevation. A smooth concrete wall with no openings dominates the upper section of the elevation. the presence of the upper section is further emphasised by the fact it hangs over the ground floor, supported on steel framing. The ground floor façade is predominantly blank rendered elevation enlivened only by non-original timber framed French doors and a row of highlight windows. Originally the ground floor section was of a pale liver coloured brick construction which has subsequently been rendered and painted.

The north and south elevations present with a certain amount of symmetry to each other though are not identical. The south elevation is the principal elevation, containing the prominent double height glazed entry element. The windows to the entry statement are aluminium framed, predominantly square in shape except for the top row which are rectangular in shape. The windows that are operable are discernible externally by their wider frame. Glazed narrow returns extend the full height of the feature. The glazed wall allows for a high degree of visual penetration into the interior of the building and allows the internal statement staircase to almost form part of its external aesthetics.

The remainder of the south elevation presents with two main characteristics: continuous windows to the upper section together with textured cement panels and a recessed lower section which is mainly plain brick wall. This presentation and rhythm of openings is also mirrored on the north wall. The original presentation of the building was a palette of muted tones including pale liver brick, brownish hues to the textured panels and white/cream end walls. Whilst elements of this colour palette have been retained, more recent users have introduced bright colours to the brick walls, the retaining walls and some of the textured panels have been obscured with signage. These are all easily reversible changes and the original palette could be reintroduced.

The north elevation presents more in its original form with the original colour of the brickwork having been retained and due its lack of public visibility there is no signage along this elevation. Two staircases provide external access to the upper level of the building, each with open treads and tubular steel handrails. The introduction of the doors at the upper level interrupts the

rhythm of windows but creates symmetry due to their location and opposite orientations.

A lean-to has been constructed at ground level towards the front section of the building along the north elevation.

Covered parking has been incorporated under the eastern section of the office building with access between the steel posts.

Aluminium framed glazed doors open into a large double height foyer which is dominated by the timber and steel staircase that dog legs around the window opening out to a large landing on the upper floor. On the ground level the accommodation is quite basic with the foyer leading into a dark hallway with changing rooms and bathrooms to the eastern side of the hall and an area which is now used for a gym to the western side of the hall.

The steel framework is visible in the bathrooms with the space divided into three sections following the spacing of the steel framework. The external walls are painted brickwork with the other walls being stud partitions with plasterboard. The floor is concrete covered with carpets and tiles in the bathroom area. The ceiling is concrete panel with surface mounted electrical conduits.

Again the steel frame construction is clearly visible in the gym space with gym equipment attached to the beams. The walls are painted brick work with a change in brick form in the south western corner of the room. natural light enters the gym by way of the high lights that extend around the room and the French doors that have been inserted into the west wall. The ceiling is cement panel. There are full height glazed doors and windows in the west wall which connect through to the lean-to area which also provides access to the exterior of the building.

In recent times, the upper level has been used as a dance studio in the eastern half of the floor and office/sales area to the western section. The former dance area contains a a large open room with stud partitioning erected to form a series of smaller spaces towards the eastern end of the space. The ceilings are all plasterboard replacements and the floors are concrete. The original open plan nature of the space can easily be reinstated.

The windows characterise the space allowing an abundance of natural light into the rooms. The hardware to the windows is varied with some original handles remaining extant albeit the majority have been changed. The walls below the windows are timber veneer which have been papered over.

Double doors lead out into the landing area which has been divided into a series of small office spaces, kitchenette and change rooms, some with glass partitions and others with stud partition walling. The office section of the floor has been divided into irregular shaped spaces with stud partitioning to make a series of separate offices and meeting rooms which can easily be removed.

Warehouses

The warehouse are of brick and steel construction forming one large open space. The open nature of the space is interrupted only by the supporting steel framework. There are high level windows in the south wall and skylights in the roof creating a high level of natural light. Each of the three gables to the Stirling Highway frontage also contain a single window each. The north and south walls are of steel frame construction with corrugated metal cladding and incorporate the sliding access doors. The north and south

	walls both contain brick sections with klip-lok corrugated metal upper sections. The pitched roof is clad with corrugated iron sheeting. Staff Amenity Building The amenity building is a separate building to the warehouse but has been connected by a metal and perspex roof which provided covered seating space. The building is of pale brick construction with aluminium framed windows. The building is in poor to fair condition with much of the ceiling paint peeling. The floors are concrete, walls plastered and painted and the ceilings plasterboard to the entrance room. other walls are painted brick or brick left with its original finish. The ceiling in the meeting room contains acoustic tiles which has been littered with fluorescent lighting, fans and vents. The change rooms follow a similar presentation to the other rooms in the building with concrete floor and unpainted walls. The plasterboard ceiling contains egg crate vents and the paint is peeling. Metal lockers on concrete bases are positioned through the change rooms. The showers remain extant with terracotta tiled floors, mushroom brown tiled walls and the shower cubicles were constructed from terrazzo panels.
Condition	Office Building Fair to good. The building largely presents in its original state of construction albeit some repairs have been made but these do not impact on the design intent of the place. The roof cladding has been replaced and there are numerous signs of damage to the fabric including deteriorating concrete, broken eaves lining and rotting timbers to the window sills. Internally ceilings have been replaced to the upper level spaces, the changing facilities are largely original. On the whole the interior spaces present in a good condition. Warehouse Good condition, graffiti to external walls Amenities Building The building seems little altered from its original construction and appears to be in a good condition. The brickwork appears in sound condition. The damage to the building is largely superficial with paint to all the ceilings is peeling which may indicate issues with the roof or general lack of ventilation in the spaces – no inspection of the roof was made. The fittings to the bathrooms date from the 1960s. Whilst the fittings themselves are not in a poor condition they are unlikely to meet the current BCA requirements.
Comparative Evidence	Places identified of heritage value in the inHerit database maintained by the State Heritage Office reveals 25 places of the Post War International style included on the State Register of Heritage Places. Of these places there are many which have minimal comparison to Stewarts & Lloyds (fmr) because of their use or scale. Those most directly comparable are the following. Subiaco Theatre Centre (former Civic Hall) (1957) Architect Peter Parkinson, of F.G.B. Hawkins and Desmond Sands, designed Subiaco Theatre Centre, the former Civic Hall constructed in 1957. He based his design of the Civic Hall on Le Corbusier's 'Modulor', a proportioning system that combined the Fibonacci number system with the average dimensions of the human body. Le Corbusier's design theory hoped to produce an architecture in harmony with nature and the cosmos.

Subiaco Theatre Centre (Former Civic Centre) built in 1957. Image courtesy Heritage Council of WA

ABC Sound Broadcasting and Television Studios Perth (1960)
This building has undergone major alterations and additions but the front elevation facing Adelaide Terrace still demonstrates the clean lines of the Post War International style. It was designed by the Commonwealth Department of Works based in Melbourne.

ABC Sound Broadcasting and Television Studio following conversion to apartments, Image courtesy Google Maps

During the post war period, the State Government of WA undertook a major schools building program because of the population boom placing a strain on the existing facilities. The high schools of this period are predominantly two storey buildings and have a strong stylistic consistency, reflecting the Post War International style. Some examples which demonstrate the style are:

- Perth Modern School, East Building and the Gymnasium

- Applecross Senior High School (1958)
- Armadale Senior High School (1954)
- Kalamunda Senior High School (1962)
- Melville Senior High School (1961)
- Governor Stirling Senior High School (1956)

There are other notable buildings of this style identified in the inHerit database such as Perth Council House, Dumas House and Graham Flats in West Perth and Agnes Walsh Nurses Home in Subiaco, but these are of a large scale than Stewarts & Lloyds (fmr).

Residences from this period are more difficult to identify. The most direct comparison is to Geoffrey Summerhayes own house built in 1961 which clearly showed a similarity of design and materials. This residence is now demolished, as are many others of this period.

Summerhayes House (1961) courtesy Docomomo Australia website.

From the available information, Stewarts & Lloyds (fmr), is a rare example of modest office buildings built in the Post War International style that retains its original form and detail.

The degree of rarity is difficult to determine given that buildings are under-represented in heritage registers due to the difficulty of nominating places in close proximity to the present day.

Reference was made to the WA Branch of Australian Institute of Architects list of significant 20th century buildings and this currently includes only 11 places. Docomomo Australia has only 4 places identified from this period.

Parent / Child Places	----------

Listing Types and Status	No heritage listings
Images	See end of report
Construction Dates/Periods	c1957, c1973
Archaeology	The site has not been assessed for archaeological potential. The site is relatively undisturbed as the office building and associated warehouses have remained extant since the 1960s. Small structures in the south east corner have been removed and the area used for parking. As such there may be archaeological potential on the site associated with the early construction and use of the buildings.
Associations	Geoffrey Summerhayes Stewart and Lloyds
References	Anderson, Simon 'Geoffrey Summerhayes', *The Encyclopaedia of Australian Architecture*, ed Philip Goad and Julie Willis, Cambridge University Press, 2012. City of Fremantle Building Files, provided by the City of Fremantle. Kolb, Michele 'Princeton Bauhaus Modern', *Princeton Magazine* http://www.princetonmagazine.com/princeton-bauhaus-modern/ accessed June 2020. Landgate Aerial photographs, 1953-2019. Plans dated 1960-1972, held by the Curtin University Library indicate a long association between Stewarts and Lloyds and Summerhayes. Messrs Stewarts & Lloyds (Distributors) Pty Ltd, North Fremantle, 1960-1972, File ID CUL00132/4, Summerhayes Architecture Collection. Curtin Library http://espace.library.curtin.edu.au/R?func=dbin-jump-full&local_base=era01summerhayes&object_id=264173 State Heritage Office, Assessment Documentation for Place 4653 Subiaco Theatre Centre, by Stewarts & Lloyds, in Perth Best Architecture, A blog about Perth Architecture, Posted 2 February 2008, https://perthsbest.wordpress.com/page/30/ Taylor, Dr John J., Reginald Summerhayes (1897-1965), Western Australian Architect Biographies, https://repository.architecture.com.au/download/chapters/wa-chapter/wa-biographies/rsummerhayesforaia-wa-3.pdf, accessed June 2020. *The Sunday Times* *The West Australian* *The Western Mail* Wise's Post Office Directories, 1949. SLWA.
Owners	Private
Classification of Significance	Considerable: Category 2 Very important to the heritage of the locality

Zones and Elements of Significance

Zones of Significance

The site as a collective demonstrates cultural heritage significance for its style of buildings and their level of intactness, the period of development following WWII, the importance of industry following the war, the role the factory and office played in the local community and economy and more recently for the landmark status along this section of Stirling Highway.

The zones of significance are divided into Primary Significance, Secondary Significance and Intrusive Elements. In this instance, the built form of the site demonstrates the zone of primary significance and the remainder of the site due to its connection with the original use of the place is of secondary significance. There are no zones that are considered to be intrusive and have a negative impact on the assessed significance of the place.

Figure 11 ***Zones of Significance Plan***

Key for Zones of Significance

Primary Significance

Office and warehouse development c. 1957, c.1970s

Secondary Significance

Remainder of site

Intrusive

None

Site Boundary

Elements of Significance

Within the subject site of 140 Stirling Highway there are elements that demonstrate an individual level of significance. Elements of significance are also divided into Primary and Secondary Significance and Intrusive Elements.

On an individual basis the Office Building is of primary significance due to its rarity as a largely intact example of a Post-WWII International style building. Although the original building was extended in the 1960s, the additions were to the same design and construction and the original design intent of the building was not compromised as a result of the additional bays. Although roof cladding has been changed and additional signage has been added, the building still clearly represents the original architectural style.

The Warehouse building as an individual element is of secondary significance. The building is of simple utilitarian construction and clearly represents a warehouse development. An additional bay was constructed to the same designs in the early 1970s which complemented the original construction. Whilst the warehouse is largely intact, it does not demonstrate the same rarity value as the office building, hence the lower level of significance.

The Amenities Building is also of the Post-WWII International Style though on a smaller scale and is more simplistic in its presentation. The building architecturally connects with the office building through material palette but lacks the finesse and detailing of the main building and therefore demonstrates a secondary level of significance.

Figure 12 ***Elements of Significance Plan***

Key for Elements of Significance

	Primary Significance Office c. 1957, c.1964
	Secondary Significance Warehouse and Amenities Building
	Intrusive None
	Site Boundary

Images Office Building
Exterior

Figure 13 East elevation

Figure 14 Undercroft parking at east end of building

Figure 15 Steel frame construction

Figure 16 South elevation

Figure 17 Rhythm of fenestration

Figure 18 Concrete cancer in east wall

Figure 19 Steel frame construction and textured concrete panel

Figure 20 Steel frame construction and entrance

Figure 21 Paint brick ground floor walls with later decorative additions introduced by a previous tenant

Figure 22 Entrance

Figure 23 Steps to McCabe Street

Figure 24 Handrail and boundary fence along McCabe Street

Figure 25 Double height glazed entry feature

Figure 26 Glazed return of entry feature

Figure 27 View east along south elevation

Figure 28 West end of south elevation

Figure 29 Western end of south elevation

Figure 30 Cantilevered upper section creating covered walkway along west elevation

Figure 31 West elevation

Figure 32 North west corner

Figure 33 North west corner of north elevation

Figure 34 Damage to rear of west elevation

Figure 35 NOirth elevation

Figure 36 North elevation

Figure 37 Damaged eaves to north elevation

Figure 38 Introduced air conditioning units to north elevation

Figure 39 View east along north elevation

Figure 40 View west along north elevation

Interior

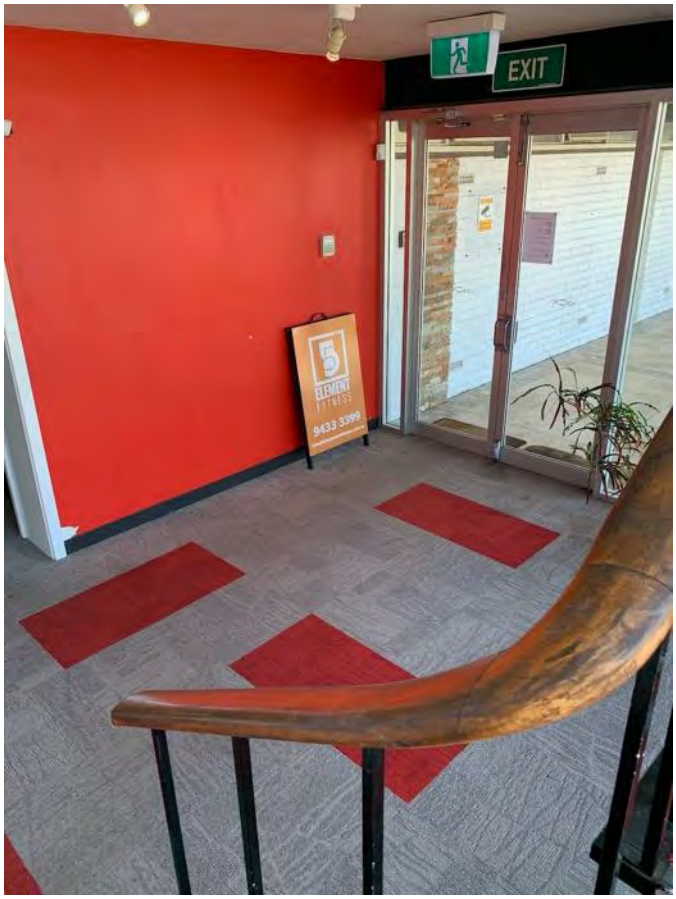


Figure 41 Entrance lobby

Figure 42 Staircase

Figure 43 View east along north elevation

Figure 44 View west along north elevation

Figure 45 Staircase

Figure 46 Staircase detail

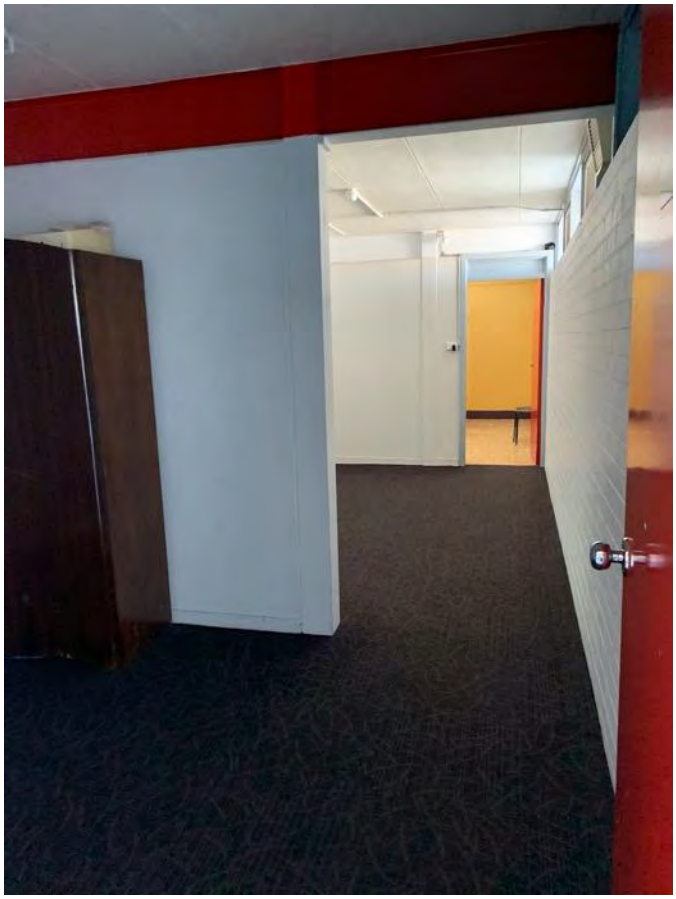


Figure 47 Ladies' changing rooms

Figure 48 Showers

Figure 49 Concrete panel ceiling

Figure 50 Finishes to change rooms

Figure 51 View west through Gym

Figure 52 West wall of Gym

Figure 53 North wall of Gym

Figure 54 South wall of Gym

Figure 55 Lean-to area and north wall of Gym

Figure 56 External Gym area adjacent to south wall of Warehouse

Figure 57 Textured panel above north door opening

Figure 58 Peeling paint to lintel above north door opening

Figure 59 Original office area to upper level converted to dance studio

Figure 60 Concrete floor

Figure 61 Regular pattern of fenestration to the upper level

Figure 62 View through office area behind the former dance studio

Figure 63 Timber veneer behind wall covering

Figure 64 Timber veneer wall in vent room

Figure 65 Window hardware

Figure 66 Window hardware

Figure 67 View west through former dance studio

Figure 68 Landing area

Figure 69 Office in landing area

Figure 70 Office in landing area

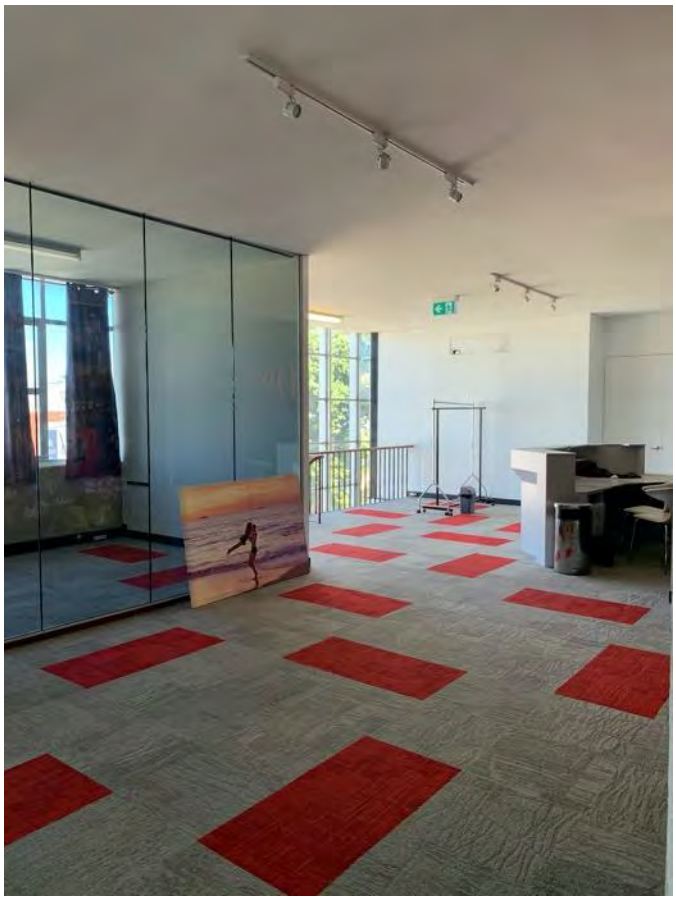


Figure 71 Landing area

Figure 72 Office area at western end of upper floor

Figure 73 Office area at western end of upper floor

Figure 74 Office area at western end of upper floor

Warehouse

Figure 75 View north east through warehouse from entry door

Figure 76 View west through warehouse

Figure 77 Roof construciton with skylights

Figure 78 View east through warehouse

Figure 79 Typical construction

Figure 80 Brick west wall

Figure 81 Steel tube hooks

Figure 82 View east through warehouse

Figure 83 View south from warehouse towards office building

Amenities Building

Figure 84 North elevation of Amenities Room

Figure 85 North elevation of Amenities Room

Figure 86 Staff room

Figure 87 Staff room

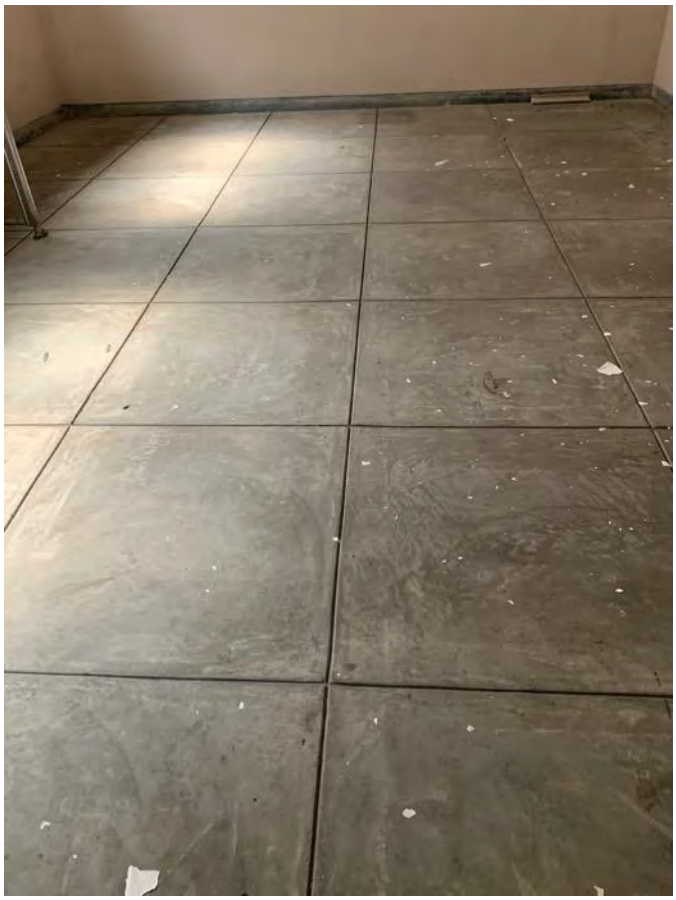


Figure 88 Concrete floor in staff room

Figure 89 Hallway

Figure 90 Meeting Room

Figure 91 Changing Rooms

Figure 92 Changing Rooms

Figure 93 Showers

Figure 94 Terrazzo cubicles

Figure 95 Bathrooms in Amenities Building

Figure 96 East elevation of Amenities Building

Figure 97 South elevation of Amenities Building

Figure 98 Aluminium framed windows to Amenities Building

Figure 99 South elevation of Amenities Building

SCHEDULE OF SUBMISSIONS – PROPOSED STRUCTURE PLAN – 11-15 GROSVENOR STREET, BEACONSFIELD (REF. SP0002/23)

1	Agency – Department of Health – Environmental Health Directorate

The DoH provides the following comments:

1. The development is required to connect to scheme water and reticulated sewerage and be in accordance with the Government Sewerage Policy 2019.
2. Any non-drinking water (i.e., water that is intended for irrigation from the proposed community bore scheme) must be managed to ensure it cannot be confused with or contaminate the drinking water supply. This requires satisfactory labelling of pipework and non-drinking outlets, and depending on system configuration, suitable backflow prevention arrangements. Further information on DoH's requirements regarding warning signs for non-drinking water schemes can be found here: https://www.health.wa.gov.au/-/media/Files/Corporate/general-documents/water/Recycling/Warning-signs-for-non-potable-water-schemes.pdf

Comments noted.

The proposed development would be connected to the district scheme water and sewerage networks.

2	Agency – Main Roads WA

Main Roads has reviewed the application and is unable to provide a recommendation at this point in time.

Please provide the following items an updated Transport Impact Assessment (TIA) prepared in accordance with Transport Impact Assessment Guidelines (August 2016) and updated electronic SIDRA Intersection files (.sip) in Version 9 to address the following:

Changes to External Networks

Wording to be added to Section 5.1.3 of the TIA outlining a signalised four-way intersection at South Street / Nannine Avenue is not currently supported by Main Rodas. Any future signalised intersection or intersection configuration will require approval from Main Roads.

Action

Section 5.1.3 of the TIA should remove reference to such modifications.

Redevelopment Trip Generation

The TIA as presented is uncertain and cannot be relied upon. The Trip Generation is underestimated and traffic surveys have not be provided to support the TIA's parameters and findings. The trip generation source and supporting survey are required to support a justification detailing why such a reduction should be accepted in this instance. Such a reduction in Trip Generation would require significant mode shift. Currently the TIA is proposing to use a residential trip rate of 0.4 and 0.6 vehicle trips per dwelling, which is far below that of 0.8 vehicle trips per dwelling corresponding to peak hour trip generation within WAPC Transport Impact Assessment Guidelines.

Trip Generation proposed in the TIA does not match the proposed Structure Plan development yield.

Action

1. Further justification demonstrating why the reduced rate is applicable in this instance. Supporting surveys and source reference to be provided.
2. Development yield to match the proposed land use and development yield proposed in the Structure Plan document.

Trip Distribution

More details are required to the assumptions used to determine traffic distribution, particularly for:

- Perth and Eastern Destinations
- Cockburn
- Rockingham and Southern Destinations; and
- Northern Destinations.

A review of the City of Fremantle's "Residents' Place of Work by Industry – All Industries" (based on 2021 Census data) supports the percentages in Table 7-3 for trips within Fremantle. Conversely, the forecasted percentages for Cockburn, Rockingham and other southern areas appear to be too high, with the Census data presenting figures well below the proposed cumulative 40% for these local government areas.

Action

Applicant to review the assumptions used to determine the traffic distribution and provide an updated TIA.

Resulting Trip Distribution

More details are required regarding the A.M. and P.M. traffic flow movements surrounding the site, including a breakdown of traffic volumes associated with the proposed structure plan of the site, Davis Park Precinct Structure Plan, and background traffic. Provide a stick network diagram to understand the traffic flow movements.

Action

1. Provide a diagrammatic stick network diagram demonstrating proposed trip distribution within the updated TIA.
2. Provide details regarding A.M. and P.M. peak movements within the updated TIA.

Background Traffic Growth

It is noted the Section 2.2.1 and Table 3 of the TIA prepared by GHD and dated February 2019 for the Davis Park Precinct Structure Plan to the north-east of the site provides a background of the traffic growth rates on three surrounding roads and uses Main Roads ROM24 plots for 216, 2021 and 2031. Based on the traffic growth rates on the surrounding road network, an annual growth rate of 1.5% was applied.

Action

1. Update the TIA to specify the growth percentages used in the traffic modelling. If Main Roads ROM data has been used, provide the date it was sourced and corresponding project number.
2. Update the TIA to clarify the level of background traffic growth applied to South Street approaches.

Scope of Assessment

Source a copy of the March 2023 traffic surveys to validate the numbers used in the TIA.

Action

Provide an updated TIA addressing the above comment.

SIDRA Analysis

Update the modelled layouts to accurately represent the site's geometry. The inclusion of the 30-metre short lane presenting an overtaking through lane for eastbound traffic is not appropriate and does not reflect the actual site's geometry for the South Street intersections. The measured lane width at both locations is approximately 4.5 metres, as opposed to the modelled width of 9.2 metres depicted in the model for both the through and right-turning lanes.

Action

Provide an updated TIA and modelling addressing the above comment.

Further justification is required for the added bunching on the eastern approach of the South Street / Lewington Street intersection. It is noted, Main Roads does not support the signalisation of the South Street / Nannine Avenue intersection.

If the bunching is appropriate in this location, why has bunching not been implemented at the adjacent South Street / Caesar Street intersection.

Action

Provide an updated TIA and modelling addressing the above comment.

Table 8-1 displays SIDRA results for the South Street / Lewington Street intersection indicating a performance improvement between the '2041 base' and the '2041 with development' scenarios. The improvement results from the added bunching in the '2041 with development' scenario, based on the assumption of an approved signalisation at the South Street / Nannine Avenue intersection.

For a more thorough assessment and to ensure a like-for-like comparison, the SIDRA analysis should model the '2041 with development' scenario without the added bunching. This will offer a more precise understanding of the proposed local structure plan's impact.

Action

Provide an updated TIA and modelling addressing the above comment.

Without the extra bunching, the analysis indicates a decline in performance for the minor arms at the South Street intersections. This is partly due to the structure plan and the Davis Park Precinct Structure Plan. The TIA should recommend measures to address this impact.

Section 8.2.6 of the TIA highlights the possibility of movement restrictions at the South Street / Caesar Street intersection as a remedial measure. For a comprehensive evaluation of the combined impact of both the Davis Park Precinct Structure Plan and the proposed structure plan, the modelling analysis should incorporate a scenario that evaluates the effects of the proposed movement restrictions on this intersection and its adjacent intersections.

Action

Provide an updated TIA and modelling addressing the above comment.

Proposed Connectivity

Consideration should be given to a direct access from the structure plan area to Lefroy Road, facilitated by any necessary turn lane treatments, in consultation with the local government. A direct access to Lefroy Road would enhance connectivity to Hampton Road and Carrington Street and assists in mitigating some of the delays from the South Street intersections.

Action

Matter to be considered by local government.

On-street Parking Provision

Consideration for on-street parking on both sides of Grosvenor Street from the existing perpendicular parking to be identified for removal / modification and replaced with a safer design such as parallel parking embayment. The current on-street parking configuration on both sides of Grosvenor Street presents a safety concern. When motorists reverse out of these bays into the traffic lane, there is conflict with cyclists and motor vehicles on Grosvenor Street.

Action

Matter to be considered by local government.

Comments noted.

In response to the above submission, the applicant has provided an updated TIA incorporating the requested revisions.

The TIA states that although no traffic counts are available for the time the Site was used by the TAFE, based on the approximate 17,500m^2 floor area of the buildings on the site and generation rates for a university (ITE Land Use Code 550), the Site was likely to have been generating approximately 1,750 vehicle trips per day prior to its closure.

The predicted vehicle trips to be generated by the proposed Structure Plan have been determined based on the rates outlined in Table 7-1, using the Western Australian Planning Commission (WAPC) Guidelines as a baseline. The generation rate for each unit type of dwelling in the multiple dwelling sites is less than the rate applied to the single residential dwelling sites; this is due to the smaller size of these dwellings and the limited parking likely to be proposed for these dwellings (likely one vehicle versus the two to three with the single residential dwelling, allowing for some on-street parking). The generation rates adopted for the single residential dwelling sites is the standard WAPC rate of 0.8 trips in the A.M. and P.M. peak. The TIA notes that the single dwelling sites may have single garages, so the actual generation rate may be below this adopted rate.

The lower rate for the unit type development is supported by the amount of parking to be provided within the site, which is expected to be in the order of 286 spaces for vehicles, allowing for double garages to be allocated to the single dwelling sites. The number of trips will be largely dictated by the number of vehicles parked on the site. The publication Trip Generation (ITE), indicates that for a Residential Condominium/Townhouse (Land Use 230) the number of trips expected per vehicle is in the order of:

- Daily 3.34 trips per parked car
- A.M. Peak 0.25 trips per parked car
- P.M. Peak 0.31 trips per parked car.

Using the P.M. peak rate and based on the number of parked cars, the number of trips in the P.M. is expected to be approximately 89 trips. Based on the 155 dwellings across the site, this equates to a trip rate of approximately 0.57 trips per dwelling in the peak hour. Over a full day this works out to be approximately 6.2 trips per dwelling for approximately 955 trips per day. The average rate proposed below for the entire site is approximately 0.6 trips per dwelling in the P.M. peak and 6 trips per dwelling for the entire day. Thus, the rates adopted below are appropriate.

Land Use	Unit	AM peak hour trip rate			PM peak hour trip rate		
		In	Out	Total	In	Out	Total
Single Residential	Dwellings	0.2	0.6	0.8	0.5	0.3	0.8
Units	Dwellings	0.1	0.3	0.4	0.25	0.15	0.4

Table 7-1: Typical Land Use Vehicle Trip Rates (adopted of WAPC Guidelines Volume 2 and adjusted)

There are 82 single residential dwellings plus up to another 73 unit-type dwellings on the two multiple dwelling lots in total proposed in the proposed Structure Plan.

From the vehicle trip rates in Table 7-1, the A.M. peak hour vehicle trips predicted to be generated by the proposed development are 23 inbound and 71 outbound respectively and the P.M. peak hour vehicle trips in and out are 59 and 36 respectively. This equates to 95 two-way vehicle movements in each peak. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

Given the scale of the LSP and that it is only residential, it is expected that all of these vehicle trips would be externally distributed onto the adjacent street network.

	AM peak hour trips			PM peak hour trips		
	In	Out	Total	In	Out	Total
Single Residential	16	49	65	41	25	66
Units	7	22	29	18	11	29
Total	**23**	**71**	**94**	**59**	**36**	**95**

Table 7-2: Trip Generation Summary

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
Cockburn	14%
Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads. These are also shown diagrammatically in Figures 7-1 and 7-2.

External Roads	AM peak hour trips		PM peak hour trips	
	In	Out	In	Out
South Street (West)	2	8	7	5
South Street (East)	6	18	14	8
Lefroy Road (East)	12	36	30	18
Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Figure 7-1: AM Peak LSP Traffic Flow Distribution

Figure 7-2: PM Peak LSP Traffic Flow Distribution

It is anticipated that through traffic within the Site would be limited, as the Site is not located on any through routes and does not provide a route between any key destinations.

Direct access from Lefroy Road would be provided to the R160-coded area, which would reduce the number of vehicle movements through the Site and via surrounding streets.

The perpendicular parking bays on Grosvenor Street are outside the scope of the proposed Structure Plan, though their removal or redesign may be explored further at any future subdivision or development stage.

3	Agency – Department of Communities

The Department of Communities in principle supports the proposed Beaconsfield TAFE Local Structure Plan (BTLSP). The Plan proposes the retention of trees as part of a continuous open space strip to provide connection to and across the site for pedestrian and cyclists. On-site amenity creates opportunities for higher density, integrated with the open space network. The BTLSP appropriately responds to these opportunities and is supported.

Proposed mixed density creates opportunity for a range of dwelling typologies that could address the housing needs of diverse households, including older residents wishing to downscale in the area. Communities urges the department to ensure that more detailed planning and design considers people of all abilities and provide for universal accessibility to open space, dwellings, and public transport. It will allow people of all abilities to access jobs and amenity.

It is noted that the Heart of Beaconsfield Masterplan indicates an opportunity for mixed use/community facility in the structure plan area. The department suggest that the BTLSP be amended to change the land use permissibility of the Residential R160 coded area to allow for flexibility in the use of the site. As such the lot could be developed with mixed use, including ground level community support use to the benefit of future residents of the BTLSP and larger area.

Comments noted.

The Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent the public open space (POS). This has driven community expectation that such use(s) would be provided for as part of the Structure Plan (see submission nos. 5, 8, 9, 22, 30, 49, and 51 below). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

Recommended modification:

Designation of 'café / restaurant' and 'community purpose' as additional uses over part of the R160-coded area adjacent the POS.

4	Agency – Department of Education

The subject site falls within the optional student local intake area (LIA) of Beaconsfield Primary School and Winterfold Primary School and within the LIA of Fremantle College. Given that the subject site is located directly north of Fremantle College, the Department must have due regard to the Western Australian Planning Commission's (WAPC) Operational Policy 2.4 – Planning for School Sites (OP 2.4).

The Department understands the Structure Plan has been informed by 'The Heart of Beaconsfield Masterplan' (Masterplan) which sets out the vision for the locality. Based on preliminary analysis, public schools within the LIA are expected to come under accommodation pressure into the future. Consequently, the Department has concerns the potential cumulative dwelling yield from the subject Structure Plan, Davis Park Structure Plan and the Masterplan's residential infill vision within the locality may impact on the student accommodation capacity and operations of the schools.

Notwithstanding this, the Department will continue to closely monitor the student enrolment demand in the locality as infill development progresses and it is imperative the City of Fremantle regularly engages with the Department to ensure adequate public schooling is provided within the municipality in accordance with OP 2.4. On this basis, the Department supports the proposal subject to future public schooling being considered in the City's future strategic planning processes.

The Department will also closely monitor the proposed road design and interface with Fremantle College located directly south of the site to ensure student, vehicle and bus requirements are considered.

Comments noted.

5	Owner / occupier – Beaconsfield

I would like to see more than just the public areas being green space. It would be good to have other public facilities like a café, shop etc., and ideally in the green space there would be a children's playground. This would make it somewhere where people want to go.

Comments noted.

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

The landscape report (Appendix B of the Structure Plan report) designates a nature-based play space in the large public open space area, just south of the internal access road.

6	Owner / occupier – Hilton

I am concerned about the density of the accommodation units as shown in the Fremantle Council Beaconsfield Masterplan. These blocks seem to be crammed in to maximise accommodation to the detriment of open / garden space. There appears to be only one open space area in the development parts of which may be taken up by drainage and water runoff facilities. It would seem to me that the design will encourage another, albeit more modern version of the "Beaconsfield Bronx" that the government has thankfully attempted to remove from the suburb.

Bruce Lee Oval, north of the development, is thankfully being retained for recreational use; however, rather than having some parking spaces (the old TAFE car park) and simple access to the oval, the old car park is also going to have apartments built on it.

Thankfully the eight-storey block that was originally proposed directly opposite Fremantle College (Freo Masterplan) has been removed; however, rather than leave it as open space that area too has been filled with three to five-storey apartment blocks.

The planning would seem to me to be still at a high level as it doesn't really address vehicle access to the site or parking. Presumably there will parking be under each block.

I understand that it is planned to establish approximately 155 dwellings on the site. May I ask how many people you imagine will live in the units. If you were to assume and average of three people per unit that is 465 in total. By my calculations that is one person to every 68 square metres, or a space of approximately eight metres by eight metres. Little wonder the planners haven't included much open space.

People need space to live comfortably. We are not animals that like being on top of each other, in each other's faces all the time. When this does happen, it causes problems. I'm sure the designers of this and other similar developments would not like to live in these spaces but are more than happy to plan for others to do so.

I ask that some compassion be expressed and thought given to those who may live on the site when finalising the design of this development.
Comments noted. The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building. The proposed Structure Plan allocates 16% of the Site as public open space (POS), which exceeds the standard 10% POS contribution required by State Planning Policy 3.6 – Infrastructure Contributions. Additionally, the Site is adjacent to Bruce Lee Oval, less than one kilometre from Hilton Park, and approximately 1.1 kilometres from Booyeembara Park, which provides a range of recreation options to residents. In terms of drainage function, both the western and eastern POS would accommodate infiltration areas, which would be grass-surfaced. These would occupy the same locations as the existing drainage basins, which would be filled with underground infiltration cells. In the case of the western POS, a shallow basin of approximately 486m^2 would remain to hold excess runoff for short periods in 1% annual exceedance probability (AEP) events. The Heart of Beaconsfield Masterplan does identify the Bruce Lee Oval car park as a potential development site; however, the proposed Structure Plan does not extend to this site. The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP. The proposed Structure Plan allocates 16% of the Site as public open space (POS), which exceeds the standard 10% POS contribution required by State Planning Policy 3.6 – Infrastructure Contributions. Additionally, the Site is adjacent to Bruce Lee Oval, less than one kilometre from Hilton Park, and approximately 1.1 kilometres from Booyeembara Park, which provides a range of recreation options to residents. Access to each lot would be determined at the subdivision and / or development stage, though it has been indicated that the R160-coded area would take access directly from Lefroy Road via the existing crossover. The R40-coded area would likely include four lots fronting Grosvenor Street that would take access directly from the street, while the remainder of the lots would take access from the internal road and laneways. Parking would be provided on each site in accordance with State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes). In the Fremantle local government area, the average household size is 2.2 people per dwelling.[1] If the proposed Structure Plan were to yield the estimated 155 dwellings, this would result in a population increase of approximately 341 persons. A rudimentary calculation using the site coverage and plot ratio areas prescribed under the Residential Design Codes (R-Codes) results in 70m^2 per person; however, this equates to an average dwelling size of 154m^2 across a range of housing typologies from small apartments through to detached single family homes. Research undertaken by the World Happiness Report in 2020 ranked global cities by current life evaluation, which is an evaluative measure of subjective wellbeing[2]. Perth was ranked 15th and has a population density of 346.7 people per square kilometre at the metropolitan level[3], while the City of Fremantle local government area has a population density of 1,780 people per square kilometre[4]. Unfortunately, accurate figures are not available for Beaconsfield at the suburb level; however, its low density would likely place it close to the metropolitan figure. Meanwhile, the population densities of the top ten ranked cities are: 1. Helsinki, Finland – 3,034 people per square kilometre[5] 2. Aarhus, Denmark – 774.2 people per square kilometre[6] 3. Wellington, New Zealand – 699 people per square kilometre[7] 4. Zurich, Switzerland – 4,798 people per square kilometre[8] 5. Copenhagen, Denmark – 2,434 people per square kilometre[9] 6. Bergen, Norway – 638 people per square kilometre[10] 7. Oslo, Norway – 3,855.2 people per square kilometre[11] 8. Tel Aviv, Israel – 8,683 people per square kilometre[12]

[1] https://www.abs.gov.au/census/find-census-data/quickstats/2021/LGA53430

[2] https://worldhappiness.report/ed/2020/cities-and-happiness-a-global-ranking-and-analysis/

[3] https://profile.id.com.au/perth/about?WebID=230

[4] https://profile.id.com.au/perth-south-west/about?WebID=120

[5] https://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/22_06_15_Helsinki_facts_and_figures_2022.pdf

[6] https://www.dst.dk/en

[7] https://www.stats.govt.nz/tools/2018-census-place-summaries/wellington-city

[8] https://www.bfs.admin.ch/bfs/en/home/statistics/regional-statistics/regional-portraits-key-figures/city-portraits/zurich.html

[9] https://www.dst.dk/en

[10] https://www.bergen.kommune.no/english/about-the-city-of-bergen/about-the-city-of-bergen#:~:text=Bergen%20lies%20on%20latitude%2060E,km%C2%B2%20(land)%20is%20638.

[11] https://www.ssb.no/en

[12] https://www.tel-aviv.gov.il/en/abouttheCity/Pages/CityinNumbers.aspx

9. Stockholm, Sweden – 5,260.1 people per square kilometre[13]
10. Brisbane – 967.4 people per square kilometre[14]

The significantly higher population densities of these cities demonstrates that urban density does not necessarily have a negative impact on wellbeing.

Recommended modification:

Replacement of "eight storeys" in Part 1.4.2.4 of the Structure Plan report with 'five storeys'.

7	Owner / occupier – Beaconsfield

I dispute the claim that traffic will have less disruption than when TAFE was operational. South street traffic, on weekends especially, is definitely at capacity and weekdays not far off. I also believe TAFE students would have used public transport in higher numbers than new residents will.

I also strongly insist on a decent allocation to social housing. "Affordable housing" is out of reach for aged care workers, artists, students, and those working in lower income industries. Affordable rentals in the area are now non-existent. HomesWest housing in area has been slashed. Steps need to be taken to ensure we retain a mixed demographic (not just middle and high-income earners) to retain the vibrancy of our community.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

8	Owner / occupier – Beaconsfield

Thank you for the opportunity to comment on the proposed Structure Plan for the former Beaconsfield TAFE site – 11-15 Grosvenor Street, Beaconsfield.

Please find my submission comments below, for consideration by the applicant, the City of Fremantle and the Western Australian Planning Commission, informing the decision-making process.

Executive Summary

- The Executive Summary does not state the higher-level vision for the plan, including any stakeholder and community consultation undertaken in formulating the vision. It is considered that this strategic context is required to inform meaningful consideration of the advertised material.

Part One: Implementation

- Part 1 Section 1.2 of the Structure Plan does not outline a Purpose Statement, necessary to informed consideration of the advertised material.
- Part 1 Section 1.4.2.4 specifies that a future Local Development Plan (LDP) may vary the maximum height for the proposed R100 site from four storeys to five storeys, and the proposed R160 site from five storeys to eight storeys, in accordance with specified maximums in The Heart of Beaconsfield Masterplan. This is inaccurate and misleading in the context of the local planning framework. The Heart of Beaconsfield Masterplan nominates a Social Node with family houses of one to two storeys in the proposed R100 area and mixed use/community facility and low to medium rise apartments to five storeys in the proposed R160 area.

Part Two: Explanatory Section

- In Part 2 Section 2, more detailed site and contextual analysis is required regarding people movement (pedestrians and cyclists), particularly given the site's proximity to public transport, activity centres, open space, services and schools. The compatibility, land use mix and density of the project within its established urban setting is fundamentally dependant on the ability for people to move safely and comfortably to, from, through and beyond the redevelopment site.

  This should include a comprehensive consideration of:

  - Current and planned movement networks

[13] https://www.scb.se/en_/

[14] https://profile.id.com.au/comseq/about?WebID=100#:~:text=The%202022%20Estimated%20Resident%20Population,967.4%20persons%20per%20square%20km.

- Quality, safety and how people experience movement, including active transport
- Identify opportunities for improvement of walking and cycling infrastructure in and around the site, including east and west along Grosvenor Street and the length of Lefroy Road. This should include the identification of opportunities to slow traffic, in accordance with stakeholder concerns identified during The Heart of Beaconsfield Master Plan project.

- Part 2 Section 3.1.4 does not include an assessment of the proposed change of land use from public purpose to residential, and its associated impacts on the locality, against the State Planning Framework. In particular:
  - How the proposed alternative use of land responds to the strategic objectives sought for the locality under the Central Sub-regional Planning Framework, including why public purpose uses are no longer required/suitable as part of the redevelopment of the site.
  - The response to the Context and Character principle of SPP 7.0 states that the Structure Plan *"proposes to transition the existing character of the Beaconsfield locality with the aspirational, high-density vision established in The Heart of Beaconsfield Master Plan."* This is incorrect and misleading. The Heart of Beaconsfield Masterplan establishes a vision for a Social Node, mixed-use / community facility, and low to medium density residential development of up to five storeys in this locality.
- Part 2 Section 3.1.4 does not include an assessment of the proposed land use density, and its associated impacts on the locality, against the State Planning Framework. In particular:
  - The response to the Context and Character principle of SPP 7.0 notes that higher density is proposed to be located along the southern boundary to minimise adverse impacts on private land. Additional assessment information is required regarding the ability of this part of the site to support higher density uses having regard to impacts on the adjoining public realm, including overshadowing, amenity and the pedestrian experience, as well as anticipated privacy impacts associated with overlooking sensitive land uses to the south including the school and childcare centre.
  - The site is located within the walkable catchment of a Neighbourhood Centre and should address consistency with SPP4.2. SPP4.2 states preferred residential types within the walkable catchment of a Neighbourhood Centre include low to medium-rise apartments/multiple dwellings and townhouses / grouped dwellings.
- Part 2 Section 3.1.6 does not address consistency of the proposed R100 and R160 development sites with The Heart of Beaconsfield Masterplan. These sites were identified for a Social Node, mixed-use / community facility, and low to medium density residential development of up to five storeys as part of The Heart of Beaconsfield Masterplan project.
- Part 2 Section 4.1.4 (Opportunities and Constraints)
  - Identifies dwellings along Lefroy Road will need to mitigate noise. It is unclear what noise is being mitigated. No noise impact assessment is included with the technical appendices and none of the included appendices reference noise.
  - Omits consideration of the movement network west of the site, particularly safe, legible, secure, and direct links for pedestrians and cyclists. This should be considered in the context of continuity of existing pathways along Lefroy Road and Grosvenor Street as well as safe crossing points to attractors west of the site.
- Part 2 Section 5.2.1 includes a statement identifying that The Heart of Beaconsfield Masterplan has informed the preparation of the Concept Plan. There is no assessment identifying how, particularly in the context of the land uses and densities proposed for Concept Plan Areas B and C.
- Part 2 Section 5.2.2 is misleading, omitting consideration of any consultation undertaken for those aspects of the Structure Plan that are inconsistent with The Heart of Beaconsfield Masterplan project, including the deletion of the proposed Social Node, mixed use/community facility and the elevation of low and medium density residential uses along Lefroy Road and Badham Close to higher densities.
- Part 2 Section 5.3.1 (Land Use and Urban Form) omits assessment of how the proposed redevelopment remains '*respectful of the existing character of the locality and embodying the future urban form envisaged by the THOB*', given that land use and urban form transitions away from inclusion of any social / community uses and elevates low and medium density residential uses to proposed higher densities.
- Part 2 Section 5.3.2 omits assessment of how locating the sites identified for R100 and R160 adjacent to existing roads will minimise the visual impact of bulk and scale, particularly given the topography of the site, the experience of pedestrians within the adjoining public realm, and the location of land uses sensitive to overlooking (school and childcare centre) directly to the south of these sites.
- Part 2 Section 5.3.6 (Movement and Traffic)
  - Having regard to the location of this site (refer Part 2 Section 2, above), it is considered the scope of this section should address a comprehensive Transport and Access Strategy, that includes a Transport Impact Assessment (TIA), not a TIA alone.
  - Direct access to / from Lefroy Road remains uncertain throughout the document. This information is fundamental to the safe movement of vehicles, pedestrians and cyclists for the full length of Lefroy Road and should form part of the Structure Plan assessment.
  - Pedestrian Movements and Cycle Network should be addressed with respect to the full range of uses pedestrians and cyclists are expected to access as a result of the proposed development (refer Part 2 Section 2 and associated comments, above).
  - Public Transport Links should address the legible and safe movement of pedestrians (including school children) to and from bus stops, including any improvements required/proposed to existing infrastructure

networks (footpaths, crossing points etc). The anticipated impact of the proposed development on existing networks should also be addressed in the context of the densities proposed for the site.

- The location of this site provides a unique and rare opportunity to facilitate greater movement towards active transport and away from vehicles in this area, particularly where higher densities are sought. This should be carefully considered and addressed by the Structure Plan material (refer Element 1 of Liveable Neighbourhoods regarding the option to live in the area without the need for a car).

Technical Reports

Some fundamental issues are raised concerning the findings of the TIA. In particular:

- Section 6.1 omits consideration of the following proximate Attractors / Generators:
  - Beaconsfield Primary School (a catchment school) located 600m west of the site.
  - The Department of Education site located 700 metres west of the site.
  - Christ the King Church located 400 metres west of the site.
  - The Lefroy Road Neighbourhood Centre located 500 metres east of the site.
  - The child care centre located opposite the site on Lefroy Road.
  - The regional sporting fields and playground located 700 metres east of the site.
  - The weekly Farmers Market at Bruce Lee Reserve to the immediate north of the site.
- Conflicting information concerning whether the development will be directly accessed from Lefroy Road (section 6.2.5, 7.5.4, 8.2.10). This information is fundamental to the safe movement of vehicles, pedestrians and cyclists for the full length of Lefroy Road.
- Section 7.3.2 identifies zero movement of vehicles in the A.M. and P.M. peaks along Lefroy Road to / from York Street / Carrington Street (and associated shopping, schools and employment opportunities). This finding requires further assessment and qualification.
- The Safe Walk / Cycle to School Assessment in section 7.7 does not reflect the catchment and broader schools accessible to students of the area. In particular:
  - White Gum Valley Primary School is not a catchment primary school. The catchment primary schools are:
    - Beaconsfield Primary School (800 metres) and
    - Winterfold Primary School (700 metres)
  - Additional schools within walking / cycling distance of the site commonly accessed by children in the locality include:
    - Hazel Orme Community Kindergarten (catchment school) – 600 metres
    - Christ the King (independent primary school) – 700 metres
    - John Curtin College of the Arts (selective high school) – 2.3 kilometres
    - Christian Brothers College (independent boys high school) – 3 kilometres
    - Fremantle Christian College (independent high school) – 3.3 kilometres
    - Seton Catholic College (independent high school) – 3.5 kilometres
- Section 7.7.6 requires assessment of crossing difficulties along Lefroy Road west of the site to Beaconsfield Primary School, including the absence of footpath connectivity and controlled crossing point(s).
- Section 7.7.7 requires updated assessment information having regard to likely school access and associated infrastructure. Additional information should also be included addressing known vehicle speed and safety issues along Lefroy Road.
- Section 8.3 Pedestrian / Cycle Networks includes no assessment information supporting the findings. A full assessment is required to support justification for the land use arrangement and density proposed for the redevelopment of the site.

Section 9 Safety Issues does not address existing speed and safety issues, including recent collisions west of the site along Lefroy Road. This assessment is required in the context of safe pedestrian and cyclist access to the full range of infrastructure and services likely to be accessed by residents of the site, including a catchment school. Assessment is also required with reference to direct vehicular access to the site (or otherwise) from Lefroy Road.

Comments noted.

It is considered that a vision statement is not necessary for the assessment of the merits of the proposed Structure Plan.

It is acknowledged that the purpose of the proposed Structure Plan is not clearly outlined in Part 1.2 of the Structure Plan report and it is recommended that this is modified to incorporate a more detailed explanation of its purpose.

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

Notwithstanding, the proposed Structure Plan is broadly consistent with the Heart of Beaconsfield Masterplan, though it does incorporate two areas identified for higher density apartment developments. It must also be noted that the Heart of Beaconsfield is a non-statutory document designed to illustrate a vision for the redevelopment of the precinct. Therefore,

the applicant is not bound by the Masterplan and may put forward a different plan for redevelopment of the Site. Similarly, the City is not bound by the Masterplan in its decision-making.

The Site was previously identified as a public purposes reserve under the Metropolitan Region Scheme (MRS) and Local Planning Scheme No. 4 (LPS4); however, it has been re-zoned through an MRS amendment and concurrent LPS4 amendment, which considered its change in use in detail. The amendments were gazetted on 10 November 2023, with the Site now zoned 'Urban' under the MRS and 'Development' under LPS4, which permits its development for other purposes.

Several submissions raised concerns about overlooking into adjoining properties on Badham Close and also over Fremantle College. However, there would be a separation of at least 17 metres between any future apartments and existing properties on Badham Close, which significantly exceeds the nine-metre separation distance required by the R-Codes between the habitable rooms / balconies of buildings of five to eight storeys and adjoining property boundaries. The band of mature trees on the road verge would also remain, affording a degree of screening.

Apartments adjacent to and overlooking schools are not uncommon and this is not a valid planning consideration.

Similarly, some submissions expressed concern that new apartments would overshadow their homes on Badham Close. However, under the provisions of the R-Codes, overshadowing is assessed at noon on the winter solstice (June 21), at which point any future apartments would not be overshadowing properties on Badham Close. Notwithstanding, it is estimated that there would be no significant overshadowing by approximately 8 a.m. on June 21, especially if the upper storeys of any future apartments were subject to additional setbacks.

In terms of the POS, overlooking from homes is considered a generally positive quality, as it tends to discourage antisocial behaviour, providing a sense of security. Unfortunately, overshadowing of some parts of the POS at various times of the day is unavoidable; however shade is often welcome, particularly in areas where people gather.

State Planning Policy 4.2 – Activity Centres (SPP 4.2) does state that Low to medium-rise apartments / multiple dwellings and townhouses / grouped dwellings are the preferred residential dwelling types in the walkable catchments around neighbourhood centres and recommends a density of R25+. However, SPP 4.2 also states as a policy outcome that:

"The density and diversity of housing in and around activity centres is maximised to improve land efficiency, housing choice and housing affordability, and assists with delivering the urban consolidation objectives and outcomes of the strategic planning framework for the applicable region."

It further states that:

"Medium and high-density housing should be incorporated within activity centre cores and frame areas and the walkable catchment(s) of activity centres to support the non-residential functions of the activity centre, provide opportunities to live near services and employment, establish a sense of community and increase activity outside normal business hours."

In view of the current housing climate, it is considered that higher densities, still taking the form of medium-rise apartments, are appropriate in this instance.

Presumably, the structure plan mentions opportunities to mitigate noise along Lefroy Road due to the volume of traffic that it carries (average 7,235 vehicles per day, per Table 3-1 in supplied the Traffic Impact Assessment). Lefroy Road is not identified as a significant freight or traffic route under State Planning Policy 5.4 – Road and Rail Noise and so the policy's provisions do not apply. Nevertheless, the developer may opt to undertake measures (glazing, acoustic insulation) to reduce traffic noise for the comfort of residents.

Since public advertising of the proposed Structure Plan, the applicant has provided a revised Traffic Impact Assessment (TIA), in response to comments from Main Roads WA (see submission no. 2 above). The revised TIA satisfactorily addresses the City's requirements for assessment of the proposed Structure Plan. The submitted Landscape Report (Appendix B of the Structure Plan report) provides further information regarding the proposed movement network through and around the site. These connections are considered to be intuitive and legible, in line with the objectives of State Planning Policy 7.0 – Design of the Built Environment and State Planning Policy 7.2 – Precinct Design.

<u>Recommended modification:</u>

Inclusion of a detailed purpose statement in Part 1.2 of the proposed Structure Plan report.

9	Owner / occupier – Beaconsfield

- Ground floor café and grocery store.
- High-end accommodation and top tier build and finish. $800,000 properties.
- Lots of on-site / underground parking.
- Channel traffic towards the existing commercial zone (Fifth Avenue, Lefroy Road, York Street, Carrington Street). It would be best for local businesses and residents to send traffic this way.
- Nice, open outdoor amenities for the community.
- Green design.
- Aesthetically pleasing build to improve the area (NOT cheap, nasty apartments).
- Forty kilometre per hour speed limit on Curedale Street and perhaps local traffic only signs?

Comments noted.

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

All development would be required to comply with the parking requirements of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes).

It is anticipated that most traffic would exit the Site via Caesar and Grosvenor Streets and Lefroy Road.

The landscape report (Appendix B of the Structure Plan report) indicates that the POS would include a plaza, grassed areas, seating, a nature-based play space and would retain a significant number of mature trees for shade. The road reserves would also incorporate wide verges suitable for planting verge gardens.

DevelopmentWA has a proven track record of delivering high-quality, well-designed homes that incorporate sustainability measures, such as higher than standard levels of energy efficiency, solar photovoltaic cells, rainwater collection and reuse etc.

The City does not intend to reduce traffic speeds on local roads below the standard 50 kilometres per hour at this time. Similarly, the City will not install 'local traffic only' signage, as Curedale Street is a through-road from South Street to Lefroy Road.

10	Owner / occupier – South Fremantle

Thank you for this thoughtful plan. I particularly like Figure 3 showing how many trees will be planted and the native verges.

I support the prioritisation of pedestrians first, cyclist second and motorists last. Please include scooter / motorcycle parking if you haven't already.

Please retain all existing mature trees. Consider including nesting boxes and water features to make it safe and inviting for birds.

Please do not supply gas to the site. Ensure all buildings have solar, ideally with batteries, and consider a solar power sharing scheme. Ensure all buildings have adequate eaves and light-coloured roofs to reduce cooling requirements in summer.

Check that public lighting does not interfere with the amenity of the residents i.e., allow their homes to get dark at night for optimal sleep. Also ensure good soundproofing for the same reason.

Please note that I live in South Fremantle but own a flat near to the site along Lefroy Road so know the area well.

Comments noted.

All development would be required to comply with the parking requirements of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes). The R-Codes, Volume 2 – Apartments includes provision for motorcycle and bicycle parking.

A significant number of mature trees would be retained on-site, per the landscape masterplan contained in the Landscape Report (Appendix B of the Structure Plan report). The inclusion of nesting boxes and water features are beyond the scope of the structure plan but may be explored as community initiatives post-development.

Part 1.4.3.3 of the Structure Plan reports that the development would be gas-free. DevelopmentWA has a proven track record of delivering high-quality, well-designed homes that incorporate sustainability measures, such as higher than standard levels of energy efficiency, solar photovoltaic cells, rainwater collection and reuse etc.

Public lighting is now via LED lights that are typically directed downwards, minimising unwanted light spill. Houses would be insulated and glazed in line with sustainability initiatives, which would likely provide a degree of extra soundproofing.

11	Owner / occupier – Beaconsfield

I have a number of concerns regarding the proposed development at the former TAFE site in Beaconsfield:

1. With such a large influx of residents to the area, what will be the effect on utilities such as water, power, internet etc. as the more people using these services, the lower and slower the delivery seems to be at the individual residence level. Please ensure that these have been considered and sufficiently accounted for.
2. Are there sufficient facilities in the area to accommodate such a large influx of residents e.g., schools, shops etc.
3. Fremantle has already been singled out as having too little green space. If there is high rise built in the area, you must ensure that there is an abundance of green space surrounding it, with parklands and transport corridors available to cyclists and pedestrians. A working party several years ago highlighted the poor transport options from south to north.
4. There is already a severe shortage of parking in the area. Nearby Longford Road was developed with too many dwellings at too high a density and there is a chronic shortage of parking available to residents. There must be provision made to accommodate the parking needs of these new residents.
5. If more social housing is to be included, then the safety and comfort of nearby residents must be considered. Please ensure that there are strategies in place to prevent anti-social behaviour and that the design encourages community to be able to safely utilise public spaces.

Comments noted.

The proposed Structure Plan indicates that it would provide approximately 155 new dwellings. Each would be connected to the district scheme water and sewerage networks per Water Corporation requirements and provided with an NBN connection.

The Site is located within the optional student local intake area (LIA) of Beaconsfield Primary School and Winterfold Primary School and within the LIA of Fremantle College. The Department of Education will closely monitor the student enrolment demand in the locality as infill development progresses, to determine if additional facilities are required (see submission no. 4 for further detail).

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons. The Site is also located approximately 600-650 metres from both the Fifth Avenue and Beaconsfield Neighbourhood Centres, approximately 1.1 kilometres from the South Fremantle Neighbourhood Centre, and approximately 1.3 kilometres from Hilton Neighbourhood Centre, all of which provide local shopping opportunities.

The proposed Structure Plan allocates 16% of the Site as public open space (POS), which exceeds the standard 10% POS contribution required by State Planning Policy 3.6 – Infrastructure Contributions. Additionally, the Site is adjacent to Bruce Lee Oval, less than one kilometre from Hilton Park, and approximately 1.1 kilometres from Booyeembara Park, which provides a range of recreation options to residents.

All development would be required to comply with the parking requirements of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes), which includes visitor parking for apartments. The Structure Plan report also indicates that the two primary streets through the Site would incorporate embayed parking for visitors.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

12	Owner / occupier – Beaconsfield

Beaconsfield continues to be rife with crime, homelessness and an overflow of dodgy people hanging out at Bruce Lee during the day. Whatever happens to the land on Grosvenor Street, PLEASE DO NOT CREATE A NEW "BEACY BRONX". Beaconsfield is becoming the capital suburb for State Housing, Aboriginal development and affordable living homes; you need to consider residents who are paying the highest interest rates to live here and give something back to us for all our patience and tolerance.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

13	Owner / occupier – Beaconsfield

The proposed site is located in an optional intake area between both Winterfold Primary School and Beaconsfield Primary School. There are no considerations, traffic, or habitation, in any of the documentation for Beaconsfield Primary School. I'm the principal of Beaconsfield Primary School and have had several parents bring this to my attention.

Comments noted.

It is acknowledged that the Site is located within the optional student local intake area (LIA) of Beaconsfield Primary School and Winterfold Primary School and within the LIA of Fremantle College. The Department of Education will closely monitor the student enrolment demand in the locality as infill development progresses, to determine if additional facilities are required (see submission no. 4 for further detail).

14	Owner / occupier – Beaconsfield

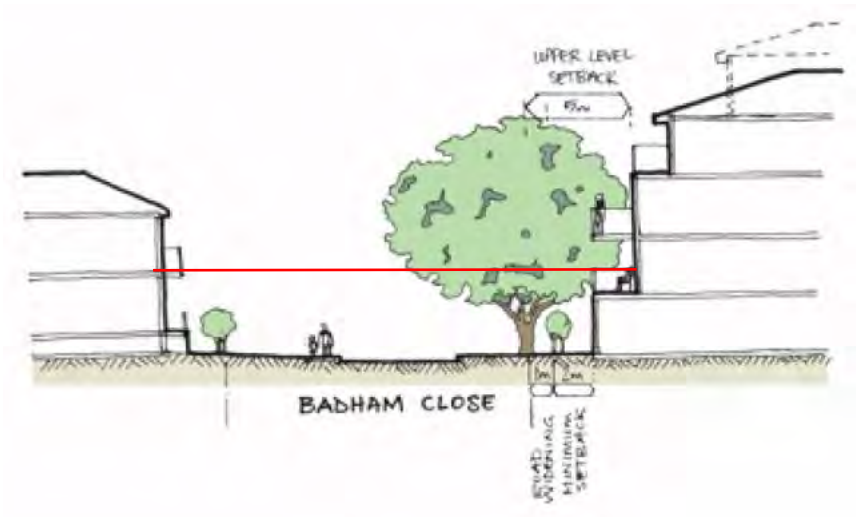
We are supportive of the development in general, other than the following concerns:

- The high-density section backing onto Badham Close is out of scale with the existing properties. Reducing this from high to medium density would enable the development to align with existing properties. We support the high-density section on Lefroy Road, as the land drops significantly here.
- The use of Badham Close as a major entry / exit point for the development is of concern. Turning right at this intersection is already challenging, especially at school times when cars park illegally on the verge, blocking the view of vehicles coming over the hill. Occasional council parking infringements do little to deter this happening. Adding 200-300 cars a day to this mix is an accident waiting to happen. Is a roundabout or other traffic management option possible here to alleviate the danger?

- Site dust management since the demolition has been poor, with much dust being blown into homes, especially during the summer easterlies. What will be put in place to manage this across several years of anticipated development?

Comments noted.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of a Local Development Plan (LDP) containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

Dust management will be undertaken in accordance with environmental health requirements. Generally, this involves watering or hydromulching for dust suppression on vacant sites.

15	Owner / occupier – Beaconsfield

1. Traffic – With increases in high density residences, no thought has been put into this plan to improve the road systems for the significantly increased traffic flow. When the TAFE site was in operation the traffic at peak times caused traffic to build at the exits of Lefroy Road. Badham Close is already a dangerous intersection with Lefroy Road but with it only servicing a few homes it is manageable. Introducing significant traffic as per the plan will see more incidents that could be avoided if addressed properly. Access to South Street from this area from roads like Caesar Street should be addressed to provide better movement in an out. With future plans to develop the "Beacy Bronx" and the quarry site, if addressed now it will have future benefits.
2. High rise developments – Beaconsfield is a suburban environment, and every effort should be made to keep buildings in line with the surrounding environment. Residencies up to five storeys as per the original plan is OK and within the spirit of the local area. Any discussions to maximise investor interest by increasing beyond this level is simply greed, not good town planning. Just because a code allows up to eight storeys, doesn't mean that it should be considered if doesn't integrate with the local area.
3. Social housing density – Fremantle should learn from their experiences with the "Beaky Bronx". Due to the high levels of social and affordable homes in this area it unfortunately became an area frequented by police due to its local residents. Fremantle can ill afford to repeat the same mistake. The WA Housing Strategy 2020-2030 is to set a goal of 20% social and affordable homes. This is seen a level that encourages growth and good social interaction. Fremantle considering options for a provision of 30% social or affordable housing is not the right balance and will have dire consequences for the area.
4. Water pressure – The local water scheme water pressure is already poor in this area. Accessing water supply for a large plan like this, special consideration needs to be made that this service is adequately resourced so there is no impact to current residents of the area.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
Cockburn	14%
Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
	In	Out	In	Out
South Street (West)	2	8	7	5
South Street (East)	6	18	14	8
Lefroy Road (East)	12	36	30	18
Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern

practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

The proposed development would be connected to the district scheme water network. Any necessary headworks would be the responsibility of the developer, in accordance with Water Corporation requirements.

16	Owner / occupier – Beaconsfield

<u>Social & Affordable Housing</u>

As a resident in close proximity to this project, and in discussions with members of the Davies Street Community (includes Curedale and Grosvenor Streets and Howell Vista), I wish to state the following:

1. In general and throughout the previous stages there have been concerns expressed about the volume of "Social Housing" given the existing and potential growth within streets adjacent to the TAFE site.
2. Expressed concerns are not about the need for social housing, but how it is concentrated:
    a. Pre the "Draft Concept Plan" DevelopmentWA indicated a target of 20% for "Social and affordable Housing."
    b. In the "Draft Concept Plan" DevelopmentWA changes that to "Social housing (not mentioning 'affordable') is anticipated at a volume of 1 in 5 in accordance with State Government policy" i.e., 20%.
    c. The BTLSP now states: *"potential community benefits include: Provision of 30% social or affordable housing, delivered in perpetuity"* (see section 14.2.4 Local Development Plan, which relates specifically to R100 and R160).
    d. Davies Street is just 1.5 blocks from the TAFE site and contains more than 20% Social housing. Significantly, a few of the units have been occupied by antisocial types causing disruptions to immediate neighbours and those close by i.e., one or two houses away and further. Reports were regularly made to police and community housing, whose policy is to ignore complaints excepting immediate neighbours. The outcome has been that those well behaving social housing residents have moved, but such an option is not available to homeowners.
    e. To the east of the project is the Davis Park precinct, previously identified as the Beaky Bronx, a significant Community Housing zone well known for its substantial antisocial behaviour, leading to its ongoing demolition and near future redevelopment.

In the "Draft Concept Plan" DevelopmentWA indicated that it would consult Community Housing on the volumes desired for social and affordable housing. It must therefore be assumed Community Housing is responsible for the increase of 50%+ in social and affordable housing with the Draft Concept Plan increased to 30% for social housing alone in the high rise in the BTLSP.

That has potential problems for other residents, including "affordable residents" in the multi-storey units, let alone the impact on residents in the surrounding streets, particularly as community housing:

- Has an apparent policy of first in line regardless of their known impact.
- Has yet to indicate the potential numbers of community housing to be provided in the Davis Park "Beaky Bronx" precinct.

Whilst not objecting to, but supporting, social and affordable housing there needs to be significantly greater transparency and cooperation in this current, TAFE, and the future, Davis Park, projects, rather than increases by stealth!

<u>Road Reserves</u>

An Objective of the Local Structure Plan is stated as:

> *Development will be sympathetically located and oriented to minimise amenity impacts on the surrounding locality, responding to site characteristics and existing population.*

But is that what is achieved?

The current design proposes two access points with Grosvenor Street and one via Badham Close to Lefroy Road.

1. Lefroy Road is a significant arterial road west to South Fremantle and the city centre and east to Beaconsfield Plaza, a significant local shopping centre, and Carrington Street. As such, the planned access roads have a number of disadvantages:
    a. Badham Close will see a significant increase in traffic in both directions and it is located close to a childcare centre and to the schools' vehicle exit point. This has the potential to block traffic heading west with the risk of vehicles attempting to overtake in a significant child / teenage drop-off and pickup point.
    b. Access / egress via Badham Close internally does, of necessity, cross the public open space which had / has the intention of providing pedestrian and cycling access to the future quarry sporting area as outlined in the Heart of Beaconsfield Masterplan.
2. Also, significantly, the Heart of Beaconsfield Masterplan envisioned the interior road running east and west would directly intersect with Caesar Street, not Badham Close.

I therefore urge council to make changes that avoid a reduction in the amenity of traffic entering and leaving the proposed site development by directing its roads to directly enter Caesar Street thus providing easy access to both Lefroy Road and South Streets. That will ensure that the:

> *development will be sympathetically located and oriented to minimise amenity impacts on the surrounding locality (thus) responding to … existing population.*

<u>Other</u>

The southwest corner appears to be realigned to reduce the amount of public facility from that accepted in the Heart of Beaconsfield Masterplan: The area identified in the Masterplan labelled (F) Mixed Use / Community Facility has been removed to make room for R160 zoning.
Comments noted. The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building. The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development. City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection. There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place. City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines. The Heart of Beaconsfield Masterplan clearly identifies a vehicle access running east-west across the Site, connecting to Badham Close. The proposed Structure Plan is consistent with the Masterplan in this regard.

17	Owner / occupier – Beaconsfield
I would like to register my concerns regarding the Structure Plan over the former Beaconsfield Challenger TAFE site located at Lot 2680 Grosvenor Street, Beaconsfield as follows: Consideration has been given to implementing Healthy Street principles within the area bounded by Grosvenor Street to the north, Caesar Street to the east, Lefroy Road to the south and Badham Close to the west to promote a liveable and sustainable urban environment that promotes health, safety and overall quality of life for the residents within this area but little consideration for the residents of the surrounding area which will bear the impact of the increased traffic generated from this development. Curedale Street is experiencing a large increase in traffic already with vehicles cutting through from South Street to Lefroy Road due to access onto Lefroy Road being provided by a roundabout. I fear the extra 930 two-way trips per day will also use Curedale Street to access Lefroy Road and South Street, only adding to the increased pressure on Curedale Street. We have many Elders, Families and Children living on our Street who deserve the same consideration as the future residents of this development. I request consideration be given to restricting through traffic of the neighbouring streets by blocking access to the north of Grovenor Street to Curedale Street, and thereby prioritising access to Lefroy Road via Badham Close or Caesar Street from this development or restricting access to South Street from Curedale Street. I'm very much in favour of the development to be based on the idea that streets should be designed to encourage physical activity, promote social interaction, and improve air quality using the key principles of reducing traffic volume and speed but this should also be considered for the nearby residents as well. Traffic should be directed onto the two distributor roads i.e., Lefroy Road and South Street, with the minimum amount of through traffic generated.	
Comments noted. The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day. For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.	

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Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

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Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

18	Owner / occupier – Beaconsfield

There is a huge need for two-bedroom homes with a single, lockable garage.

Homes that accommodate mixed age groups: a proper 'village'.

I rent and have been here for three years. The owner will only give me a six-month lease and has now increased the rent again!

The 'village' concept would allow for purchase and rental on a long-term basis, allowing for security of tenure for renters.

The homes should be solar passive, have north-facing outdoor areas and a flexible indoor layout. Vehicle access should be 10km/h throughout the village to allow for quiet enjoyment and a safe environment. Communal gardens would also allow for a shared sense of belonging in the village. A secure roof over one's head!

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

All development would be required to comply with the parking requirements of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes). Generally, houses can be expected to have lockup garages or communal parking garages under the buildings, in the case of apartments.

While solar passive design cannot be guaranteed, DevelopmentWA has a proven track record of delivering high-quality, well-designed homes that incorporate sustainability measures, such as higher than standard levels of energy efficiency, solar photovoltaic cells, rainwater collection and reuse etc.

Generally, local roads are subject to a 50 kilometre per hour speed limit, though lower limits may be imposed by the City. The proposed Structure Plan layout includes two local roads and a network of laneways to provide vehicular access to the rear of the R60-coded lots. The relatively narrow width of the laneways would discourage drivers from travelling at speed, while the local roads would incorporate a degree of 'visual friction' through verge planting, and potentially surface treatments, which would also discourage speed.

The local road reserves are designed with wide verges that would facilitate the planting of verge gardens by residents.

19	Owner / occupier – Willagee
I come to Bruce Lee Oval often to exercise and pick up rubbish. I also visit the Sunday markets. All good, except for the toilets which are in a poor state and in need of improvement. The Oval is a delight when the markets are here, but nights may be a bit different, as sometimes in the mornings I find a used syringe or two.	
Comments noted. Improvements to Bruce Lee Oval are outside the scope of the proposed structure plan; however, this submission has been provided to the City's Place and Projects team for their information	

20	Owner / occupier – Hilton
I love these markets and enjoy the community spirit. It would be so good to have proper toilets here. I hope this will stay for a long time.	
Comments noted. Improvements to Bruce Lee Oval are outside the scope of the proposed structure plan; however, this submission has been provided to the City's Place and Projects team for their information.	

21	Owner / occupier – Beaconsfield
Will this development affect the value of my three-bedroom apartment?	
Comments noted. While impacts on property values are not a valid planning consideration, it is unlikely that the proposed development would have any negative impact upon property values in the surrounding area.	

22	Owner / occupier – Cockburn Central
More high-density housing with mixed commercial properties on the ground floor. Two to three-storey maisonettes are great, but an increase on at least one more high-density housing lot (two apartments) would do a great deal to refresh the community and local economy.	
Comments noted. As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons. The residential densities have been chosen based on the housing typologies and building heights that they would deliver. The higher density areas for apartments have been placed on the lower-lying parts of the Site to minimise their impact on the suburban landscape and transition from adjoining single houses. The higher, flatter parts of the Site have been selected for two to three-storey townhouse typology (R60) as this would be less prominent on the landscape, would reduce the potential for overlooking of adjoining homes and would transition density from public open space and adjacent single storey dwellings.	

23	Owner / occupier – Beaconsfield
Please sort out the toilets for the market before the development. We need these markets.	
Comments noted. Improvements to Bruce Lee Oval are outside the scope of the proposed structure plan; however, this submission has been provided to the City's Place and Projects team for their information.	

24	Owner / occupier – Beaconsfield
The proposed development of the former Fremantle TAFE site with 155 dwellings accommodating 372 residents is likely to proceed, while its implications for traffic safety in Beaconsfield remain largely unresolved. The designers and planners that can optimise the residential environment within the boundaries of the site have only limited control on the management of the additional vehicles that will attempt regular access to and from Lefroy Road and South Street. These main east-west arterial roads remain the responsibility of Main Roads WA, who deem the existing road widths and intersections to be "satisfactory" and without need for review until 2031. This project and the redevelopment of the super block on South Street should not proceed until measures ensuring proper management of the additional traffic movements have been planned and established.	
Comments noted.	

It must be noted that only South Street as an east-west connector is under the jurisdiction of Main Roads WA.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

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Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

25	Owner / occupier – Beaconsfield

I am writing to voice my opinion on the structure plan proposed at the former Challenger TAFE Site.

1. *"It is anticipated that the proposed structure plan would generate approximately 930 two-way trips per day."*
    - An increase in traffic will require significant planning by Main Roads to accommodate entry onto South Street off Ceasar Street or Grosvenor Street. Traffic lights should be considered on South Street at these exit / entry points (especially in the morning when it is extremely busy).
    - My concern is that these extra 930 trips would have a negative impact on the surrounding streets (i.e., Fifth Avenue – where I live and own a property).

- Lefroy Road commuters already use Fifth Avenue for faster access to South Street – any increase would create Fifth Avenue into a very busy through-street to South Street.

2. Department of Housing percentage in the proposed development.
    - The Davis Park precinct (prior to development) has regular negative social issues reported (drug use, violence, crime etc.) – which could be aligned with the extremely high percentage of public housing in this area (over 90%).
    - I propose that any new development (on the Challenger TAFE Site) creates a more equitable distribution of public housing so that the above-mentioned issues are less likely to take place. Ideally around 13% public housing to be allocated in the new development coupled with affordable housing for aspirant homeowners.
3. Design of buildings and layout are aesthetically pleasing.
    - I have concern for R160 density (five-storey buildings) – that these will be imposing to the neighbouring landscape.
    - Any buildings / infrastructure developed on this site are designed in alignment with an architectural / planning design consultant to make the buildings aesthetically pleasing. This is the 'first development' in the greater Davis Park precinct development. It will "set the tone" for further developments in this area. Start this overall development with something beautiful to look at architecturally.

Comments noted.

Main Roads WA does not support the installation of further signalised intersections on South Street at this time.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

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Table 7-4: Resulting Trips Distributed

These vehicle movements would predominately make use of Lewington and Caesar Streets and Badham Close to access South Street and Lefroy Road. Although relatively few, it must also be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

DevelopmentWA has a proven track record of delivering high-quality, well-designed homes. However, any new development of three storeys or more must be reviewed by the City's Design Advisory Committee to ensure a high standard of design.

26	Interested party – East Perth

PerthALIVE has pleasure in responding to the proposals in the Beaconsfield TAFE Local Structure Plan. As you would be aware, we are an independent, not-for-profit organisation, promoting precinct developments that accommodate and provide services to people at all stages of life. Our 'ALIVE' acronym stands for 'All Ages Living in Vibrant Environments'. We are not planners, architects or developers but, for over a decade, we have been advocating for the development of vibrant intergenerational housing precincts in Perth. We welcome density done well.

To this end, we have been following the Beaconsfield development with great interest. We have reviewed the materials developed for the former Beaconsfield TAFE site: the Local Structure Plan, the Transport Impact Assessment, and the Landscape Report.

We are pleased to see that the principles and proposals for this Beaconsfield medium density development incorporate the key elements PerthALIVE considers necessary for a successful Multi-Age Precinct (MAP).

Housing Diversity

This is a priority for accommodating people of all ages and stages of life and appears to be reflected in the 6th Concept Plan Note: *"a mix of lot types and sizes to be provided through the site, to accommodate a variety of house types, sizes and affordability levels."* We also welcome the way the various densities are placed, and the requirement for appropriate height setbacks in relation to existing dwellings. The site is well located which ensures relatively easy access to a range of services outside the site itself.

A more general and longer-term concern, however, is ensuring an increase in affordable housing in the Beaconsfield area to bring it more in line with the metropolitan Perth area generally. This development, when completed, will make a modest contribution to the supply of affordable housing in the area, and it will be important to ensure the proposed densities are not diluted. It is noted that the suburb has far fewer apartments, proportionally, than the metro area.

Importance of Community

PerthALIVE sees community development, both incidental and planned, as central to a successful MAP. Whilst deliberate activation will be required in the future, facilities and spaces should be included now to support those future activities. We recognise that given the size of the development and the current easy access to nearby facilities a purpose-built facility is not warranted. Public use of the currently planned green spaces; however, might be enhanced by provision of a covered area to *"provide opportunities for gathering and relaxation"* in all weathers and throughout the year. The approach to passive surveillance is also welcomed.

Sustainability

We are pleased with the emphasis on biodiversity and sustainability, particularly noting the provision of green spaces and the 'green link,' the focus on tree cover and retention of existing trees, and the widening of road reserves. Planned careful landscaping of front gardens, swales, verges, and park edges for visual delight is appreciated. We also note the positive approach to water management and the plan to align streets and laneways to optimise the best passive-solar lot orientation.

Transport

It is obvious that issues of transport have been carefully considered, and walkability is a key element in the design. We welcome:

- Internal streets designed as low traffic, slow-speed environments where cars must pause, give way, and stop.
- Well-connected pedestrian and cycle links with wayfinding qualities so that the area is easy to walk through, with shaded paths and universal access.
- Provision of laneways to accommodate services and to avoid or limit crossovers in the street.
- Provision of numerous narrow and step-free pedestrian street crossing points.

We would query whether thought has been given to the longer-term need for public charging capacity of electric vehicles, particularly for apartment dwellers who do not have access to off-street parking. Alternative solutions could be considered, such as charging points in streetlights.

Comments noted.

The Landscape Report (Appendix B of the Structure Plan report) indicates a 'community shelter', which would likely take the form of an open pavilion that could be used by the community in all weather.

Electric vehicle chargers may be provided in the proposed apartments, which would incorporate off-street parking in undercroft or basement garages. Although not mandated, State Planning Policy 7.3 – Residential Design Codes of Western Australia, Volume 2 – Apartments contains design guidance that recommends consideration be given to the installation of electric vehicle chargers, or at a minimum, pre-wiring to support the installation of chargers. It recommends a minimum 20% of bays be so equipped. On-street chargers are a more complex matter, with issues around ownership, maintenance,

the use of public land for a commercial activity, and the safety of trailing electrical cables in a public place. At present, the City does not have a policy on these matters, though this will likely be explored in the near future.

27	Owner / occupier – Beaconsfield

Structure plan elements seem to suggest a sustainable and environmentally appropriate proposal, but in repurposing materials consideration needs to be given to the original materials that were a part of the original structure that may be a health risk to the community. Any housing development here needs to be appropriate and supportive of current and potential residents in the area who wish to continue to reside in a safe and secure environment. The proposal for *"A mix of social and affordable housing... as part of the State Government's $2.6 billion investment in social housing and homeless measures"*, as well as *"including low and mid-rise apartments and townhouses – with a mix of social and affordable housing to be included"*, could have potential to increase anti-social and/or disruptive behaviours that impacts residents that have been a part of the Beaconsfield community for many years. Any structure plans of this nature need to also consider the adjacent Davis Park area and how the City of Fremantle intends to manage this residential area in conjunction with the proposal for the Grosvenor Street area.

Comments noted.

Only materials that are deemed to be non-hazardous would be repurposed within the development.

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28	Owner / occupier – Beaconsfield

Not happy about the extra amount of traffic this will cause to South Street it is already bad enough it will be 100% worse.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

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29	Owner / occupier – Beaconsfield

The structure plan does not accurately state the amount of social housing that will be provided within the development. It does state that a provision of 30% social or affordable housing, delivered in perpetuity if the developer is permitted to go higher within the building (page 14). Beaconsfield and surrounding suburbs have a substantial amount of social housing resulting in significant social issues for residents such as myself, including violence, drunken/drug affected behaviour, and burglaries. We already have some of the densest levels of social housing in Perth (if not the most – see attached article). Increasing the social housing in this development to 30% is far above an appropriate level and is not best practice.

Can the Council please detail how much social housing will be provided in the development, what policies have informed this, and what is considered best practice? Beaconsfield and surrounding suburbs have the most social housing compared to every other suburb in Perth, so I think a clear justification is necessary as to why you would seek to increase the density of social housing to a level greater than it currently is. If, as the below article states, Fremantle has the greatest level of social housing in the state at 11.7% and you wish to increase this development to "30%" social housing, basic mathematics would indicate that this percentage will increase, leading to further social issues. Dilution of social housing density in the area should be the goal of this development not to increase it. By that sense the development should not have more than 11.7% social housing options.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

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30	Owner / occupier – Beaconsfield

Overall, the revised scale and density of the structure plan is pleasing to see and more in line with the surrounding environment. Generally, I have no issue with four-storey apartments; however, these should only be approved if design provided is excellent. I would hope any smaller scale developments be in line with what was delivered at the Knutsford precinct.

It is disappointing to see the mixed-use social hub previously defined in the heart of Beaconsfield Masterplan disappear. I believe the precinct desperately needs quality hospitality / social options to take the load off the South Fremantle strip, as well as provide a walkable option for the future development at the Davis Park precinct. If a café or social hub is not viable, then a community garden or some form for community activation would be nice. While I am supportive of the development and have faith in DevelopmentWA, it is disappointing that there is zero investment in community infrastructure or anything that will benefit local residents.

The passive open space / pedestrian link looks good but seems to be the bare minimum for a development of this scale. Given the scale of development in the TAFE / Davis Park precinct, it would be nice to see the Council / DevelopmentWA put some money back into the community. I believe the lot size of zone 5 (B zoning) should be reduced and the public space be increased. I understand that Bruce Lee Oval is across the road, but that is primarily used and designed as a sporting oval so it would be nice to see the public open space maximised in the area.

I note in the transport impact assessment a shopping centre in the Davis Park precinct is referenced. I would hope that this would not be the only commercial area in the precinct. I think there is a need for more small-scale bespoke offerings which is more in line with the Fremantle community.

Comments noted.

Any new development of three storeys or more must be reviewed by the City's Design Advisory Committee to ensure a high standard of design.

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

The proposed Structure Plan allocates 16% of the Site as public open space (POS), which is in excess of the 10% POS contribution required by State Planning Policy 3.6 – Infrastructure Contributions. Additionally, the Site is adjacent Bruce Lee Oval, less than one kilometre from Hilton Park and approximately 1.1 kilometres from Booyeembara Park, which provide a range of recreation options to residents.

The adopted Davis Park Structure Plan indicates an extension of the Fifth Avenue Neighbourhood Centre as a part of its proposed redevelopment.

31	Owner / occupier – Beaconsfield

As this is the first stage of residential density, the height and social housing that will be introduced back into the Beaconsfield area concern us greatly.

Beaconsfield is primarily a residential area which was made up of primary schools, one high school (now a college) and had a TAFE for ongoing learning once students finished high school, and a small local shopping centre (Beaconsfield Plaza). Now the TAFE has been demolished you want thousands of people to move into Beaconsfield and we do not have the infrastructure to do so. Even after all the stages are built.

With the influx of thousands of people moving into Beaconsfield, new facilities are required but have not been proposed (from what I can see on the plans).

- A new TAFE is required in Beaconsfield for students to learn the trades and have skills to carry them into the future. This would also assist with the trade shortages we have in WA, as well as the rest of Australia.
- There does not appear to be any aged care or retirement homes being proposed in Beaconsfield with the influx of people, and for the existing homeowners who have lived in the suburb all their lives.
- The eight storeys proposed for Lefroy Road should be no higher than five storeys. The eight-storey height would be massive and out of character for the area.
- The four storeys proposed for Badham Close should be no higher than two storeys in a residential street.
- Page 14 of the Local Structure Plan (August 2023) mentions there is a 30% provision for social housing. If this is the case and this is the first stage of "The Heart of Beaconsfield", how many units / houses will be provided for social housing in all the stages that are being proposed?
- Why is Beaconsfield being inundated with social housing and other suburbs have an extremely low number of social houses.
- Please inform us of the ratio Beaconsfield will have in social housing compared to other suburbs.
- It concerns us greatly that building eight-storey high flats (once all stages are built) and an influx of social housing will devalue the properties in Beaconsfield.

Problems arose when the area of Davis Park for social housing existed. Many locals in the Davis Park area would call it the "Beacy Bronx". Fremantle Council should be very aware of the problems that existed.

- There will be no after-school activities (free) for the influx of under 18-year-olds in the area. Where do they go, what will they do?
- CHALLENGER TAFE was built more than 50 years ago and is part of Beaconsfield's history for all the students who attended there. Hopefully, and may I suggest naming one of the main streets - Challenger Crescent / Circuit in honour of the TAFE that once stood on this land.

Comments noted.

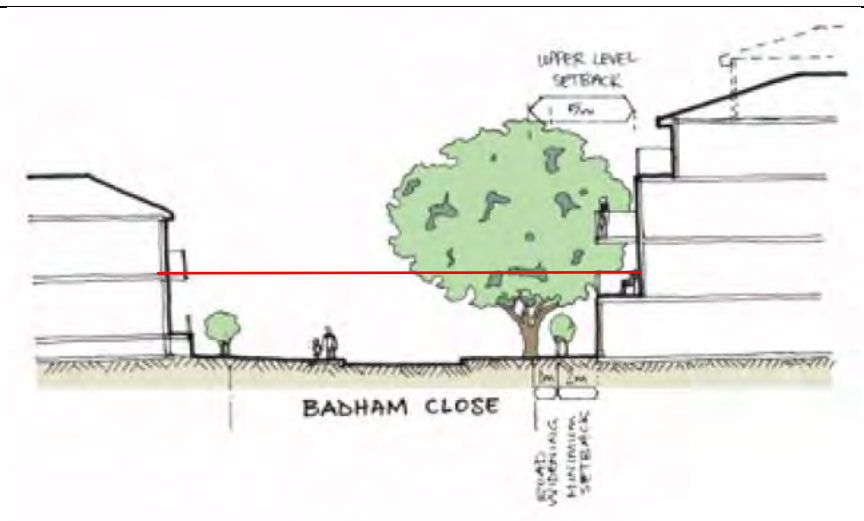
The proposed Structure Plan indicates that it will deliver an estimated 155 new dwellings. The latest census data indicates that the average household size in the Fremantle local government area is 2.2, which would equate to approximately 341 new residents as a result of the proposed development.

The Beaconsfield Challenger TAFE was closed as a result of TAFE facilities being consolidated at the South Metropolitan TAFE campus in Murdoch, which is still accessible from Beaconsfield via a high-frequency bus service along South Street.

The City cannot influence the location of aged care facilities or retirement villages, other than through zoning provisions. Both may be permitted in the 'Residential' zone.

The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

Twenty per cent affordable and social housing is the standard for all new government residential developments, per the WA Housing Strategy 2020-2030. Davis Park is owned by Department of Communities, so it is possible that the affordable and social housing percentage may be higher in that redevelopment; however, a significant proportion of the housing would also be sold to the private market.

In terms of activities for under-18s, there are a range of outdoor sports and recreation opportunities available in the vicinity of the Site, including soccer at the adjacent Bruce Lee Oval, cricket and rugby at Hilton Park, which is less than one kilometre from the Site, a skate park, pump track and mountain bike trail at Booyeembara Park (approximately 1.1 kilometres from the Site), and Fremantle PCYC in nearby Hilton.

Unfortunately, the proposed names of "Challenger Crescent" or "Challenger Circuit" have not passed Landgate's preliminary validation, which is the first stage of a road naming process. The name "Challenger" combined with any suffix will fail due to existing duplications of the name in the nearby suburbs of Melville and Coogee.

32	Owner / occupier – Beaconsfield

<u>Traffic</u>

Background

Traffic from the TAFE site will be directed either onto Lefroy Road or South Street. Vehicles heading to South Street are likely to use either Caesar Street, Lewington Street or Field Street (via Grosvenor Street). Vehicles going the other way will either enter directly onto Lefroy Road (opposite the High School) or via Badham Close. The traffic modelling undertaken by the Developer is based on one car per dwelling and estimates 930 vehicle movements per day and 95 vehicle movements each way at peak times. The Developer compares this with the number of daily vehicle movements during operation of the TAFE, which is estimated at 1,750.

Concerns:

- The assumption that there will be only one car per dwelling appears to be an underestimation. Looking at the number of cars parked outside houses in the area suggests there will be at least two cars per dwelling. Therefore, the number of movements is likely to be much higher than estimated by the Developer.
- The estimated traffic conditions do not consider the cumulative impacts from nearby developments shown in the Heart of Beaconsfield Master Plan. This includes redevelopment of the "Beaky Bronx" and construction of dwellings on the north side of Grosvenor Street, which is currently part of the Bruce Lee Oval car park.
- The comparison with the number of vehicle movements during operation of the TAFE before its closure some years ago does not take into consideration the expansion of the local High School (Fremantle College), which now has a much larger catchment. The impacts from the expansion have resulted in a larger number of older students driving to school. Plus, wet weather brings a sharp increase in volume of traffic to the College along Lefroy Road, at drop off and pick up times. The traffic survey cited in the Developers plan makes no mention of the increase of the quantity of traffic generated by Fremantle College and its impact on Lefroy Road.
- The current proposed western exit onto Lefroy Road is likely to result in a major traffic hazard, especially during school drop off and pickup. Contributing to this is the location of the exits at a low point on Lefroy Road which reduces the visibility.

<u>Building Heights</u>

Background

The TAFE redevelopment includes four to five-storey buildings adjacent to Badham Close and along Lefroy Road. The dwellings along Grosvenor and Caesar Streets will range from two to three-storey. The four to five-storey buildings are justified based on the natural topography i.e., they are in the low-lying areas.

Concerns:

- The construction of four to five-storey buildings is completely out of keeping with the surrounding houses which are mostly single storey with a few two-storey buildings. All new buildings need to be kept to a maximum of three storeys

only. Public housing being incorporated in the new development is appropriate, as long as higher buildings of a higher density for this type of housing are avoided.

- The construction of higher, multi-storey buildings will set a precedent for all future development.
- The sites of the proposed four to five-storey buildings are zoned R100 and R160 respectively. Under the planning laws this zoning allows for building heights of five and eight storeys. Therefore, the Developer will be free to apply to construct much higher buildings than proposed by Development WA. It should be noted that the Developer is free to approach the Western Australian Planning Commission if the Council proposes any amendment to the plan.
- The R100 rated proposed dwelling adjacent to Badham Close should be moved to the eastern end of the development. This would ensure that current Badham Close residents will not be confronted by other residents looking into their private space but will also help reduce traffic congestion created by traffic entering Lefroy Road at this point.

Green Open Space

Background

The TAFE redevelopment includes three areas of green open space located near the north-western side, south-western corner and south-eastern corner of the development. The south-western and south-eastern green spaces are based around deep sumps used to manage storm water. The developer states these will be modified to manage both storm water and to provide recreation areas for the local community. No detailed plans are available showing how these sumps will be modified to meet these purposes.

Concerns:

- Will the Council be able to guarantee these green open areas will be modified appropriately once plans for the redevelopment have been approved and the Developer finishes the housing work?
- History shows that Developers are reluctant to spend additional money on green areas.
- The plans show minimal new open space that could be used for community gardens or a meeting place for young families to gather.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
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Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
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Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

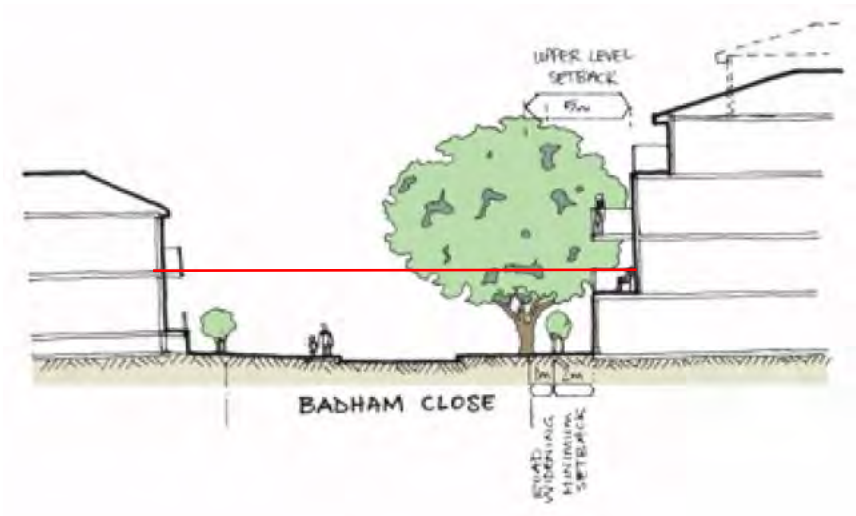
There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

As further development takes place in the vicinity, traffic impacts will be assessed and improvements made to the road network as necessary.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



The landscape report (Appendix B of the Structure Plan report) and Local Water Management Strategy (Appendix D of the Structure Plan report) provide details of how the existing drainage basins would be modified. In each case they would be filled with underground infiltration cells and surfaced with new grass. In the case of the western public open space (POS), a shallow basin of approximately 486m^2 would remain to hold excess runoff for short periods in 1% annual exceedance probability (AEP) events.

The landscape report also indicates that the POS would include a plaza, grassed areas, seating, a nature-based play space and would retain a significant number of mature trees for shade. The road reserves would also incorporate wide verges suitable for planting verge gardens. Developers are required to landscape and maintain all POS for a minimum period of two years following completion of the development, after which responsibility for ongoing upkeep is passed to the local government.

33	Owner / occupier – Beaconsfield

Please restrict the apartment height to no more than four storeys. In the current zoning it allows developers to increase to eight storeys high. This is entirely inappropriate for the residential area.

Please do not take away the parking on Grosvenor Street, if the council actually took the time to spend in this area that we live in you would see it is utilised all the time – overflow morning and afternoon for school pick up / drop off five days a week, parking for the many family and community members who utilise Bruce Lee Oval for sports (almost every day) and the Fremantle Farmers Markets – much loved and such an important community space.

Fremantle has added so many apartments at the loss of the uniqueness of Fremantle and while I understand that there is additional revenue to be had by transforming an eclectic and vibrant community to a cut and paste apartment dwelling suburb you are essentially taking away anything 'Freo' about the area. The other very major concern for the residents is the impact on traffic management. The current plan has very limited parking available for the copious number of residents to be crammed in this area. Don't forget you are also gutting the 'Heart of Beaconsfield' to cram it with dense housing too. In your previous documentations released Main Roads had stated that driver behaviour would see drivers finding alternative routes down local streets – the ones were our kids play and ride their bikes, people walk their dogs and elderly neighbours chat with elderly neighbours. Please provide an actual proactive plan to reduce and prevent drivers pouring into these local streets. This plan is lacking any sufficient traffic management. Fremantle Council – you have the opportunity to do better. Please respect the concerned residents who moved into is area for its community feel. I feel terrible for the residents on Badham Close. This plan completely disrespects them. Also, the rest of Beaconsfield does not want high-rise towering over them (eight-storey apartments will do that). So please RESTRICT THE STOREY LIMIT before you hand it over to the developers and there is nothing that your actual current rate payers can do about it. Find the balance here and respect the precinct. Use some sense that you are building right next to a high school that has significantly increased its population and has more students now, which is no longer appropriate. Spend some time in our local neighbourhood so you can have a meaningful understanding of where we love rather than an exercise from an office and please listen to the residents.
Comments noted. The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP. The parking on Grosvenor Street lies outside of the Site boundaries and is likely to remain for the foreseeable future, as will the public car park at Bruce Lee Oval. The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. The average number of persons per household in Australia has been in steady decline since the mid-1960s[15], with the average household size being 2.5 persons[16] at the time of the 2021 Census. However, in Fremantle, the average household size is already 2.2 people per dwelling.[17] Household composition has also been changing over time with more than one in four households (26%) now occupied by an individual living alone.[18] Seemingly, the large size of the typical Australian home also differs from many people's housing desires. The housing we'd choose: A study for Perth and Peel was commissioned by the Department of Housing and Department of Planning and published in May 2013. This report indicated that when location and affordability considerations are taken into account, most people surveyed would be prepared to live in smaller houses than those predominantly offered by the project home market (and in older, establish suburbs). Also, when constrained by location and affordability factors, many respondents would live in a semi-detached house, rather than detached. The report summarises its findings by stating that whilst the current housing stock of four or more-bedroom housing in the suburbs meets the needs of many, it is problematic for others who need something small and affordable in which to form a new household, or those who may wish to downsize to a smaller dwelling in the location they are used to. Moreover, housing affordability within Western Australia has become a major social issue in the past decade, with the rapid increase of house prices and rents leaving many people on low and moderate incomes struggling to find housing that is both affordable and appropriate to their needs. A key response to this issue is to promote housing diversity, particularly through the development of smaller dwellings which are cheaper to buy or rent than larger dwellings in the same market. The R-Codes provide the ability for greater housing diversity in medium to high-density coded areas. The parking on Grosvenor Street lies outside of the Site boundaries and is likely to remain for the foreseeable future, as will the public car park at Bruce Lee Oval. The proposed Structure Plan is broadly consistent with the Heart of Beaconsfield Masterplan, though it does incorporate two areas identified for higher density apartment developments. It must also be noted that the Heart of Beaconsfield is a non-statutory document designed to illustrate a vision for the redevelopment of the precinct. Therefore, the applicant is not bound by the Masterplan and may put forward a different plan for redevelopment of the Site. Similarly, the City is not bound by the Masterplan in its decision-making. For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

[15] https://aifs.gov.au/research/facts-and-figures/population-households-and-families

[16] https://abs.gov.au/census/find-census-data/quickstats/2021/AUS

[17] https://www.abs.gov.au/census/find-census-data/quickstats/2021/LGA53430

[18] https://aifs.gov.au/research/facts-and-figures/population-households-and-families

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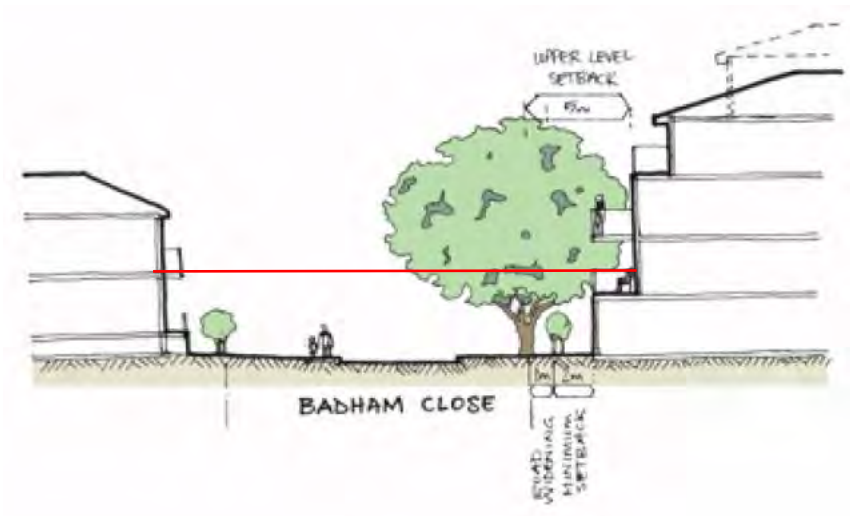
Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



34	Owner / occupier – Beaconsfield

Before talking specifics, I'd like to say that all the local residents I talk to, many of them elderly, believe the City of Fremantle won't listen to them and have largely given up of expressing their concerns, so if there is a lack of community input, this would be why. However, everyone I speak to about the Heart of Beaconsfield development largely agrees with the following thoughts.

Broadly speaking, it appears that The City of Fremantle represents the desires of the developers, rather than the residents and rate payers in the area; I'm not sure why. The residents love the area as it is, that is why they choose to buy into and live in the area. They are the ones The City should be representing, not the developers. The developers do not care about the area, The City, or its residents; they wish to develop areas and make as much money as possible before moving onto the next. They window-dress concepts with 'green areas' and 'community hubs', but they only want to sell as many properties as possible.

Housing Density

The dense, multi-storey housing proposed is entirely inappropriate for the area. The area surrounding the project is of a historically significant style – large blocks, mostly single-storey and lots of gardens and space. The residents of Beaconsfield love where they live and this is shown by the fact that they bought houses in the area; if they wanted to live in densely populated areas, they would have bought in other places which are densely populated. The whole structure of the neighbourhood is set up to support this style of housing and things like traffic flow will quickly become overwhelmed and dangerous if repurposed. The City of Fremantle doesn't need to conduct surveys or community events to ascertain the style of housing desired in the area, they can tell because the residents have chosen to buy and live their lives in the area.

Traffic Issues

Dense populations create dense traffic flow. Already, given that most houses in the area now have two vehicles, the traffic is already overwhelming the roads and becoming busy and dangerous. Vastly increasing the number of houses will make that much worse. The fact that the traffic modelling is incorrectly based on one car per household seems to indicate the modelling was designed to favour the redevelopment. I assume some traffic management architecture will be put in place, but it's well known that drivers will simply avoid streets with traffic calming and drive down the next one.

Removing the car parking spaces at Bruce Lee Oval and giving the space to developers seems to be a bizarrely shortsighted move. It seems ridiculous to have to point this out, but the car parks at Bruce Lee oval are used by people to park their cars at Bruce Lee oval. Removing them will create issues for people trying to park their cars. I am worried that The City of Fremantle know this and will use this as an excuse in the future to redevelop Bruce Lee oval as well. Please leave our oval and our car park as it is.

Environmental Concerns

The City of Fremantle would like to be seen, I'm sure, as environmentally sensitive and considerate. However, no matter how many 'green' initiatives are introduced, the fact is that if the number of homes goes up (in this case dramatically), so will the environmental impact. Talking about population control is generally considered to be strange, but at some point, it must be considered. There is a well-known correlation between population density and happiness, so why not look after the current residents and their way of living, rather than giving it all to developers and letting them do as they wish? I hope the City of Fremantle dramatically reimagines the TAFE redevelopment and the whole Heart of Beaconsfield, vastly reducing the density to match the surrounding area and considering the wishes of the residents.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. The average number of persons per household in Australia has been in steady decline since the mid-1960s[19], with the average household size being 2.5 persons[20] at the time of the 2021 Census. However, in Fremantle, the average household size is already 2.2 people per dwelling.[21]

Household composition has also been changing over time with more than one in four households (26%) now occupied by an individual living alone.[22]

Seemingly, the large size of the typical Australian home also differs from many people's housing desires. The housing we'd choose: A study for Perth and Peel was commissioned by the Department of Housing and Department of Planning and published in May 2013. This report indicated that when location and affordability considerations are taken into account, most people surveyed would be prepared to live in smaller houses than those predominantly offered by the project home market (and in older, establish suburbs). Also, when constrained by location and affordability factors, many respondents would live in a semi-detached house, rather than detached. The report summarises its findings by stating that whilst the current housing stock of four or more-bedroom housing in the suburbs meets the needs of many, it is problematic for others who need something small and affordable in which to form a new household, or those who may wish to downsize to a smaller dwelling in the location they are used to.

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The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

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[19] https://aifs.gov.au/research/facts-and-figures/population-households-and-families

[20] https://abs.gov.au/census/find-census-data/quickstats/2021/AUS

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Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

The parking on Grosvenor Street lies outside of the Site boundaries and is likely to remain for the foreseeable future, as will the public car park at Bruce Lee Oval.

This increase in house size and decrease in occupancy levels, coupled with population growth, has resulted in greater demand for developable land within Australia's cities. Predominantly, and particularly in Perth, this demand is being met through development in the metropolitan fringe, contributing to what is commonly referred to as 'urban sprawl'. The housing offered in these areas is generally low density (c. R30 density coding) and tends to comprise of large homogeneous homes (usually four-bedroom, two-bathroom, theatre room and double garage) on modestly sized lots.

Research indicates that large dwelling size has a direct impact on increased greenhouse gas emissions, consumption of natural resources and the production of waste. Larger homes require greater amounts of resources in their construction (including land) and have higher levels of associated embodied emissions (emissions associated with the production of building materials). Larger dwellings also have greater emissions associated with their operation, especially heating and cooling loads, with a five-star NCC house of 73m^2 contributing 69% less in annual emission than a five-star house with a floor area of 233m^2.

In recent years, state strategic planning documents have recognised that housing on the fringe does not provide well for sustainable growth or diversity of housing typologies, nor does it address the need for additional and more affordable housing within the metropolitan core, close to existing activity centres. In general, development on the fringe presents a whole range of social, economic and environmental concerns, including impacts on general productivity, long travel times and associated pollution, pressure on infrastructure service delivery and higher costs. For these reasons infill development at higher densities is now considered an environmentally responsible solution to demand for housing.

Research undertaken by the World Happiness Report in 2020 ranked global cities by current life evaluation, which is an evaluative measure of subjective wellbeing[23]. Perth was ranked 15th and has a population density of 346.7 people per square kilometre at the metropolitan level[24], while the City of Fremantle local government area has a population density of 1,780 people per square kilometre[25]. Unfortunately, accurate figures are not available for Beaconsfield at the suburb level; however, its low density would likely place it close to the metropolitan figure. Meanwhile, the population densities of the top ten ranked cities are:

[23] https://worldhappiness.report/ed/2020/cities-and-happiness-a-global-ranking-and-analysis/

[24] https://profile.id.com.au/perth/about?WebID=230

[25] https://profile.id.com.au/perth-south-west/about?WebID=120

1. Helsinki, Finland – 3,034 people per square kilometre[26]
2. Aarhus, Denmark – 774.2 people per square kilometre[27]
3. Wellington, New Zealand – 699 people per square kilometre[28]
4. Zurich, Switzerland – 4,798 people per square kilometre[29]
5. Copenhagen, Denmark – 2,434 people per square kilometre[30]
6. Bergen, Norway – 638 people per square kilometre[31]
7. Oslo, Norway – 3,855.2 people per square kilometre[32]
8. Tel Aviv, Israel – 8,683 people per square kilometre[33]
9. Stockholm, Sweden – 5,260.1 people per square kilometre[34]
10. Brisbane – 967.4 people per square kilometre[35]

The significantly higher population densities of these cities demonstrates that urban density does not necessarily have a negative impact on wellbeing.

35	Owner / occupier – Beaconsfield

First submission:

I have previously raised concerns regarding Development WA's plans to utilise Badham Close as one of the primary access routes to the former TAFE site development, given the reduced sight lines of the intersection from Lefroy Road. I was advised that there *"had been a lot of technical rigour"* applied by DevelopmentWA to satisfy themselves of the safety of this intersection, and that my concerns would be addressed by the Traffic Impact Assessment (TIA). As such, I was disappointed to read Section 8.2.8 of the TIA, which states that no assessment or modelling was completed for the Badham Close / Lefroy Road intersection. I understand that the assessment is completed in accordance with the Western Australia Planning Commission's (WAPC) Transport Impact Assessment guidelines. The TAFE site development is assessed as 'high' impact, therefore requiring a full TIA. Below is an outline of my understanding of the WAPC TIA guidelines and how they should apply in this instance:

1. WAPC TIA Vol 2, Sec. 10.9 - A quantitative analysis of the internal and external transport networks is required to demonstrate that they provide a high level of accessibility and safety.
2. WAPC TIA Vol 2, Sec. 10.11.2 - All sections of road with an increase of greater than 10% should be included in the analysis. Noting that Badham Close will see an increase of at least 400%.
3. WAPC TIA Vol 2, Sec. 10.11.5 – Road cross-sections should be in accordance with Austroads design guidelines, in particular the Guide to Road Design (GRD) series.
4. GRD Part 4A, Sec 3 Sight Distance;
    a. The Development WA traffic consultant previously advised an estimated available sight distance of ~120m for this intersection. Having roughly measured myself using a 1.1m high eyeline I think this is a very generous estimate and the actual sight distance is closer to only 100m.
    b. Assuming an Operating Speed of 60km/h (10km/hr above posted), a reaction time of 2.5s and deceleration coefficient of 0.36 per the guidelines for Western Australia. Ignoring the downhill gradient which would further increase the required sight distance, I calculate a Safe Intersection Sight Distance (SISD) of 131m per the GRD requirements.
    c. Based on this quick assessment the actual site distance is between 10% and 25% below the required SISD for the Badham Close / Lefroy Road intersection.

Per the DevelopmentWA traffic consultants' previous advice, the potential collision type where SISD requirements are not met is *"most dangerous, as the impact will involve a collision with the driver's side of a vehicle exiting Badham Close, most likely leading to a serious injury or worse."*

I also note that in the previously supplied Development WA commentary regarding the preliminary concept plan, it states that *"Badham Close / Lefroy Road intersection design meets Austroads Guidelines."* Based on my review of the guidelines per above, I believe that to be an inaccurate and misleading statement. The DevelopmentWA approach seems to be wholly based on an assumption that the intersection meets the AustRoad guidelines and therefore, as the projected traffic flow is still less than 1000vpd, no further assessment is required. In my opinion that is an irresponsible approach given the obvious deficiencies in this intersection, and the significant increase in utilisation as a result of the development.

I would also query the Trip Distribution assumptions made in Section 7.3 of the DevelopmentWA TIA report, as it does not seem to take into account the impact of intersection type and traffic congestion on driver behaviour. It seems that the assumption is that all AM eastward bound traffic would use South Street, with no eastbound traffic on Lefroy Road. In

[26] https://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/22_06_15_Helsinki_facts_and_figures_2022.pdf

[27] https://www.dst.dk/en

[28] https://www.stats.govt.nz/tools/2018-census-place-summaries/wellington-city

[29] https://www.bfs.admin.ch/bfs/en/home/statistics/regional-statistics/regional-portraits-key-figures/city-portraits/zurich.html

[30] https://www.dst.dk/en

[31] https://www.bergen.kommune.no/english/about-the-city-of-bergen/about-the-city-of-bergen#:~:text=Bergen%20lies%20on%20latitude%2060E,km%C2%B2%20(land)%20is%20638.

[32] https://www.ssb.no/en

[33] https://www.tel-aviv.gov.il/en/abouttheCity/Pages/CityinNumbers.aspx

[34] https://www.scb.se/en_/

[35] https://profile.id.com.au/comseq/about?WebID=100#:~:text=The%202022%20Estimated%20Resident%20Population,967.4%20persons%20per%20square%20km.

reality, it is next to impossible to turn right onto South Street during peak hours without traffic lights. Instead, drivers will use Badham Close and Caesar Street to turn left onto Lefroy Road, and then use the traffic lights on Carrington Road to get onto South Street. This behaviour is already evident with current traffic flow due to the existing congestion on South Street. Considering this likely behaviour, the traffic density on the Badham Close / Lefroy Road intersection will increase significantly beyond DevelopmentWA's current projections, further exacerbating the issues outlined above. I am genuinely shocked that having raised these issues previously, DevelopmentWA do not seem concerned by the non-compliance with the AustRoad guidelines.

Given the projected increase in traffic through the intersection, there is a significant increase in risk of a dangerous collision likely leading to a serious injury or worse. Given that there are viable and compliant alternate options including direct entry off Lefroy Road, this seems like an incredibly risky approach to maximise financial gain for the development, for which there has still not been any sound justification provided. I would appreciate a response from the City of Fremantle outlining the justification for using Badham Close as a primary access route for the new development given the concerns raised above. In my view a more detailed assessment of the intersection is required and if the city still plans to proceed with this proposal, they must be willing to acknowledge and accept the risks associated with not meeting the AustRoad guidelines for road design.

Second submission:

Further to my previous submission, Development WA have responded to my concerns. Their response suggests that the responsibility lies with the City of Fremantle for assessment of the impact of the development on the Badham Close and Lefroy Road intersection.

Third submission:

Further to my previous submissions, attached is my original e-mail to Development WA voicing concerns, none of which were addressed or responded to:

E-mail from DevelopmentWA (30 May 2023):

"Dear Badham Close residents

Please find attached the minutes from our meeting on 6 May, as well as a slip road sketch… and the apartment example images.

I have also pasted below some responses provided by the traffic consultants, if you would like further detail.

1. *Location of access road into redevelopment from Badham Close*
    a. *A resident asked why the access road couldn't come from Grosvenor Street? Please advise*

       That is a great question. The simple answer is that the street layout for the proposed site has been developed using the principles of Liveable Neighbourhoods. This encourages a highly interconnected street network aimed at reducing travel distances and thus related environmental impacts with reduced emissions. The removal of a connection to Badham Place will likely place additional traffic pressure on Caesar Street and this will likely be more detrimental to the overall traffic performance of Lefroy Road.

    b. *The group was keen for consideration of a slip road access point off Lefroy Road. Is this possible − what impact would it have?*

       The slip road sounds like a great idea initially, but it will unfortunately make the intersection unsafe. The reason is quite a subtle one. The provision of a slip road will introduce a "shadowing" effect for vehicles approaching from the west. If a vehicle were to slow down to turn into Badham Close using such a left turn slip road, a following vehicle may continue straight along Lefroy Road and the following vehicle will then be obscured from view from a driver stopped in Badham Close waiting to enter Lefroy Road. These drivers in Badham Close will likely think there is no other vehicles approaching from the west, apart from the vehicle turning left, and then enter the intersection and be struck but the obscured vehicle as it quickly comes into view, only all too late to take evasive action. This collision type is most dangerous as well, as the impact will involve a collision with the driver's side of a vehicle exiting Badham Close, most likely leading to a serious injury or worse. An assessment of the recorded crashes obtained from the Main Roads Crash Map indicated that the current intersection has had no recorded crashes in the 5-year period up to the end of 2022. This is a good indication of the relative good safety performance of this intersection.

2. *Increase in traffic and parking on Badham Close*

   DWA advised the traffic study outlined the following key points for Badham Close:

    a. *Traffic volumes will increase for Badham Close, but not significantly (by 200-300 vehicles per day) with 1-3 Badham Close most impacted.*

    b. *Badham Close has the width (six metres) and capacity for up to 1000 vehicles per day (estimated to be 420 vehicles per day with the redevelopment in place).*

    c. *Currently, in peak periods there would be approximately one car every six minutes passing 1 Badham Close. With the redevelopment, this frequency is expected to be approximately one car every 1.5 minutes.*

    d. *Three access roads into the redevelopment will distribute traffic amongst these streets and not overload the traffic carrying capacity for the street network.*

    e. *With provision for approximately 50 visitor street parking in the redevelopment, there will be less reliance for street parking in adjacent roads such as Badham Close. There is also plenty of off-site parking on Grosvenor Street and within the Bruce Lee Reserve car park.*

    f. *There are proposed 'throttle points' in the redevelopment, particularly on the key access road between Badham Close and Caesar Street, to promote lower vehicular speeds both internally and when driving to and from Lefroy Road via Badham Close.*

g. *It is anticipated that through traffic within the redevelopment would be limited, as it is not located on a direct route through the site and does not provide a route between any key destinations (noting that one resident indicated that the local high school was a destination and had doubled in size, with parents out of area dropping off students, with students also driving and parking) Has this impact been considered − what is the response please? Even though it is a through route, it would not be a through route for non-local traffic to access the school site, only for local traffic from the proposed LSP and Lefroy Road and vice versa. The route from Badham Close to either of Grosvenor or Caesar Streets would be a circuitous and slow route, this by design, to discourage through traffic. The access to the school would be better served using Caesar Street or Curedale Street and these offer direct and straight connection from South Street to Lefroy Road and not the slow and circuitous route through the proposed LSP.*

h. *The redevelopment is aimed to be a walkable, transit-orientated development, prioritising pedestrians and cyclists.*

i. *As a comparison, existing levels of traffic on other local roads (Monday − Friday, two-way average) are:*
   - *Lefroy Road − 7,235*
   - *Lewington Street − 260*
   - *Caesar Street − 1,110*
   - *Grosvenor Street, west of Caesar Street − 400*

3. *Safety/viability of increased use of Badham Close/Lefroy Road intersection*
   - *There are concerns that this intersection has safety issues, with line of sight compromised by the hill on Lefroy Road, east of Badham Close.*

     That was something we were aware off and had not mentioned it in any detail as there were no issues based on the speed limits in place. There had been a lot of technical rigour we had gone through to be satisfied of the safety of the intersection. The crest west of Badham Close has its peak approximately 120-125 metres west of Badham Close. As vehicles crest this, they then have that similar sight distance to a vehicle in Badham Close waiting to enter Lefroy Road. In these situations, the critical thing that needs to be provided is something called a Safe Intersection Sight Distance or SISD. This is a distance that allows a driver on Lefroy Road approaching from the west to observe a car entering from Badham Close and then stalling in Lefroy Road, to then react and then put on their brakes. For a 40 kilometres per hour travel speed (when the school zone is in force and traffic flows at their heaviest) and the 8% down slope the SISD required for a driver on Lefroy Road is 78 metres. When the school zone is not in force and the 50 kilometres per hour speed limit is in force, the SISD required is 105m. Thus, there is ample sight distance as the currently assessed 120-125 metres exceeds these requirements by some way. The only issue arises if drivers on Lefroy Road illegally exceed the 50 kilometres per hour. In those circumstances the SISD required would be more than the required 105 metres for a 50 kilometres per hour speed. It has been assessed that a vehicle on Lefroy Road travelling at approximately 55-57 kilometres per hour should still be able to stop just in time, but will likely have to brake under emergency circumstances or crash at speeds exceeding 57 kilometres per hour. The introduction of the left turn slip lane mention above will also impact the SISD for approaching vehicles from further back on the crest."

Response to DevelopmentWA (1 June 2023):

"Thanks for the feedback. I should say that I haven't been significantly involved in the process to this point and I can't speak for the other residents. However, I am still quite concerned by the proposed traffic planning around the Badham to Lefroy intersection. I have several queries and comments on the justifications provided by the traffic consultant. I would also echo Danielle's inference that claiming a 400% increase in traffic is "not significant" would seem to be at odds with a common-sense interpretation of "significant".

See some additional queries and comments below for which I would appreciate further feedback:

1. *In reference to your email:*

   a. *Item 1(b) - The traffic consultant dismissed Sean's proposed slip road based on a "shadowing" effect. I absolutely agree that shadowing is a significant concern, however I am struggling to see how this risk is increased by Sean's suggestion, noting that the "slip road" is a pull-out lane when turning left from Badham to Lefroy? In contrast, the very fact that the development will increase the traffic on Badham/Lefroy intersection by 400% is drastically escalating the risk of shadowing type accidents and is the very reason why many of the residents are concerned about this proposal.*

   b. *Item 1(b) - The traffic consultant has referred to crash statistics for the last 5 years as evidence of the Lefroy/Badham intersection having good safety performance. Again, I refer to the 400% increase in traffic and suggest that using past performance as an indicator of future performance with such a significant change is not good risk management practise.*

   c. *Item 2(e) - There is mention of the 50 visitor carparks reducing street parking in the precinct. Can you please clarify how many car parking bays per residence will be incorporated within the development, keeping in mind that the majority of households in WA own 2 or more cars?*

2. *Regarding the MRWA SISD calculation by the traffic consultant:*

   a. *Has there been any effort to establish the actual average speed along Lefroy outside of school hours? I would be surprised if the average speed of vehicles coming down the crest was less than 55kph, at which point according to the traffic consultant, it is an emergency braking or crash scenario.*

   b. *How has the concept of Design/Operating Speed been factored into the SISD assessment? MRWA use a Design Speed 10km/h greater than the posted speed limit on urban roads such as Lefroy.*

c. *Please advise what reaction time was considered in assessing the SISD? MRWA specify 2.5s as the desirable minimum.*

d. *Can you please share the traffic consultant SISD calculation? Considering a reaction time of 2.5s and an Operating Speed of 60kph, Table 3.2 of the MRWA Guide to Road Design, gives an SISD of 131m which is not satisfied by the Badham intersection.*

3. *The traffic consultant referred to the presence of Fremantle College as a key concern and justification for why a new access route onto Lefroy was not considered. If safety was a genuine concern, wouldn't the DWA embrace the opportunity to incorporate a new intersection meeting current MRWA best practise within the development? As responsible developers this should be a particular focus given that the development will directly result in a significant increase in traffic flow within a pre-existing school zone. Instead, the essence of responses to the concerns indicates that a decision to redirect traffic through Badham, an inherently poor intersection, was made primarily based on cost savings, maximising the number of dwellings and ultimately profitability of the development.*
4. *The traffic consultant raised cost as a key driver for not implementing Sean's proposal. Can you advise how much additional streetlights and ~50 to 80's of additional roadway would represent as a percentage of the overall development cost?*
5. *The traffic consultant mentioned that Sean's proposal would result in a reduction of ~26 dwellings for the development. My understanding is that the development boundary would be aligned with the current chain-link fence line, and Sean's proposal was predominantly outside this boundary. Can you please provide a sketch illustrating the reduction in 26 dwellings. Likewise, please clarify the impact to drainage on a sketch.*
6. *The traffic consultant mentioned that additional trees would need to be removed to accommodate the proposed crossing, to achieve the "requirements of a vertical clearance (4.5m)". Can you please confirm the source of this requirement and confirm that it is a "requirement" and not a "recommendation". There are several other locations in the area which do not meet this requirement, including along Lefroy road alongside the development. It would seem inconsistent to selectively apply this requirement in this instance, especially given that the crossover would be extremely low speed local traffic only.*
7. *The requirement for land clearing and tree removal to accommodate waste management vehicles was raised by the traffic consultant. Is there an opportunity with a bit more thought, creativity and community collaboration to negotiate and address these issues. For example, do we need a cul-de-sac given that the existing crossover is less than 5m from 1 Badham's driveway? Instead, there could just be a bend in the road with additional driveway access for 1 Badham per below markup.*

I do appreciate the collaborative approach, and I understand that there are commercial factors which need to be considered to ensure the project is viable. However, I get the impression that the bulk of the responses are aimed at cost savings under the pretence of safety and regulation, rather than working to accommodate the concerns of existing residents. I also wonder how many of the "concessions" that have been made around density, green space and tree retention are commercially beneficial and just aligned with good practise and town planning requirements.

Thank you for your time, and I hope we can continue the conversation to find mutually agreeable solutions."

In general, DevelopmentWA have persisted in deceptive, misleading and vague responses which give the residents no confidence in their ability to deliver on promises. The goal posts are continually changing, and previous community feedback is routinely ignored, given lip service or DevelopmentWA completely absolve themselves of responsibility, claiming it is not their problem. In general, what started as a great initiative and collaborative process through the Heart of Beaconsfield has deteriorated into a farce which is being driven by profit-hungry developers.

The majority of residents understand that there is a housing crisis and a need for increased housing density and infill. We are accepting and supportive of the need for high density living at the former TAFE site; however, with some concessions, this can be done in a sensitive manner to limit impact to the existing community. The actions of DevelopmentWA in terms of position of high-rise buildings, removal of trees and location of access roadways are based purely on maximising profits for the development and increasing the saleable value of new residences at the expense of existing properties. This is not an ethical way to approach sustainable development and infill.

I would hope that as a council you would be willing to stand your ground and act to protect your electorate and community, rather than the hip pockets of developers. There is an opportunity for the council to lead the way in sustainable development and infill, rather than creating another congested concrete jungle.

Comments noted.

The Heart of Beaconsfield Masterplan clearly identifies a vehicle access running east-west across the Site, connecting to Badham Close. The proposed Structure Plan is consistent with the Masterplan in this regard.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
Cockburn	14%
Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
	In	Out	In	Out
South Street (West)	2	8	7	5
South Street (East)	6	18	14	8
Lefroy Road (East)	12	36	30	18
Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

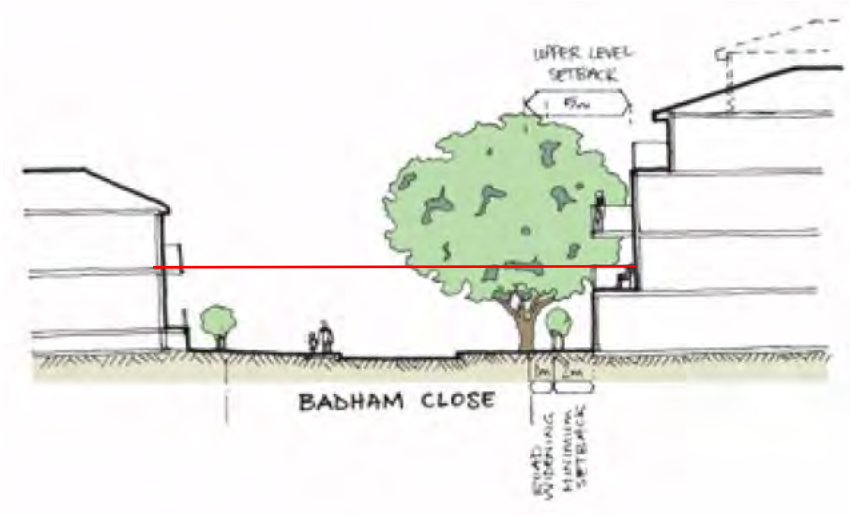
City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would

ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of a Local Development Plan (LDP) containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



The Landscape Report (Appendix B of the Structure Plan report) notes that pre-development, the site had 19% canopy cover. This has been reduced to 11% during demolition, due to the necessary removal of some trees. However, the proposal includes the retention of a large number of mature trees and significant planting that would increase canopy cover to at least 30%, by the time the new trees reach maturity.

36	Owner / occupier – Beaconsfield

Thank you for the opportunity to view the structure plan and make comment.

The understanding I have from reading the plan is that it is envisaged that there will be increased traffic flow to South Street. There is already a long wait to turn left onto South Street from Caesar Street or Lewington Street. Turning right takes very much longer. It is also very difficult to turn right from Curedale Street onto South Street.

There are only two sets of traffic lights to control South Street traffic flow, located at Carrington Street and Hampton Road. The flow is endless during peak periods. Is consideration being given to the installation of traffic lights somewhere in between the current ones to give motorists a chance to get onto a major carrier road?

The structure plan also proposes that primary school students from the new subdivision will attend Christ the King School and Winterfold Primary, directing traffic to the east. My concern is that the existing problems already occurring with traffic flow to the south and south-west have been overlooked. Existing issues will continue and are likely to become worse with additional traffic accessing Beaconsfield Primary School and the two large shopping centres in South Fremantle on Hampton Road.

I have lived in Beaconsfield for six and a half years. Over this time, there has been increased residential density from new dwellings in Longford Road. Waterford Street (and not Lefroy Road) is most often used by local residents to access the south (Beaconsfield Primary) and to the south-west (IGA, Peaches, Banovich Pharmacy) and to suburbs in the south-west and beyond. It is also used as a rat run by motorists from outside the Salentina Ridge subdivision, most noticeable during peak periods but throughout the day. Cars enter Waterford Street from Moran Street and then, in the main, turn left onto Longford Road out of the subdivision to head north and east. It is less frequent to observe a vehicle turning right at the intersection of Waterford Street into Longford Road to access further into the Salentina Ridge subdivision.

Motorists also sweep into the broad entrance to Waterford Street from Longford Road, speed up the street and turn right or left into Moran Street to head south and south-west.

I note with admiration the careful planning to contain speed within the new subdivision at the TAFE site and efforts to manage street parking.

Will consideration be given to managing traffic flow through Waterford Street as not all the traffic movement at the TAFE site will be heading east?

Traffic flow into and out of Salentina Ridge from people external to the subdivision is of concern with this development and the Heart of Beaconsfield proposal. I do not believe that Waterford Street was ever designed to be a carrier of anything other than local traffic, but it is a rat run, particularly during school terms.

Comments noted.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
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Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

Main Roads WA does not support the installation of further signalised intersections on South Street at this time.

Waterford Street lies outside the scope of the of the proposed Structure Plan; however, the comments regarding the street's use as a 'rat-run' have been forwarded to the City's infrastructure division.

37	Owner / occupier – Mosman Park

I support the housing approach but needs even greater density, especially in a housing crisis.

Comments noted.

The proposed housing densities have been chosen so that they interface appropriately with the surrounding neighbourhood, with R160 being the highest density coding that can be applied outside of a designated Activity Centre.

38	Owner / occupier – Beaconsfield

The volume of affordable and social housing in this plan is very concerning. Fremantle and surrounding suburbs, including Beaconsfield, where the proposed site is located, already have a large number of affordable housing and Department of Housing dwellings. To have such a large number of affordable and social housing concentrated in one place is unsettling for people living in the area. Beaconsfield residents have purchased their houses in this area with the knowledge that the TAFE site would remain. Please do not proceed with this plan.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

Following the closure of the Beaconsfield Challenger TAFE in 2018, the Heart of Beaconsfield Masterplan was developed by the City of Fremantle in partnership with the Department of Communities, Department of Education, Department of Planning, Lands and Heritage, DevelopmentWA, and Activ, with significant input from the local community. The

Masterplan, which was adopted in 2021, identifies the Site for redevelopment for housing and a potential mixed-use development and / or community facility, which has informed the design of the proposed Structure Plan.

39	Owner / occupier – Beaconsfield

We believe that Beaconsfield already has a large number of affordable and social housing, so this development would only add to the problem and the development is also too big.

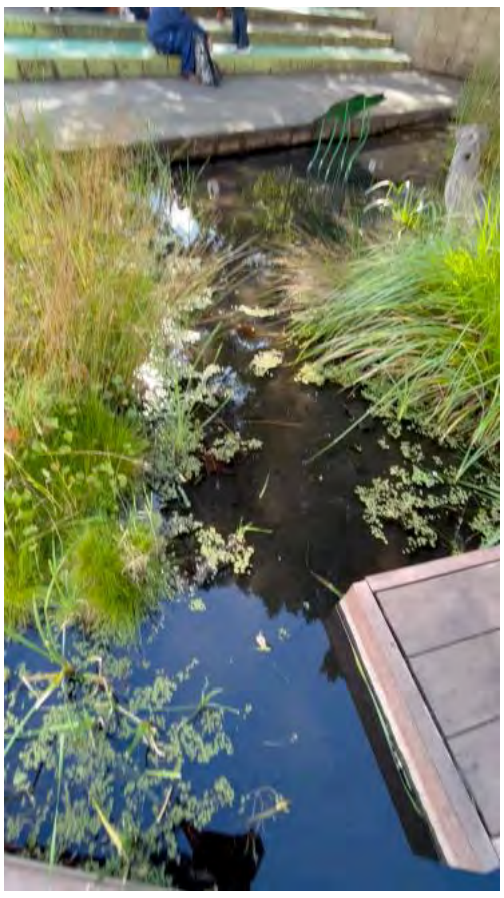
Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

40	Owner / occupier – Beaconsfield

1. TRAFFIC CALMING AND STRATEGIC MANAGEMENT PLAN
    - Residents are concerned about the negative impact of increased traffic volume on an already unsafe road system.
    - The neighbouring streets want to see a safe traffic system implemented.
    - Traffic calming strategies such as speed limits changed to 30 kilometres per hour on all residential streets.
    - Pedestrian cross bridge over South Street to get to Booyeembara Park.
    - Current plan within the site and the surrounding streets is hostile to pedestrians and the resident environment.
    - Estimated over 3000 (conservative) vehicles per day on our narrow streets this will diminish our quality of life and amenity.
2. ZONING R160 AND R100 – BUILDING HEIGHTS.
    - Five to eight storeys is out of scale, too high for the existing buildings.
    - R160 where there is no train station and a very limited public transport system. This is not the right height for the number of cars it creates on our existing roads that have not got the infrastructure to support it.
    - Limit to three storeys to prevent overpowering existing built and natural environment.
    - Five to eight plus storeys provides NO POSITIVE BENEFIT to the neighbourhood or the people that have to live that high from the ground.
    - Enforce the NEW MEDIUM DENSITY CODE drafted by WA Labour Government and was meant to take effect on September 1st 2023. Good design principals to create energy efficient homes with natural light and ventilation.
    - Good design diversity. Not generic cookie-cutter. A good example is White Gum Valley.

3. OPEN GREEN SPACES
    - Quality Landscape architectural plans that create connectivity through pedestrian pathways.
    - Movement and connectivity: wetland features with walkways to promote active engagement with nature.
    - Wetland features create nature sounds and biodiversity.
    - Increase the tree canopy and the green spaces and landscape connective pathways.
    - Include nature play zone for children.
    - Within the site plan zone it states pedestrian and cycling friendly, therefore traffic speeds should be no more than 10 kilometres per hour, encourage active travel. PRIORITISE PEOPLE NOT CARS.
    - Engagement with nature incorporated into the overall design. Seating areas in natural spaces with fauna and flora.
    - CREATE wildlife corridors to encourage birds and other wildlife.



Comments noted.

Generally, local roads are subject to a 50 kilometre per hour speed limit, though lower limits may be imposed by the City. However, the City does not intend to reduce traffic speeds on local roads below the standard 50 kilometres per hour at this time.

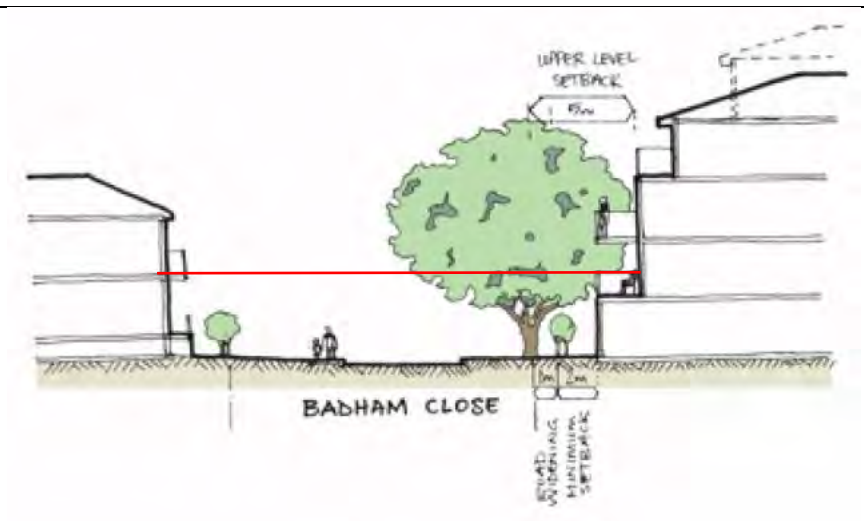
South Street is under the jurisdiction of Main Roads WA, who would determine the suitability of any proposed new crossing. A pedestrian bridge is a significant piece of infrastructure that would require funding and ongoing maintenance and so it is unlikely that Main Roads WA would support such an installation.

The proposed Structure Plan layout includes two local roads and a network of laneways to provide vehicular access to the rear of the R60-coded lots. The relatively narrow width of the laneways would discourage drivers from travelling at speed, while the local roads would incorporate a degree of 'visual friction' through verge planting, and potentially surface treatments, which would also discourage speed. The proposed development would be equipped with footpaths and wide, vegetated verges that would create a pleasant pedestrian environment. The Landscape Report (Appendix B of the Structure Plan report) indicates surface treatments and a 'pinch point' in the roadway to ensure that pedestrians have priority when crossing through the public open space (POS).

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



Unfortunately, the City is unable to apply the new Medium Density Codes, as these were to have been a component of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes) which, through the *Planning and Development (Local Planning Schemes) Regulations 2015*, are read as part of the Local Planning Scheme. Their deferment means that the City cannot exceed the requirements of the existing R-Codes, unless the aspects that local governments are permitted to vary are altered by a local planning policy or local development plan (LDP).

DevelopmentWA has a proven track record of delivering high-quality, well-designed homes that incorporate sustainability measures, such as higher than standard levels of energy efficiency, solar photovoltaic cells, rainwater collection and reuse etc. In fact, DevelopmentWA was the developer responsible for delivering the examples shown from White Gum Valley. Additionally, any new development of three storeys or more must also be reviewed by the City's Design Advisory Committee to ensure a high standard of design.

The Landscape Report details a quality landscape design incorporating a strong pedestrian and cycle movement network, particularly from Grosvenor Street to Lefroy Road through the POS.

A wetland feature would be beneficial from a biodiversity perspective; however, it would bring with it potential issues, particularly around ongoing maintenance. The proposal also faces criticism over a lack of useable public open space, which incorporation of a wetland would exacerbate.

The proposed POS would include a plaza, grassed areas, seating, a nature-based play space and would retain a significant number of mature trees for shade. This would be further enhanced by the planting of new trees, which the Landscape Report indicates would increase canopy cover from 19% of the Site pre-development to 30%. The retention of mature trees and new planting with native shrubs and trees would also provide a refuge for wildlife, particularly birds.

41	Owner / occupier – Hamilton Hill

1. Four-storey height limit.
2. No on-street parking.

I have family living in public housing in Doig Street, whilst we are grateful to have a roof over our head, it's a very scary area to live. Everyone who lives in the area knows Beaky Bronx: huge problems with alcohol, drugs, police, fighting, unleashed guard dogs. I walk it most days with my grandson.

My other grandson attends Fremantle College. It's such a blessing to have so much green space for our teenagers. Outside the Davis Park precinct, the cottage houses are overflowing with flowers, trees, friendliness – apart from vehicles on the footpath and verge. I submit that there be no allowance or encouraging of on street parking of private vehicles. Most households have two vehicles: that's 300 vehicles vying for minimal space. Then there are the sports field vehicles.

How will the 30% social and affordable housing be allocated and managed? There is a demand from older single women, teachers, nurses, artists, musicians for affordable housing. However, the density is a burden on the social and natural environment. There is nothing over three storeys in the area and those private blocks bring their family violence problems if too many people are living in too small space. I submit there be a limit of four storeys – penthouse views to Rottnest. I like the sound of the landscaping and use of sustainable water and energy principles. What is the measure of affordable? Perth is the city with the least green coverage in Australia, Beaconsfield and Hamilton Hill provide a good number of trees, but infill housing is eradicating green open spaces in back yards and depriving those of us living near schools and work of the open space we were attracted to.

Comments noted.

All development would be required to comply with the parking requirements of State Planning Policy 7.3 – Residential Design Codes of Western Australia (R-Codes), which includes visitor parking for apartments. The Structure Plan report also indicates that the two primary streets through the Site would incorporate embayed parking for visitors, which would eliminate any parking on verges or footpaths.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing

buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

Affordable housing is defined in the WA Housing Strategy 2020-2030 as *"housing that households on low to moderate incomes can afford to access while meeting other essential living costs."* The Strategy elaborates on this, stating:

"Affordable housing is not just about price – it is about what people can afford relative to their income. Put simply, it means households on low to moderate incomes can afford to access a suitable home while meeting other essential living costs.

Generally, households should spend no more than 30 per cent of income on housing. For example, a household on $45,000 per annum can only afford to pay $250 per week in rent without experiencing housing stress. Affordable housing differs across a range of housing options and tenures; it is not just social housing."

In terms of urban forest canopy and green space, the proposed Structure Plan indicates the provision of 16% of the site as public open space (POS), which exceeds the standard 10% required by State Planning Policy 3.6 – Infrastructure Contributions. This POS has been located to ensure the retention of a significant number of mature trees on-site. Additionally, the proposed Structure Plan makes provision for wide road verges, which would be landscaped with new trees and could accommodate the planting of verge gardens. State Planning Policy 7.3 – Residential Design Codes of Western Australia, Volume 1 (R-Codes) requires the provision of a percentage of open space, along with a deep soil area and a new tree per dwelling on each lot developed with a single house or grouped dwellings. Similarly, R-Codes, Volume 2 – Apartments requires a percentage of open space and the provision of deep soil areas and new trees according to the size of the lot.

42	Owner / occupier – Beaconsfield

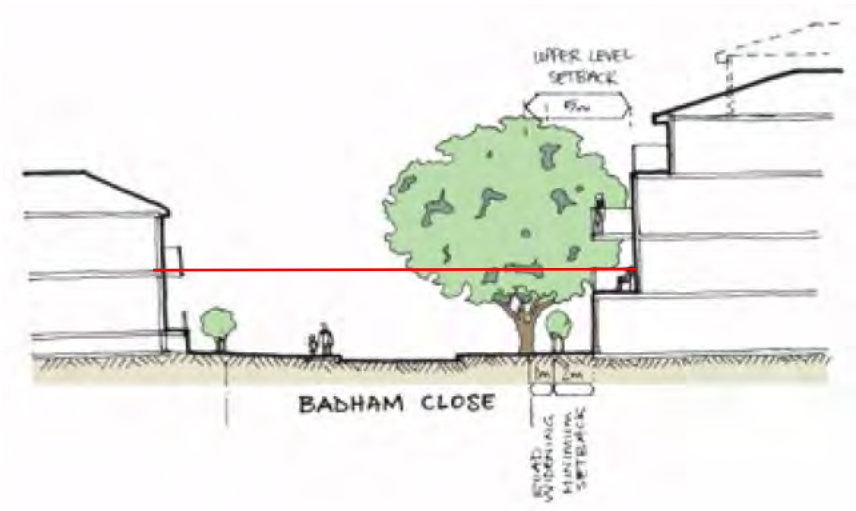
My biggest concern with this development relates to the R100 and R160 coded areas and the number of storeys that will be allowed. Under Part 3.1.4 – Medium Density Code and Apartment Code, the document states (page 34) that the proposed heights will be four storeys (R100) and five storeys (R160). However, 1.4.2.4 – Local Development Plan states that an LDP may vary the maximum height to five storeys (R100) and eight storeys (R160). How do we know which one it will be and when will this submission / approval be made? These heights seem excessive for a residential area that is predominantly one and two-storey homes. And who accepts the "proposed community benefits" to allow this to happen? Do the residents who currently live (especially those that directly neighbour the site) and have invested in this area have a say? How will these tall structures affect their property – lack of privacy, shadows, less sun, wind through the buildings?

Comments noted.

The City acknowledges that the proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

Typically an LDP is prepared after the adoption of a Structure Plan, or as a condition of subdivision approval. Should an LDP be prepared, it would be advertised for public comment in accordance with the *Planning and Development (Local Planning Schemes) Regulations 2015*. This would provide the community with the opportunity to comment on any proposed community benefits, though ultimately the decision to accept those benefits or otherwise would lie with the elected members of Council.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



43	Owner / occupier – Beaconsfield

Traffic

Traffic from the TAFE site will be directed either onto Lefroy Road or South Street. Vehicles heading to South Street are likely to use either Caesar Street, Lewington Street or Field Street (via Grosvenor Street). Vehicles going the other way will either enter directly onto Lefroy Road (opposite the High School) or via Badham Close, Curedale Street or Caesar Street.

The traffic modelling undertaken on behalf of Development WA, which I understand is based on an assumed one car per dwelling, estimates 930 vehicle movements per day and 95 vehicle movements each way at peak times. This is compared with the historical number of daily vehicle movements during operation of the TAFE, which is estimated at 1,750.

Concerns:

- The assumption that there will be only one car per dwelling appears to be an underestimation. Looking at the number of cars parked outside houses in the area suggests there will be at least two cars per dwelling. Therefore, the number of movements is likely to be much higher than estimated by Development WA.
- The estimated traffic conditions do not take into account the cumulative impacts from nearby developments shown in the Heart of Beaconsfield Masterplan. This includes redevelopment of the Davies Street Park and construction of dwellings on the north side of Grosvenor Street, which is currently part of the Bruce Lee oval carpark.
- The comparison with the historical number of vehicle movements during operation of the TAFE appears misleading. This assumption does not take into consideration the more recent expansion of the High School, which now has a much larger catchment, and other housing developments in the area.
- The exodus from the new development onto Lefroy Road is likely to result in a major hazard with the High School located immediately opposite, especially during peak times. Contributing to this is the location of the exits at a low point on Lefroy Road which reduces visibility when driving down from the Curedale Street roundabout.

Building Heights

The proposed TAFE redevelopment includes four to five-storey buildings adjacent to Badham Close and along Lefroy Road. The dwellings along Grosvenor and Caesar Streets will range from two to three-storey. The four to five-storey buildings are justified based on the natural topography, i.e., they are located in the low-lying areas.

Concerns:

- The construction of four to five-storey buildings is completely out of keeping with the surrounding houses which generally comprise one or two-storey buildings.
- The construction of higher, multi-storey buildings will set a precedent for all future developments.
- The sites of the proposed four to five-storey buildings are zoned R100 and R160 respectively. Under the planning laws this zoning allows for building heights of up to five and eight storeys. Therefore, the developer will be free to apply to construct much higher buildings than envisaged by the Council or Development WA. I also note that the developer is allowed to approach the Western Australian Planning Commission if the council rejects any amendment to the plan. Historically the Commission has tended to side with the developer, circumventing local opposition.

Green Open Space

The TAFE redevelopment includes three areas of green open space located near the north-western side, south-western corner and south-eastern corner of the development. The south-western and south-eastern green spaces are based around deep sumps used to manage stormwater. The development plan states these will be modified to manage both stormwater and to provide recreation areas for the local community. No detailed plans are available showing how these sumps will be modified to meet these purposes. Comments by a representative of DevelopmentWA point to beautification of the sump next to the Beazley Park redevelopment in White Gum Valley.

Concerns:

- Will the council be able to guarantee these green open areas will be modified once plans for the redevelopment have been approved.
- History shows that developers are reluctant to spend additional money on green areas.
- The Beazley Park sump is a shallow depression compared to the two sumps at the TAFE site. Therefore, conversion of the TAFE sumps will be much more expensive likely requiring extensive earthworks.

CLOSING REMARKS

I accept that the TAFE site should be redeveloped to provide additional housing in the area and that a proportion of the housing should be set aside for social and affordable housing.

The majority of my concerns revolve around the planned housing density. As a local resident I would advocate the following actions:

1) The traffic modelling carried out on behalf of DevelopmentWA be reviewed and rerun using more realistic inputs. These should include the number of vehicles per dwelling (one vehicle per dwelling is plainly not representative) and the impacts from all the planned developments under the Heart of Beaconsfield Master Plan not just the TAFE development in isolation.
2) The planned density be reviewed with the aim of reducing the number of dwellings to be consistent with the area and likely impacts from the Heart of Beaconsfield Masterplan.
3) As a minimum, guarantees be provided by DevelopmentWA and the Council that the number of storeys identified in the current plan for the TAFE site not be exceeded.

4) Detailed designs for the green spaces be provided prior to the land release rather than vague statements around "analogous" green space developments. This will provide stakeholders with a clear understanding of the facilities and the likely costs involved.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
Cockburn	14%
Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
	In	Out	In	Out
South Street (West)	2	8	7	5
South Street (East)	6	18	14	8
Lefroy Road (East)	12	36	30	18
Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

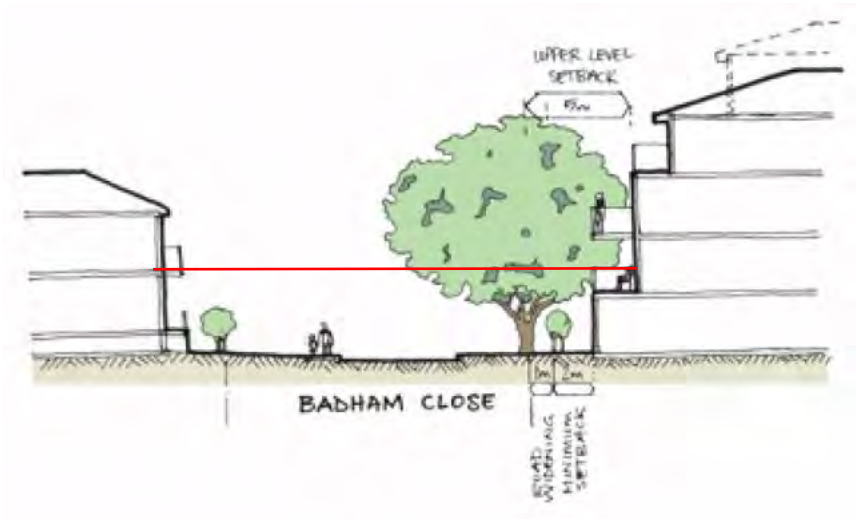
There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that

would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



The Landscape Report (Appendix B of the Structure Plan report) contains detailed information around landscape design, including an overall masterplan. Specifics around tree and plant species, surfacing treatments, etc. would be determined at the development stage.

44	Owner / occupier – Beaconsfield

Please confirm that the majority of this site is not destined for state housing. I am worried about possible word of mouth that this is a done deal for a majority being state housing. I am worried about devaluing of my property and the social issues which I thought were being addressed by removing the majority of this type of housing over the last couple of years. I am tired of the constant break-ins and social issues which used to plague my area in Beaconsfield. Also, the fact a multi-storey is being put over a school with children is a concern. Please address.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

Apartments adjacent to and overlooking schools are not uncommon and this is not a valid planning consideration.

45	Owner / occupier – Beaconsfield

I am a resident of Beaconsfield. I am very concerned about the large concentration of Social Housing 20%-30%+ now planned for our neighbourhood. Fremantle Council is very much aware of the problems we have had with social housing in the Davis Park (Beacy Bronx) area. Drugs, anti-social behaviour from that area flows out to our shopping area in Beaconsfield Plaza and bottle shop. The total disrespect for property provided is very obvious. The area around Davis Park has not being a safe area, although improved since residents have been relocated. Fremantle Police will verify the issues.

Fremantle already has more than three times the Perth Metropolitan average for social housing, nearly 12% of the areas housing stock is social housing already. The current government mandate is now 12% social housing. We have been doing our bit for a long time. The public information at Farmers Market said social housing would be set at 20%(!) with provision of 30% social or affordable housing, up to eight storeys at R160 on Lefroy Road. This concentration of social housing will spell absolute disaster for Beaconsfield in the coming years. Local real estate agents have said it will be very difficult to sell houses in the area with such a high concentration of social housing. Increased Drug use, anti-social behaviour opposite a high school and childcare centre is not a good mix. I am very worried we will have 'Beacy Bronx Ver 2.'

Quoting EX-Mayor Brad Pettit:

"The public housing within the Council's boundaries was most concentrated in Beaconsfield, Hilton, White Gum Valley and North Fremantle. The (relatively high) percentage has been going down as the Housing Authority works towards achieving its 'one in nine' target, and we expect it to continue to reduce over time."

He said the TAFE site is now one in five. I totally understand the need for social and affordable housing, but certainly not in such high concentration. It should be spread out and not all concentrated in TAFE or Fremantle – just to tick boxes with

the State Government. If Fremantle Council approve 20% social and affordable housing in this small area, I will seriously consider moving out of the area for the safety of my family. Ref: https://www.watoday.com.au/national/western-australia/the-suburbs-bearing-the-brunt-ofperth-s-public-housing-20190306-p5124q.html
Comments noted. The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building. The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

46	Owner / occupier – Beaconsfield

Traffic

Traffic from the TAFE site will be directed either onto Lefroy Road or South Street. Vehicles heading to South Street are likely to use either Caesar Street, Lewington Street or Field Street (via Grosvenor Street). Vehicles going the other way will either enter directly onto Lefroy Road (opposite the High School) or via Badham Close, Curedale Street or Caesar Street.

The traffic modelling undertaken on behalf of Development WA, which I understand is based on an assumed one car per dwelling, estimates 930 vehicle movements per day and 95 vehicle movements each way at peak times. This is compared with the historical number of daily vehicle movements during operation of the TAFE, which is estimated at 1,750.

Concerns:

- The assumption that there will be only one car per dwelling appears to be an underestimation. Looking at the number of cars parked outside houses in the area suggests there will be at least two cars per dwelling. Therefore, the number of movements is likely to be much higher than estimated by Development WA.
- The estimated traffic conditions do not take into account the cumulative impacts from nearby developments shown in the Heart of Beaconsfield Masterplan. This includes redevelopment of the Davies Street Park and construction of dwellings on the north side of Grosvenor Street, which is currently part of the Bruce Lee oval carpark.
- The comparison with the historical number of vehicle movements during operation of the TAFE appears misleading. This assumption does not take into consideration the more recent expansion of the High School, which now has a much larger catchment, and other housing developments in the area.
- The exodus from the new development onto Lefroy Road is likely to result in a major hazard with the High School located immediately opposite, especially during peak times. Contributing to this is the location of the exits at a low point on Lefroy Road which reduces visibility when driving down from the Curedale Street roundabout.

Building Heights

The proposed TAFE redevelopment includes four to five-storey buildings adjacent to Badham Close and along Lefroy Road. The dwellings along Grosvenor and Caesar Streets will range from two to three-storey. The four to five-storey buildings are justified based on the natural topography i.e., they are located in the low-lying areas.

Concerns:

- The construction of four to five-storey buildings is completely out of keeping with the surrounding houses which generally comprise one or two-storey buildings.
- The construction of higher, multi-storey buildings will set a precedent for all future developments.
- The sites of the proposed four to five-storey buildings are zoned R100 and R160 respectively. Under the planning laws this zoning allows for building heights of up to five and eight storeys. Therefore, the developer will be free to apply to construct much higher buildings than envisaged by the Council or Development WA. I also note that the developer is allowed to approach the Western Australian Planning Commission if the council rejects any amendment to the plan. Historically the Commission has tended to side with the developer, circumventing local opposition.

Green Open Space

The TAFE redevelopment includes three areas of green open space located near the north-western side, south-western corner and south-eastern corner of the development. The south-western and south-eastern green spaces are based around deep sumps used to manage stormwater. The development plan states these will be modified to manage both stormwater and to provide recreation areas for the local community. No detailed plans are available showing how these sumps will be modified to meet these purposes. Comments by a representative of DevelopmentWA point to beautification of the sump next to the Beazley Park redevelopment in White Gum Valley.

Concerns:

- Will the council be able to guarantee these green open areas will be modified once plans for the redevelopment have been approved.
- History shows that developers are reluctant to spend additional money on green areas.
- The Beasly Park sump is a shallow depression compared to the two sumps at the TAFE site. Therefore, conversion of the TAFE sumps will be much more expensive likely requiring extensive earthworks.

CLOSING REMARKS

I accept that the TAFE site should be redeveloped to provide additional housing in the area and that a proportion of the housing should be set aside for social and affordable housing.

The majority of my concerns revolve around the planned housing density. As a local resident I would advocate the following actions:

1) The traffic modelling carried out on behalf of DevelopmentWA be reviewed and rerun using more realistic inputs. These should include the number of vehicles per dwelling (one vehicle per dwelling is plainly not representative) and the impacts from all the planned developments under the Heart of Beaconsfield Master Plan not just the TAFE development in isolation.
2) The planned density be reviewed with the aim of reducing the number of dwellings to be consistent with the area and likely impacts from the Heart of Beaconsfield Masterplan.
3) As a minimum, guarantees be provided by DevelopmentWA and the Council that the number of storeys identified in the current plan for the TAFE site not be exceeded.
4) Detailed designs for the green spaces be provided prior to the land release rather than vague statements around "analogous" green space developments. This will provide stakeholders with a clear understanding of the facilities and the likely costs involved.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
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Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
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South Street (West)	2	8	7	5
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Lefroy Road (West)	3	10	8	5

Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or

seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

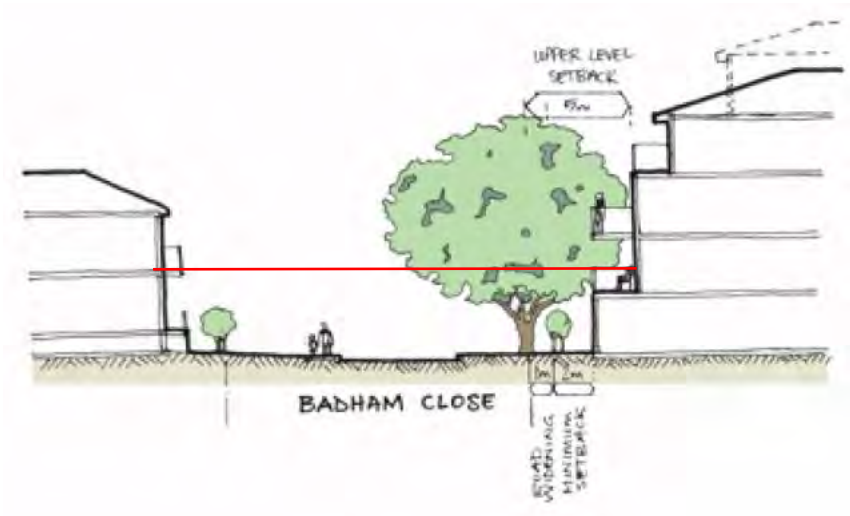
City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



The Landscape Report (Appendix B of the Structure Plan report) contains detailed information around landscape design, including an overall masterplan. Specifics around tree and plant species, surfacing treatments, etc. would be determined at the development stage.

47	Owner / occupier – Beaconsfield

Beaconsfield already has a large volume of affordable and social housing, so the number of houses proposed on the site is excessive.

Comments noted.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building.

The proposed Structure Plan also contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

48	Owner / occupier – Beaconsfield

I oppose what has been proposed. We need less high-rise, not bringing back Beaconsfield Bronx, less crime. Also, the traffic would be concerning on Lefroy Road.

Comments noted.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

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For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

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49	Owner / occupier – Beaconsfield

An additional 372 people will be too many in the area to be able to get on to South Street and head east in the mornings to go towards the city. Will need some traffic modelling. I would like to see some small commercial space for a cafe or

similar. The Heart of Beaconsfield had the apartments as three to five storeys, which I find to be reasonable. An eight-storey apartment building is too much for this area and will not fit the streetscape; it will be very out of place.

Comments noted.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

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As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

50	Owner / occupier – Beaconsfield

Add a pump track, skate park or playground. The idea is to attract young professional families to the area, so give the young people something to enjoy their time outside and build a community instead of the trash we have in the past.

Comments noted.

The landscape report (Appendix B of the Structure Plan report) designates a nature-based play space in the large public open space area, just south of the internal access road. There are a range of outdoor sports and recreation opportunities already available to young people in the vicinity of the Site, including soccer at the adjacent Bruce Lee Oval, cricket and

rugby at Hilton Park, which is less than one kilometre from the Site, a skate park, pump track and mountain bike trail at Booyeembara Park (approximately 1.1 kilometres from the Site), and Fremantle PCYC in nearby Hilton.

51	Owner / occupier – Beaconsfield

There are too many dwellings proposed for the area and not enough infrastructure to support such an increase of residents in the street. We propose you align more closely to the Heart of Beaconsfield Masterplan, which had more family houses and no high-density apartments. The Heart of Beaconsfield has gone through many consultation phases and the residents of Beaconsfield have advised their concerns about high-density housing. In the Heart of Beaconsfield the plan for the Badham Close side was more family housing not apartments. The proposed apartments will create privacy issues for Badham Close and Grosvenor Street residents. We have had to put in screening to protect our privacy just for a two-storey extension on a family house on Badham Close. This was costly and we are concerned the plan for the apartments will create the issue again.

Beaconsfield, especially Grosvenor Street and Curedale Street has a high density of government housing already. We have four within our direct neighbours. We propose you review the location of current government housing prior to finalising the percentage of these developments that will be government housing. We are concerned you will be creating another "Ghetto" situation, similar to the issues with the Davis Park precinct. Please refer to public information on all the issues.

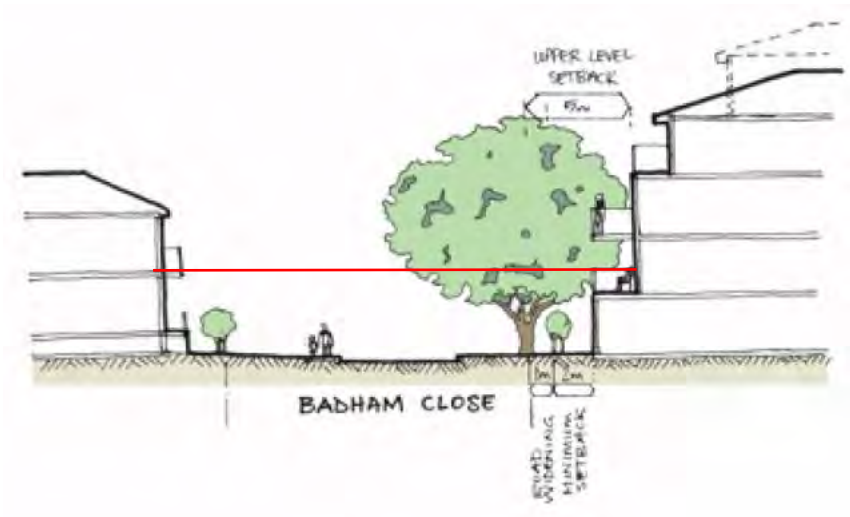
We strongly recommend you include a playground / nature park within your plan to attract families to the area. Currently you only have a walkway.

If higher density apartments must be included, we propose these are only on the Lefroy Road side with no balconies facing the current family houses.

We also suggest commercial units within this area to allow for cafés and delis etc. to provide more amenities to the increased number of residents.

Comments noted.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of a Local Development Plan (LDP) containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation of at least 17 metres between any future apartments and existing properties on Badham Close, which significantly exceeds the nine-metre separation distance required by State Planning Policy 7.3 – Residential Design Codes of WA, Volume 2 – Apartments between the habitable rooms / balconies of buildings of five to eight storeys and adjoining property boundaries. The band of mature trees on the road verge would also remain, affording a degree of screening.



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The landscape report (Appendix B of the Structure Plan report) indicates that the POS would include a plaza, grassed areas, seating, a nature-based play space and would retain a significant number of mature trees for shade. The road reserves would also incorporate wide verges suitable for planting verge gardens.

As noted above, the Heart of Beaconsfield Masterplan indicates mixed use or community uses at the south-western corner of the proposed R160-coded area, adjacent to the public open space (POS). It is considered that making provision for additional uses would facilitate the development of at least a small tenancy to provide a community focal point and activate the adjacent POS. The applicant has indicated that they would be amenable to designating 'café / restaurant' and 'community purpose' as additional uses over part of the site for these reasons.

52	Owner / occupier – Beaconsfield

I am writing to express our deep concerns regarding the proposed new development in Beaconsfield. As long-time residents of this community, we are deeply invested in its wellbeing and future, and we believe that the proposed development poses several significant challenges that need to be addressed.

First and foremost, the scale and density of the proposed development seem disproportionate to the existing character of Beaconsfield. Our neighbourhood is known for its charm, tranquillity, and the strong sense of community that we have fostered over the years. The proposed development, as it stands, threatens to disrupt this harmony by introducing high-rise buildings that could overshadow our homes and change the entire atmosphere of the area. The Heart of Beaconsfield plan, which was put together with large amounts of community consultation, initially outlined the placement of the apartment buildings on the eastern and southern borders of the site. This placement considered the placement of the existing mature trees on the site and the effect of the shadowing of the new buildings to the existing residents. By placing the apartment complex on the western border of the site, it has resulted in removal of many of trees. The numbers of trees being removed as stated by DevelopmentWA does not appear accurate – these numbers include the trees that are on the verge owned by Fremantle Council. Additionally, the "increase in green space" has been reduced to two spaces in the site – a drainage slump that will be turned into a raised drain, and a small path area. This includes trees that have been labelled "Exotic Trees" including matured Ficus Trees and others which are historical to the site. These trees have been deemed "trees of significance that cannot be removed" by the Fremantle Council. However, trees of the same species and similar age / height within the TAFE site are planned to be removed by the development. Furthermore, these trees are home to many native birds including the Australian Raven, Magpie, Willie Wagtail, Honeyeater, Rainbow Lorikeets, Australian Ringback, White Browed Scrub wren, Laughing Kookaburra, Silver eye and the Nankeen Kestrel.

It is our concern that the currently designated heights of buildings could also be increased if certain conditions are met. This is deceiving and not clearly explained – the process and plans should be transparent and easily understood so that all members of the community can appreciate the extent of the buildings proposed. Given the falsified facts that have been provided by DevelopmentWA, we are concerned that this clause will allow these buildings to be raised further without community consultation or consideration.

Our next significant concern is regarding the increase in traffic and parking congestion that this development is likely to bring. The traffic report that has been provided outlines an increase in traffic of greater that 400%. At present Badham close is used as a turnaround zone for Fremantle College and the Day Care Centre, as the local school does not have a designated pick up / drop off zone. Representatives from DevelopmentWA have confirmed that this traffic report did not take school pick up time into consideration and does not reflect the traffic needs at this time. Our other concerns are for that the safety of the Badham Close / Lefroy Road intersection has not been examined to a satisfactory level. The current traffic report has not provided a qualitative analysis of the internal and external transport networks required to demonstrate that they provide a high level of accessibility and safety (vol 2, sec 10.9); additionally, we are concerned that the intersection is not designed to take on this additional traffic as it does not allow for the GRD Part 4A, Sec 3 Sight Distance Requirements. The traffic consultant previously advised an estimated available sight distance of ~120 metres for this intersection. Having roughly measured ourselves it appears closer to 100 metres. Calculating the distance using an Operating Speed of 60 kilometres per hour (10 kilometres per hour above posted), a reaction time of 2.5 seconds and deceleration coefficient of 0.36 per the guidelines for Western Australia (ignoring the downhill gradient which would further increase the required sight distance), we calculate a Safe Intersection Sight Distance (SISD) of 131 metres per the GRD requirements. The current intersection is therefore below that required SISD for the Badham Close / Lefroy Rd intersection. These questions have been asked to DevelopmentWA for further clarification on three separate occasions and have been advised it is not of their interest to provide further details and that we should contact the Fremantle Council regarding this. Please can you provide further clarification around the traffic report and the safety of this intersection as the main entrance point to the development?

Speaking with local residents including the current councillor for the Beaconsfield ward Geoff Graham, the "rat runs" which currently take place on the streets which run north / south between South Street and Lefroy Road are amongst the issues of greatest concern for local residents. The plan proposed by Development WA will further perpetuate this already known issue within Beaconsfield. We urge the council to consider comprehensive traffic studies and invest in the necessary improvements to address this issue. The Heart of Beaconsfield plan had initially considered this local issue regarding traffic in the area, by placing a "green walkway" from Grosvenor Street to Lefroy Road. This was considered a solution to address local residents concerns regarding safety of students accessing the Fremantle College. The removal of this walkway also reduces the usability of the green space, which was to include a common community area. This has now been reduced to a drain and a space that will be difficult to bridge the new and the old Beaconsfield. We understand the need for responsible development and growth within our city, but it should not come at the expense of our quality of life and the character of our neighbourhood.

We kindly request that the Fremantle Council takes these concerns into serious consideration and engages with the community to address them. We look forward to hearing about the Council's plans for addressing these issues and ensuring that Beaconsfield remains a vibrant, sustainable, and liveable community for current and future residents.

Comments noted.

The City acknowledges that the Heart of Beaconsfield Masterplan was developed with significant input from the local community. The Masterplan, which was adopted in 2021, identifies the Site for redevelopment for housing and a potential mixed-use development and / or community facility, which has informed the design of the proposed Structure Plan. However, there are variations between the Masterplan and the proposed Structure Plan because the Masterplan is a non-statutory document designed to illustrate a vision for the redevelopment of the precinct. Therefore, the applicant is not bound by the Masterplan and may put forward a different plan for redevelopment of the Site. Similarly, the City is not bound by the Masterplan in its decision-making.

The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of an LDP containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively,

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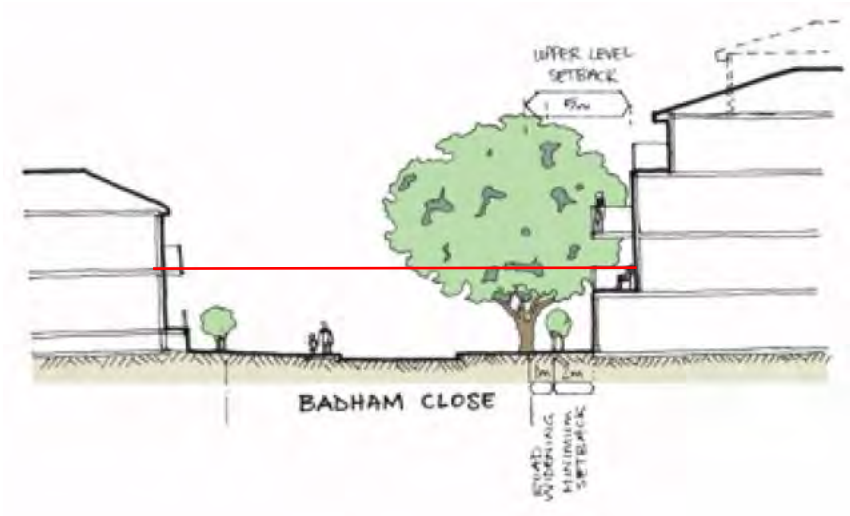

It is intended to retain the majority of the trees through the public open space (POS), including the mature ficus trees (labelled "exotic" species, as they are not endemic to Western Australia) that were historically planted in the TAFE courtyard. However, these specific trees have not been deemed as trees of significance by the City. The retention of these mature trees will ensure that the 'green link' identified in the Heart of Beaconsfield Masterplan is realised.

It is acknowledged that the existing trees on-site provide a habitat for native bird species, which will be supplemented by the planting of new native trees and plants, which will improve local biodiversity by supporting insect species and providing resting and foraging places for birds.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

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Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

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There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

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The path at the western edge of the site would be closed and the new path through the POS would allow pedestrian access between Grosvenor Street and Badham Close / Lefroy Road.

53	Owner / occupier – Beaconsfield

Thank you for the opportunity to comment on this development. We are pleased to see that the TAFE site is being redeveloped.

We support the sustainability principles included in the design. We consider that these should be standard in any development today.

We wish to make the following points:

1. The proposal to place five and eight story buildings on this site is not in keeping with the local neighbourhood. There are several apartment buildings locally, but they are below five stories. Residential dwellings five stories and above work better when they are built as luxury apartments, not necessarily for those on a lower income. We do not feel this is conducive to a 'liveable neighbourhood'.
2. High rise apartments can result in increased social issues. Especially for high density sites. This development does not sit in isolation from its surroundings.

   In 2019 Housing demolished Brownlie Towers. These two 10 storey towers were built in the seventies. *"With an in-house grocery store, day care centre, chemist, hairdresser — and a school and swimming pool next door — the twin 10-storey complex of Brownlie Towers in the suburb of Bentley stood as the centrepiece of a carefully curated neighbourhood full of gardens and open space. Then, to the horror of planning officials, it quickly disintegrated into a hotbed of crime, becoming synonymous with murders, suicides, violence and drug abuse."* (https://www.abc.net.au/news/2019-04-07/brownlie-towers-housing-complex-faces-demolition/10918264)

   Our concern is that the TAFE site, while planned with all the best intentions, is headed for a similar fate. Davis Park is no more than 60 years old, if that. Already it has been mostly demolished due to the high level of antisocial behaviour which has developed.
3. The plan does not distinguish between affordable and social housing, proposing a 30% presence. The plan does not define either social or affordable housing. This is disingenuous and does not allow us to appropriately assess what is proposed. Public housing has been working to a 10% presence for decades. Now it proposes up to 30% social housing on this site.

   There is already a high social housing presence in this area (see map). In addition to Davis Park, our calculation of the proportion of social housing properties in the area bordered by Curedale Street, Davies Street and Howell Vista

is 1:3, not including other social housing properties being constructed in Davies / Curedale Streets by a not-for-profit body.

Public housing was initially built after WWII for returned soldiers. Then it housed the working poor, and after some decades, those on a very low income or unemployment benefits. In 2023 social housing tenants often have more complex issues which can be intergenerational. It is hard for any agency, government or not-for-profit, to resolve these. High density housing will only exacerbate these issues.

We would be happy with a 100% affordable housing presence. By this we mean housing purchased by those on a lower income. Given the high presence of social housing in this area and more planned, we would ask that no dwellings be allocated for social housing on this site.

4. The estimated population on site is 372 people in 155 dwellings. At one to two cars per dwelling this is an additional 150 to 300 cars locally. The traffic plan concludes that this will have no impact on the surrounding streets. This is hard to believe.

   Both Grosvenor Street and Badham Close are small, short streets so a few extra vehicles are noticeable. Most TAFE traffic was during daylight hours and on weekdays, unlike residential dwellings.

   Does the traffic plan consider recent construction on surrounding streets, plus future planned dwellings? The impact of recent construction and maintenance vehicles alone has been noticeable.

   Traffic has increased considerably along South Street in the past five years. It is very hard to turn right onto South Street. Already traffic is heavier along Curedale Street, compounded by on street parking. The flow of vehicles into surrounding streets will exacerbate this problem.

   Reducing the height of the five and eight-storey buildings would minimise traffic impact.

5. Bore water should not be accessed on site. Grosvenor Street is higher than adjoining areas. We have found this a very hard area in which to establish a garden, in part due to the dry conditions. Removing groundwater lowers the water table, making it harder for trees and other large plants to access water naturally.

   Using bore water is not environmentally sound. Climate modelling has shown that groundwater pumping is tilting the earth's axis of rotation and contributes to global sea level rise (Geographical Research Letters 15 June 2023 https://doi.org/10.1029/2023GL103509 accessed on https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2023GL103509)

6. Who will be responsible for maintaining the public open space and lawns? We would hope this maintenance is not at Council expense.

7. There is currently a path to the west of the TAFE site allowing pedestrian and bike access between Grosvenor Street, Lefroy Road and Badham Close. Will members of the public and local residents still be able to walk through on the western side? At the moment the path links south to a pathway through to Annie Street.

Many of us have lived in this area for decades. We are quite comfortable with a range of ownership and tenancies. However recent construction and planning propose a much higher density of housing and tenancies than is suitable for any area. It does not fit with Housing's longer term aim of around 10% public housing and dwelling design suited to residents' needs. Once built and occupied it can be difficult to reverse poor decisions without considerable expense.

Comments noted.

The proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. However, it is considered that eight storeys would be contextually inappropriate in an area where the tallest existing buildings are three storeys. The applicant has indicated that they are amenable to modification of the Structure Plan that would limit building height on the R160-coded area to five storeys, subject to the preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development, rather than as a right per the Residential Design Codes of WA, Volume 2 – Apartments.

Brownlie Towers were emblematic of a failed social housing experiment in Western Australia; however, this failure was due to a range of factors that affected similar schemes around the globe. The Towers were ten storeys tall, which immediately created a disconnect between many of the apartments and surrounding streets and recreation spaces, while they were located approximately 3.5 kilometres from the nearest suburban shopping centre, which would have been challenging for anyone on a lower income who may not have been able to afford a private car. The buildings lacked security measures, which made them vulnerable to criminal activity, such as vandalism, theft and burglary, while some tenants were also guilty of antisocial behaviour due to a lack of necessary support systems. Sadly, the Towers were also the scene of a series of suicides, mainly by people who did not reside there, which further harmed their reputation. Latterly, the Towers were used to house many difficult tenants, leading to continued antisocial and, in some cases, criminal behaviour, including domestic violence and drug use. Ultimately, the decision was taken to vacate and demolish the Towers in 2019.

Although Brownlie Towers were a failure, the Wandana State Housing Complex in Subiaco, which incorporates a ten-storey block – the first multi-storey public housing block in Western Australia – has been well-maintained and continuously occupied by social housing tenants since its construction in 1954. It is likely that Wandana's location opposite King's Park and approximately one kilometre from Subiaco town centre has played a significant role in its success, which is such that it was entered on the State Register of Heritage Places in 2001.

The apartment buildings proposed for the TAFE Site would be no more than half the height of Brownlie Towers and the Wandana block, which is a more human scale and avoids a sense of disconnection from the ground. A wide range of services and amenities are available within approximately 1.5 kilometres of the Site, while high-frequency bus services operate to various destinations, including Fremantle and the Mandurah Line. Modern practice is to offer the same types of homes to social housing providers as the private market, making them indistinguishable, while they are also dispersed throughout a development, rather than clustered in one area or building. Therefore, social housing would be managed at the apartment level, while the building would be managed as any other apartment complex, with a strata manager and strata council to set bylaws and house rules and manage maintenance and general upkeep. Finally, modern apartment buildings are well-secured to prevent public access, which minimises the risk of crime.

The proposed Structure Plan would deliver a range of housing types to suit households of various sizes, ages and incomes. Twenty per cent of the dwellings would be affordable or social housing, in accordance with the WA Housing Strategy 2020-2030, while the remainder would be sold to the private market. Affordable housing is made available to those on lower incomes through programs such as Keystart and dwellings for social housing are sold to social housing providers.

As outlined above, the proposed Structure Plan contains provision for the development of a Local Development Plan (LDP) to permit five storeys on the R100-coded area and eight storeys on the R160-coded area, subject to delivering community benefits. One of these proposed benefits may be an increase in the provision of affordable and social housing to 30% of the dwelling yield. While it is recommended that a height limit of five storeys be imposed on the R160-coded area, subject to preparation of an LDP, which could still include an increase in the percentage of affordable and social housing delivered as part of the development.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

External Route to/from	Percentage Distribution
Fremantle	8%
Perth and Eastern Destinations	48%
Cockburn	14%
Rockingham and Southern Destinations	22%
Northern Destinations	8%
Internal	0%

Table 7-3: Trip Distribution (derived from Heart of Beaconsfield Masterplan / Davis Park Precinct Structure Plan)

Applying these distribution proportions with the trip generation in Table 7-2 results in the following anticipated traffic flows onto the surrounding external roads.

External Roads	AM peak hour trips		PM peak hour trips	
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Table 7-4: Resulting Trips Distributed

Although relatively few, it must be considered that right-turn movements onto South Street are already difficult – it is likely that this will be self-policing with most residents turning left onto South Street from Lewington or Caesar Streets or seeking alternative routes eastward. For instance, heading south and turning left onto Lefroy Road, left onto Carrington Street, then turning right onto South Street at the signalised intersection.

The proposed installation of a community bore is outside of the City of Fremantle's jurisdiction, with licences for water abstraction issued by the Department of Water and Environmental Regulation.

Developers are required to landscape and maintain all public open space (POS) for a minimum period of two years following completion of the development, after which responsibility for ongoing upkeep is passed to the local government.

The path at the western edge of the site would be closed and the new path through the POS would allow pedestrian access between Grosvenor Street and Badham Close / Lefroy Road.

54	Owner / occupier – Beaconsfield

The main selling point of the Heart of Beaconsfield has repeatedly been the retention of trees, creating an Arbor Walk, creating public open spaces.

1 Retention of existing trees to be optimised in the public realm through the location and configuration of parks and the widening of road reserves.

On the TAFE site specific and relevant points from the master plan include:

- Retain Trees and provide a N/S green link through the site.

Theme 1: Tree retention and open space provision

Key ideas:

- Trees play an important role in contributing to the character and walkability of the suburb.
- Areas of open space are important assets for the community; they should be retained and enhanced for future generations.

The resulting draft Concept Plan prioritises a diverse range of dwelling options including social and affordable housing, as well as mature tree retention, community facilities and public open spaces. T

"What has the City done with the community input?

Feedback received from the community has been fundamental in establishing the direction for the masterplan and underpinning key elements. The key outcomes of the previous community engagement exercises can be broken up into three broad themes:

- *Tree retention and open space provision;…"*

But in reality, this is not true.

As documented, the "Beaconsfield TAFE Landscape Report" (Page 18) identifies 133 existing trees, 105 of which are on the development site and 28 verge trees on City of Fremantle land.

Based on information provided the 105 trees identified of the "development site", Development WA only propose to keep 29% of all trees

Twenty-one of the trees marked for removal are mature trees in the Southwest corner, the area that was originally proposed as the "Arbor walk" and "green link pathway" in the Heart of Beaconsfield proposal. This includes trees that have been labelled "Exotic Trees" including matured Ficus Trees and others which are historical to the site. These trees have been deemed "trees of significance that cannot be removed" by the Fremantle council. However, trees of the same species and similar age/ height within the development site are planned to be removed.

Minister Carey commented in March 2024 in relation to Beaconsfield TAFE site:

"The community's preference for green space and links, public open and play spaces, and the retention of trees has been included in the draft concept plan."

He has clearly been misinformed.

So, in summary, 71% of all trees are being removed from the site, so to say that tree retention is the priority of DevelopmentWA is a farce.

These are significant trees with a broad and abundant bird life. It will be a terrible loss if further consideration is not given to greater tree retention. This amount of tree removal will drastically alter the feel and look of the area amongst all of the obvious environmental damage.

The second issue that I wish to raise is the entrance off Lefroy Road into Badham Close then into the new development. Our neighbours have provided detailed concerns that we wish to formally support and agree with. This is clearly a major development and one that is across the road from a state government high school. We strongly urge you to further consider a far more responsible and sensible entry point.

Comments noted.

The Landscape Report (Appendix B of the Structure Plan report) does not appear to identify specific numbers of trees for retention and removal, but notes that pre-development, the site had 19% canopy cover. This has been reduced to 11% during demolition, due to the necessary removal of some trees. However, the proposal includes significant planting that would increase canopy cover to at least 30%, by the time the new trees reach maturity.

It is intended to retain the majority of the trees through the public open space (POS), including the mature ficus trees (labelled "exotic" species, as they are not endemic to Western Australia) that were historically planted in the TAFE courtyard. However, these specific trees have not been deemed as trees of significance by the City. The retention of these mature trees will ensure that the 'green link' identified in the Heart of Beaconsfield Masterplan is realised.

It is acknowledged that the existing trees on-site provide a habitat for native bird species, which will be supplemented by the planting of new native trees and plants, which will improve local biodiversity by supporting insect species and providing resting and foraging places for birds.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

For the purposes of estimating vehicle movements, the directional distributions shown in Table 7-3 have been assumed for the proposed LSP. The proportions have been taken from the 2021 Census (as requested by Main Roads WA) for the City of Fremantle for Residents' Place of Work (https://forecast.id.com.au/fremantle) and rounded to nearest integer.

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City infrastructure officers have confirmed that a sight distance of approximately 120 meters can be achieved at the Badham Close / Lefroy Road intersection. This is very close to the minimum requirement for safe sight distance; however, it must be noted that the absolute minimum requirement, a Stopping Sight Distance (SSD) of 111 meters, can also be easily achieved at this intersection.

There is no crash history associated with the intersection of Badham Close and Lefroy Road. The absence of prior incidents demonstrates the intersection's safety record and should provide further confidence in the current design and traffic management measures in place.

City officers consider that the existing road infrastructure can comfortably accommodate the expected traffic volume without causing any significant disruptions to the local road network. However, a final assessment would be undertaken once the City receives the finalised plans for the development at any future subdivision stage. This assessment would ensure that the City continues to adhere to all relevant road safety standards. If necessary, the City will consider appropriate safety measures, such as roundabouts, signage, or other techniques in line with relevant guidelines.

55	Owner / occupier – Beaconsfield

I am a property owner directly adjacent the Heart of Beaconsfield and have the following concerns including:

1. The misinformation supplied by DevelopmentWA to date.
2. The conscious decision to have no consultation with Fremantle College regarding the safety of their students.
3. The removal of a significant amount of old growth trees.
4. Using Badham Close as the major access road for the new development.
5. Overshadowing.
6. Community consultation.

Misinformation:

During both the community consultation process and the site meetings we had with the DevelopmentWA team we were repeatedly told that a detailed traffic study had been done on the intersection of Badham Close and Lefroy Road. This is clearly untrue and the proposal to use Badham Close access with the increased traffic flow is well outside the safe parameters of the Main Roads department. The Fremantle Council needs to give us confidence that the traffic exiting Fremantle coming over the ridge on Lefroy Road, provides a safe intersection for this drastically increased traffic flow.

Fremantle College:

Fremantle College is a thriving progressive school with hundreds of students converging on Lefroy Road for drop off and pick up every weekday. Currently parents are mounting kerbs and queuing up in Badham Close as there is no room for the students to be picked up. In addition, there is no pedestrian crossing other than the manned crossing to the east of the school. Hundreds of students cross the road to access the access way at the western end of the TAFE redevelopment adjacent to Badham Close every morning and afternoon, totally unprotected from the traffic. It was explained to us by DevelopmentWA that the school was no concern of theirs and their proposal does not take any of these issues into consideration. I hope Fremantle Council will get involved in this issue.

Removal of large trees:

DevelopmentWA claim that their proposal will create an increased amount of shading from trees, which is fantastic. This does not compensate for them wanting to remove the majority of the large trees in the south-west corner of the development, near the drainage sump that is home to so many birds. It is outrageous to think that in this day and age the Council will allow such significant trees that are habitat to so many animals to simply be removed for the sake of a building development. The proposed new trees will take 20-30 years to achieve the site cover required to home such amazing diverse birdlife. Please save these trees.

Badham Close as major access road:

All of the residence of Badham Close chose this location to live as we all wanted to live in a quiet street: a "Close". How can the council allow this now to become a major access road. Will we receive compensation for this? DevelopmentWA say that ultimately the development will increase the property values in the area, but for the ones heavily affected by the massive traffic increase, if Badham Close is used as the major thoroughfare, our properties will become far less desirable. All of these decisions regarding the access are totally based around maximising the yield of saleable land and do not take into consideration the safety of concerns of the residents and students.

Overshadowing:

The proposed development is calling for five-storey apartments directly across the road from our residences. The new structures will significantly overshadow our homes every morning. When asked why the units can't be set back further the response is that they will overshadow other saleable areas of the development. Why are we not afforded the same courtesy?

Community Consultation:

The community consultation process was a total farce! Every key concern highlighted by the community was totally ignored:

1. Tree removal.
2. Pedestrian access path opposite Badham Close.
3. Location of multi-storey units.
4. Integration with Fremantle College.
5. Access roads.
6. Safety for students and residents.

Not one of the above points was taken seriously. They were definitely addressed with smoke and mirrors, but ultimately the goal to maximise the saleable land has taken precedent over all of the above. I sincerely hope the Council has the fortitude to protect its residents from all of the above.

Comments noted.

The City sought comment from the Department of Education regarding the proposed Structure Plan. Submission no. 4 above details the Department's response, which has not highlighted any issues regarding the management of traffic associated with Fremantle College, nor the safety of Fremantle College students. The City also hosted a community drop-in session at Fremantle College and discussed the proposals with some members of staff who did not raise any concerns.

It is intended to retain the majority of the trees through the public open space (POS), including the mature ficus trees (labelled "exotic" species, as they are not endemic to Western Australia) that were historically planted in the TAFE courtyard. However, these specific trees have not been deemed as trees of significance by the City. The retention of these mature trees will ensure that the 'green link' identified in the Heart of Beaconsfield Masterplan is realised.

It is acknowledged that the existing trees on-site provide a habitat for native bird species, which will be supplemented by the planting of new native trees and plants, which will improve local biodiversity by supporting insect species and providing resting and foraging places for birds.

The Heart of Beaconsfield Masterplan clearly identifies a vehicle access running east-west across the Site, connecting to Badham Close. The proposed Structure Plan is consistent with the Masterplan in this regard.

The calculations provided in the revised Traffic Impact Assessment predict 95 two-way vehicle movements in the A.M. and P.M peaks. This equates to approximately 950 trips per day, which is considerably less than the estimated traffic generation of the previous TAFE use of approximately 1,750 trips per day.

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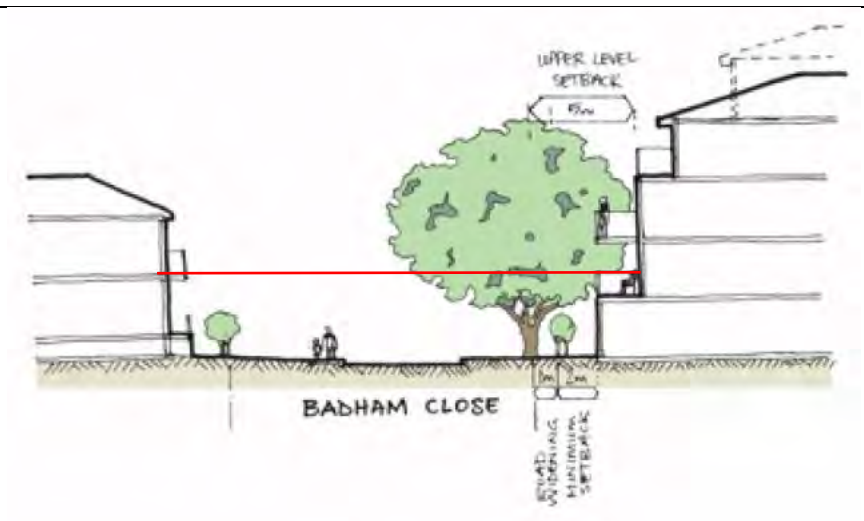
The R100-coded area adjacent to Badham Close would permit the development of four-storey apartments, with the potential to increase this to five storeys, subject to the development of a Local Development Plan (LDP) containing built form controls including an additional setback for the upper storey, the development being of high-quality design, and the delivery of additional community benefits. Although this seems significantly taller than the houses on the western side of Badham Close, the natural ground level under the R100-coded area is approximately two metres lower, while each of the houses has an undercroft, placing the main living areas approximately three metres above natural ground level on their lots. Effectively, this is a total difference of five metres or around 1.5 storeys. The diagram below gives some indication of the relationship, though contour data suggests that the existing houses may in fact be higher. Furthermore, there would be a separation between the buildings of at least 21 metres, while the band of mature trees on the road verge would remain, affording a degree of screening.



Under the provisions of State Planning Policy 7.3 – Residential Design Codes of WA (R-Codes), overshadowing is assessed at noon on the winter solstice (June 21), at which point any future apartments would not be overshadowing properties on Badham Close. Notwithstanding, it is estimated that there would be no significant overshadowing by approximately 8 a.m. on June 21, especially if the upper storeys of any future apartments were subject to additional setbacks.

The City undertook its community engagement process in line with best practice, exceeding the basic requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015*. Two community drop-in sessions were held to provide members of the community to speak directly with the proponents and City staff regarding their concerns.

56	Owner / occupier – Beaconsfield

For sustainable housing design, please include the following:

1) Deciduous trees for maximum heat retention in houses / apartments during winter and shade during summer.
2) Low-lying trees or shrub species for breeze filtering, rather than blocking towards openings / windows.
3) To avoid hot summer and cold winter winds, please use cross-ventilation i.e., front to rear or rear to front of houses and apartment units.

Comments noted.

The Landscape Report (Appendix B of the Structure Plan report) contains detailed information around landscape design, including an overall masterplan. However, specifics around tree and plant species would be determined at the development stage.

DevelopmentWA has a proven track record of delivering high-quality, well-designed homes that incorporate sustainability measures, such as higher than standard levels of energy efficiency, solar photovoltaic cells, rainwater collection and reuse etc. However, any new development of three storeys or more must also be reviewed by the City's Design Advisory Committee to ensure a high standard of design.

C2312-7 STRUCTURE PLAN – 11-15 GROSVENOR STREET, BEACONSFIELD (FORMER CHALLENGER TAFE
Attachment 2 – Local Structure Plan

Attachments viewed electronically

ATTACHMENT 3 – PROPOSED STRUCTURE PLAN – 11-15 GROSVENOR STREET, BEACONSFIELD (REF. SP0002/23)

Perth and Peel@3.5million

Perth and Peel@3.5million is a suite of land use planning and infrastructure frameworks to guide the future growth of the Perth and Peel regions as a compact, consolidated and connected city that can accommodate a population of 3.5 million by 2050.

The spatial plan for the Perth and Peel regions (see Figure 1 below) was developed to deliver a more consolidated urban form and achieve a more efficient and cost-effective urban structure that minimises environmental impacts.

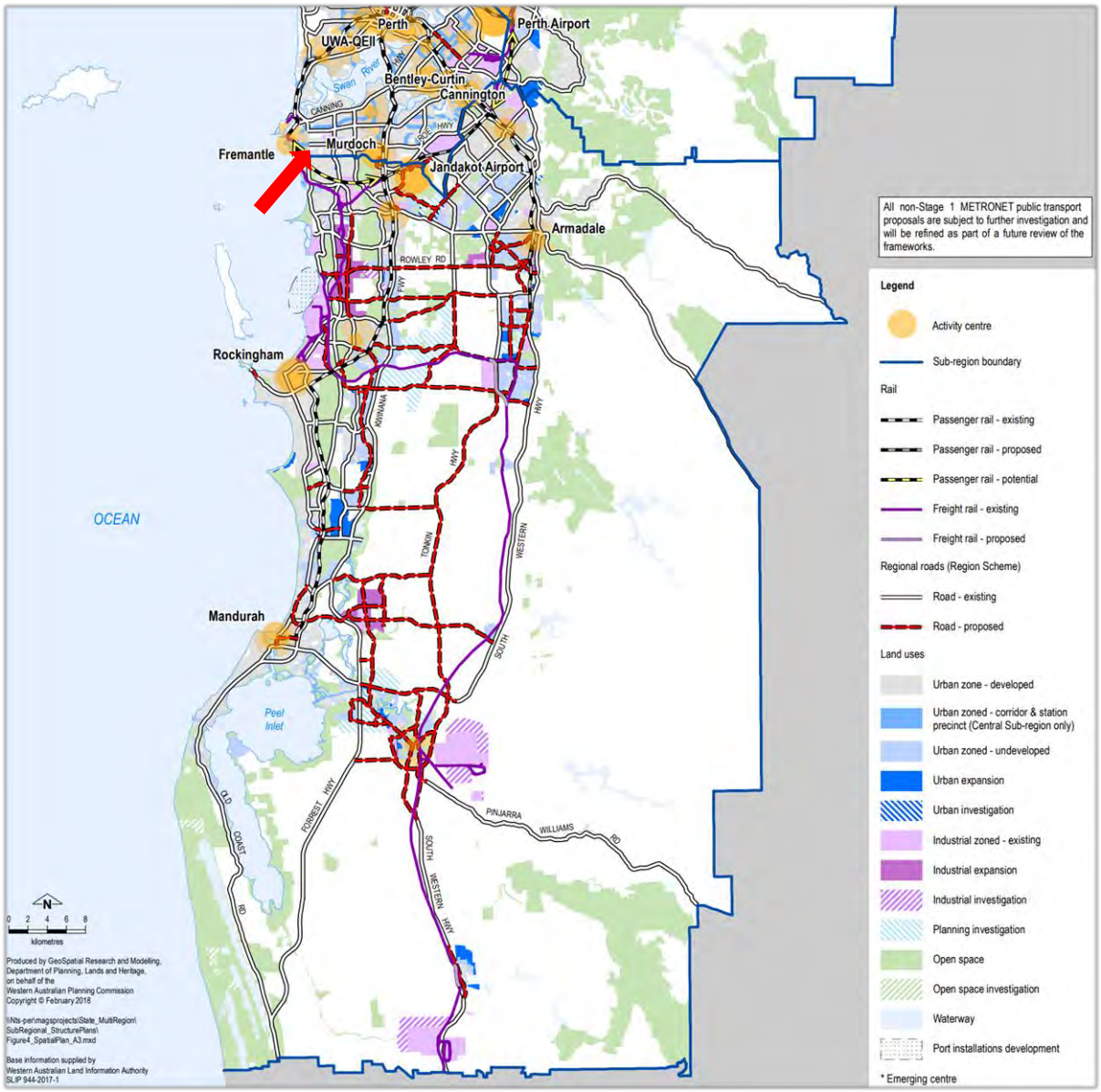


Figure 1. Excerpt from Perth and Peel@3.5million – spatial plan (site identified by added red arrow)

The Central Sub-Regional Planning Framework aims to deliver on the main objectives of the Perth and Peel@3.5million spatial plan to develop a consolidated urban form that places a greater emphasis on increased urban infill, residential density, people living close to where they work, while maximising the use of existing infrastructure where there is a concentration of urban and employment opportunities.

The framework seeks to optimise the use of land in close proximity to existing transport infrastructure and key centres of activity and community amenity. To achieve this, a focus for both infill and new urban areas will be the development and evolution of new and existing activity centres into vibrant, mixed use community hubs that are integrated with high quality public transport connections. Based on existing development trends, there is sufficient capacity in the proposed consolidated urban form to meet the anticipated demand for additional dwellings beyond 2050.

The preparation of the framework involved the consideration of 10 urban consolidation principles (see Table 1 below), such as an understanding of the existing and proposed high-frequency and or priority public transit network, together with an examination of existing local planning schemes and local planning strategies to consider existing and proposed local planning for housing and employment.

Principle	Description
1. Housing	Provide well-designed higher-density housing that considers local context, siting, form, amenity and the natural environment, with diverse dwelling types to meet the needs of the changing demographics.
2. Character and heritage	Ensure the attractive character and heritage values within suburbs are retained and minimise changes to the existing urban fabric, where appropriate.
3. Activity centres	Support urban and economic development of the activity centres network as places that attract people to live and work by optimising land use and transport linkages between centres; protecting identified employment land from residential encroachment, where appropriate, and avoiding contiguous linear or ribbon development of commercial activities beyond activity centres.
4. Urban corridors	The focus for higher-density residential development. Where appropriate, located along transit corridors and promoted as attractive places to live by optimising their proximity to public transport while ensuring minimal impact on the surrounding urban fabric and the operational efficiency of the regional transport network.
5. Station precincts	Where appropriate, focus development in and around station precincts (train stations or major bus interchanges as set out under the METRONET initiative) and promote these precincts as attractive places to live and work by optimising their proximity to public transport while ensuring minimal impact on the operational efficiency of the regional transport network.
6. Industrial centres	Promote the current and proposed supply and/or development of industrial centres as key employment nodes and prevent incompatible residential encroachment on these areas.
7. Public transport	Ensure that most transit corridors are supported by quality higher-density residential land uses and identify where new or improved public transport services will be needed to meet long-term growth, especially current and future train station precincts.
8. Infrastructure	Ensure more efficient use of existing and planned infrastructure to achieve a more sustainable urban environment. Protect existing and proposed infrastructure from incompatible urban encroachment to promote a system where land use developments and infrastructure are mutually compatible.
9. Green network	Preserve and enhance, where appropriate, the green network of parks, rivers, sport/recreation areas, facilities for active open space, conservation and biodiversity areas, and areas with a high level of tree canopy coverage, considered important for the health and wellbeing of the community.
10. Protection	Avoid, protect and mitigate environmental values and promote development that contributes to maintaining air quality and minimises risks of inundation from sea-level rise, flooding or storm surge events and bushfire damage.

Table 1. Urban consolidation principles

The framework considered the urban consolidation principles, the precincts and the alignment with strategic policy such as State Planning Policy 4.2 Activity Centres for Perth and Peel in order to define areas where an increased focus on housing, employment and associated amenity (not just essential services such as transport, water and electricity but also open space, schools and shops) should occur.

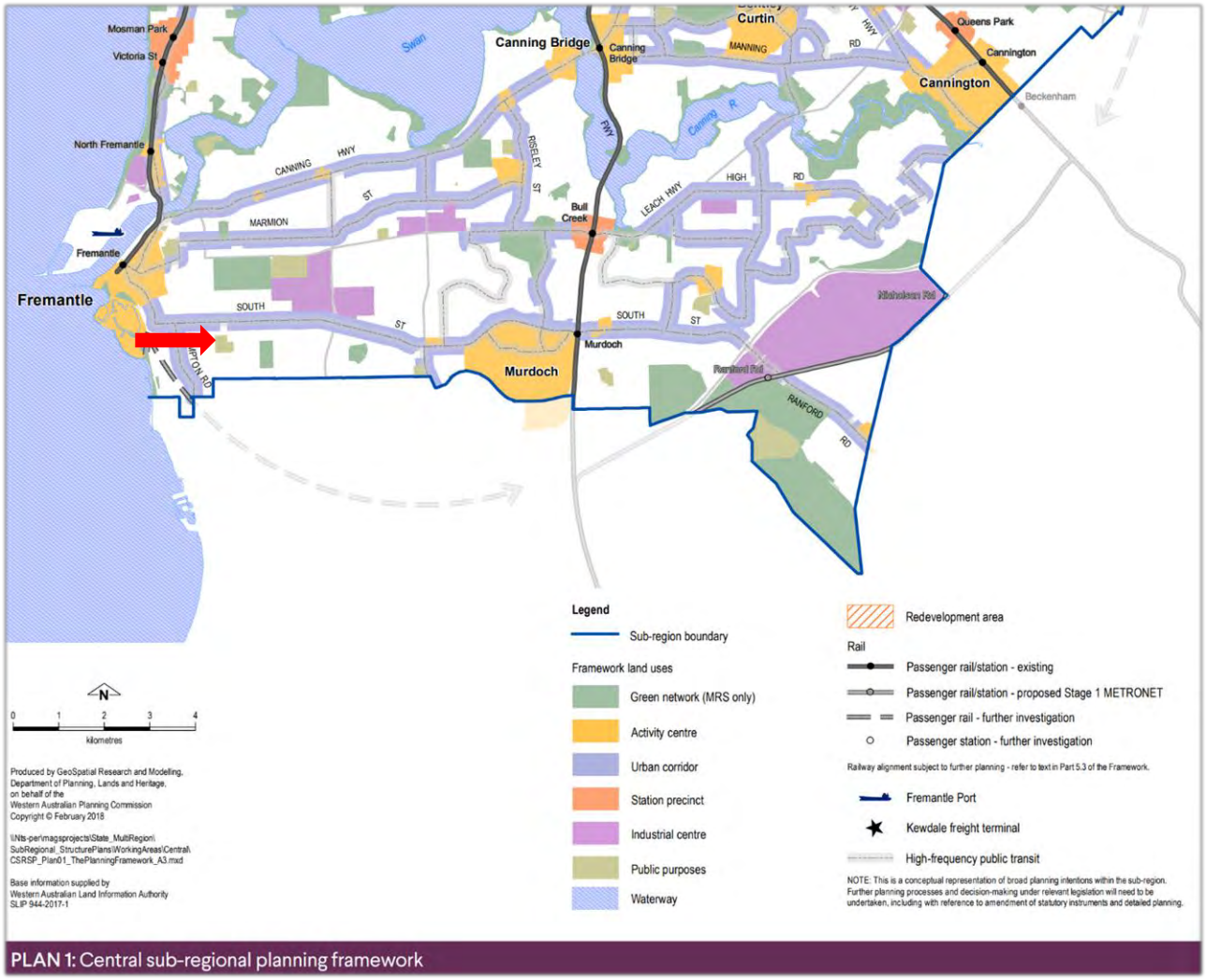


Figure 2. Excerpt from Perth and Peel@3.5million Central Sub-Regional Planning Framework (site identified by added red arrow)

State Planning Policy 3.6 – Infrastructure Contributions

In Western Australia, contributions for infrastructure through a State Planning Policy were first established in 2009. They are collected by local governments or service providers towards the cost of infrastructure necessary to accommodate urban growth.

Contributions are levied directly through the subdivision and development process, or where there are multiple landowners, through Development Contribution Plans (DCPs).

Infrastructure contributions are one of a number of ways used to meet the physical and social infrastructure needs of growing urban communities. Other funding streams should also be considered to coordinate and deliver the full suite of necessary infrastructure.

The careful planning and coordination of infrastructure is fundamental to the economic and social well-being of any community. New development and redevelopment needs to ensure the cost-efficient, and appropriately-timed provision of infrastructure and facilities such as roads, public transport, water supply, sewerage, electricity, gas, telecommunications, drainage, open space, schools, health, community and recreation facilities.

The provision of essential infrastructure influences the standard of living, mobility and lifestyle choices of a community and underpins the ability to achieve compact, connected and consolidated urban growth.

The delivery of cost-efficient and appropriately-timed infrastructure requires a co-ordinated commitment from State and local government, in partnership with the private sector.

The use of this policy does not prevent seeking additional State and Federal funding, to reduce costs and maintain housing affordability.

The purpose of this policy is to set out the principles and requirements that apply to the establishment and collection of infrastructure contributions in new and established areas. The policy also provides the framework to facilitate the coordination and delivery of infrastructure in greenfield locations, infill locations, activity centres, corridors and high-frequency public transport routes, industrial nodes and station precincts, where there is demand for additional services and facilities.

The key principle in the application of infrastructure contributions is that the 'beneficiary' pays. Sometimes benefits will be largely confined to the owners of new development. Sometimes, the benefits will accrue to owners of both existing and new development. Costs are apportioned proportional to the need for the infrastructure and facilities, and the demand generated by the development.

State Planning Policy 3.6 (SPP 3.6) provides the framework to ensure that the infrastructure contributions system is transparent, equitable, and accountable and provides for efficient dispute resolution at critical junctures in the process to ensure effective administration of the system.

This policy applies throughout Western Australia across all development settings where new development results in a demand for additional infrastructure, services and facilities.

The objectives of SPP 3.6 are to:

- facilitate the efficient and effective provision of infrastructure and facilities that are essential to meet the demands arising from population growth and development

- provide a system for the coordinated delivery of infrastructure necessary to facilitate new urban growth opportunities to achieve compact, consolidated towns and cities
- provide clarity on the acceptable methods of collecting and coordinating contributions for infrastructure
- establish a system for apportioning, collecting and spending contributions for infrastructure that is transparent, equitable, accountable and consistent
- guide an efficient dispute resolution and arbitration process.

The policy states that contributions for all infrastructure must be levied in accordance with the following principles:

a) Need and the nexus: The need for the infrastructure must be clearly demonstrated (need) and the connection between the development and the demand created should be clearly established (nexus).

b) Transparency: Both the method for calculating the infrastructure contribution and the manner in which it is applied should be clear, transparent, and simple to understand and administer.

c) Equity: Infrastructure contributions should be levied equitably from identified stakeholders within a contribution area, based on the relative contribution to need.

d) Certainty: The scope, timing, and priority for delivering infrastructure items, and the cost of infrastructure contributions and methods of accounting for escalation, should be clearly identified.

e) Efficiency: Contribution should be justified on a whole-of-life capital cost basis consistent with maintaining financial discipline on service providers by precluding the over-recovery of costs.

f) Consistency: The system for infrastructure contributions for apportioning, collecting and spending contributions should be consistent, efficient and transparent.

g) Accountable: That there is accountability in the manner in which infrastructure contributions are determined, collected and expended.

h) Right of consultation and review: Landowners and developers have the right to be consulted on the manner in which development contributions are determined, and the opportunity to seek a review by an independent third party regarding the calculation of costs and return of funds.

Contributions to development infrastructure – infrastructure required to facilitate development and to support the orderly development or redevelopment of an area – may be sought through the subdivision and development process, without the need for a Development Contribution Plan (DCP).

State Planning Policy 7.0 – Design of the Built Environment

This policy addresses design quality and built form outcomes in Western Australia. It seeks to deliver the broad economic, environmental, social and cultural benefits that derive from good design outcomes and supports consistent and robust design review and assessment processes across the State.

The objectives of State Planning Policy 7.0 (SPP 7.0) are:

1. A consistent framework to define the desired design quality outcomes from the planning and design of built environment projects across the State.
2. A coordinated strategy of design quality mechanisms to achieve design outcomes that meet government and community expectations, including:
    - Design Principles – performance-based approach to policy
    - Design review – skilled evaluation expertise
    - Design skills – skilled design expertise
3. Timely and efficient review of planning and development proposals against the Design Principles.

The abovementioned design principles are set out in the policy as follows:

1. Context and character

   Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

2. Landscape quality

   Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.

3. Built form and scale

   Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.

4. Functionality and build quality

   Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.

5. Sustainability

   Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

6. Amenity

   Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.

7. Legibility

   Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.

8. Safety

   Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.

9. Community

   Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.

10. Aesthetics

    Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.

State Planning Policy 7.2 – Precinct Design

The intent of State Planning Policy 7.2 (SPP 7.2) is to provide guidance on the design, planning, assessment and implementation of precinct structure plans, local development plans, subdivision and development in areas identified as precincts.

Effective planning and design of areas of urban activity and optimising available resources is integral to the future of our cities and towns. Western Australia's population is predicted to reach 3.2 million by 2031 and some 85 per cent of people will live in urban areas.

The accommodation of this further growth needs to be orientated towards precincts of activity, transit and places which can accommodate increased intensity of development.

The Western Australian planning system and policy framework has traditionally been weighted towards low density greenfield development. This policy recognises the need to design and plan for a broader range of precinct-based contexts and conditions, including: activity centres, stations, urban corridors, and infill areas. This complements the existing guidance provided for greenfield developments and provides additional information concerning infill development.

Activity centres, stations, urban corridors, and higher density residential and / or mixed-use areas inherently have more variables and considerations. It is therefore essential that these areas are carefully planned, designed and developed to achieve good built environment outcomes.

This policy and its guidelines applies to precincts throughout Western Australia and guides the preparation, assessment, determination and implementation of precinct structure plans, local development plans, and subdivision and

development applications. For detailed guidance on the application and implementation of this policy, the policy is to be read in conjunction with the SPP 7.2 Precinct Design Guidelines (the Precinct Design Guidelines).

Precincts are areas that require a higher level of planning and design focus due to their complexity, whether this is due to mixed use components, quality public transport infrastructure, higher levels of density, an activity centre designation or character, heritage and/or ecological value.

The following are general precinct types where SPP 7.2 may be applied (but are not limited to):

- Activity centres as defined by SPP 4.2 Activity Centres – Station precincts (land within and around a commuter train station or major bus interchange)
- Urban corridors (land adjacent to and located along transit corridors)
- Residential and/or mixed-use areas
- Areas otherwise identified as a precinct by the Western Australian Planning Commission (WAPC), in consultation with local government, for purposes of orderly and proper planning.

The objectives of SPP 7.2 are to:

1. Ensure that precinct planning and design processes accommodate growth in a coordinated manner and deliver good-quality built environment outcomes that provide social, economic and environmental benefits.
2. Ensure consistency and rigour of precinct planning across the State.
3. Enable design review to be incorporated in precinct planning processes, with due regard given to the advice received.

In the context of SPP 7.0 Design Principles, the outcomes listed below specify the role of planning and development in contributing to the overall objectives of this policy. The outcomes can be achieved through addressing the policy measures and meeting the objectives in the Precinct Design Guidelines. They can be used to guide discretion in policy application and provide a basis for its evaluation.

1. The precinct design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place. New development is integrated into its setting and responds positively to the intended future character of an area.
2. Development within precincts integrates landscape design that enhances sustainability outcomes and contributes to community wellbeing. The local environment is enhanced through the:
    - protection of water and soil resources
    - retention and/or enhancement of the green network
    - protection and/or restoration of fauna habitat, where appropriate

- consideration of microclimate and urban heat island impacts.

3. Built form height and massing (bulk and scale) across the precinct is responsive to existing built form, topography, key views and landmarks, and the intended future character of the area. Buildings are suited to their purpose, contribute positively to the character of the public realm, and provide good amenity at ground level.
4. The precinct design facilitates development that meets the needs and expectations of the community and provides for change over time. Required services infrastructure is integrated in a manner that mitigates amenity impacts. Development considers the intended full lifecycle and is robust, resilient to wear and easy to maintain over time.
5. Planning and development of precincts delivers a sustainable built environment through:
    - passive environmental design measures
    - water sensitive urban design
    - enhancement of the green network
    - harnessing opportunities for renewable energy sources and precinct-wide
    - energy savings
    - adaptive reuse of existing structures where feasible

    promotion of active and public transport modes.
6. The precinct design provides for comfortable public spaces that encourage physical activity, enable a range of uses and are accessible to all.
7. The precinct design provides for places that are easy to navigate, with clear connections, good lines of sight to key locations and a logical, intuitive layout.
8. Planning and development optimises safety and security within precincts by:
    - maximising opportunities for passive surveillance
    - integrating safety requirements in manner that does not compromise intended uses
    - following Crime Prevention through Environmental Design (CPTED) design principles.
9. The precinct design provides for development that responds to local community needs and the wider social context by delivering an appropriate mix of land uses, dwelling types and public spaces.
10. The precinct is attractive and inviting, with a coherent identity and cultural relevance. The scale, arrangement, articulation and material quality of buildings and spaces together create a high level of amenity.

State Planning Policy 7.3 – Residential Design Codes, Volume 1 and Volume 2, Apartments

The Residential Design Codes (R-Codes) provide planning and design provisions for residential development across Western Australia. These provisions have been provided to assist in the following ways:

- Guide developers, urban planners, urban designers, architects, landscape architects, builders and other professionals when designing housing developments and preparing an application for development approval.
- Assist decision-makers and planning professionals in local and State government with assessment of development proposals and in implementing strategic planning in the form of local policy and design guidance.
- Support communities by raising awareness of the principles of good design and by promoting quality housing designs that will make a positive contribution to local neighbourhoods.

The general objectives of the R-Codes are:

Residential development objectives

- to facilitate quality residential development that provides occupants with high amenity and liveable housing for an enhanced quality of life
- to promote a range of housing types that provide residents with choice, including affordable options
- to encourage housing that responds to local context and contributes to the desired streetscape, precinct and neighbourhood character
- to facilitate residential development that is environmentally, economically and socially sustainable
- to encourage house designs that are respectful and responsive to local heritage and cultural values.

Planning, governance and development process objectives

- to facilitate residential development that is appropriately designed for the intended residential purpose, land tenure, density, place context and scheme objectives
- to encourage residential design that is responsive to the development site, inclusive of its location, size geometry and features
- to allow variety and diversity as appropriate where it can be demonstrated this better reflects the context or scheme objectives
- to allow for appropriate modifications to, and augmentation of R-Codes provisions through local planning frameworks
- to provide certainty in timely assessment and determination of proposals
- to provide an assessment framework that supports consistent application of standards and decision-making between jurisdictions.

In assessing and determining proposals for residential development, the decision-maker shall have regard to the above general objectives, and any relevant objectives of the relevant scheme.

The R-Codes are divided into two volumes: R-Codes Volume 1, which applies to all single house and grouped dwelling developments, and multiple dwelling development in low and medium density coded areas (R10-R60); and R-Codes Volume 2 – Apartments, which applies to multiple dwelling (apartment) developments in high density coded areas (R80 and above and R-AC). Any dwellings in a mixed-use development are considered to be multiple dwellings and the relevant volume applies.

Where consistent with the Element Objectives, local governments may prepare and adopt local planning policies and local development plans that amend or replace the Acceptable Outcomes of the following sections of the R-Codes Volume 2:

- All of Part 2
- 3.6 Public domain interface
- 3.7 Pedestrian access and entries
- 3.8 Vehicle access
- 4.10 Façade design
- 4.11 Roof design
- 4.13 Adaptive reuse

Fremantle Planning Strategy (2001)

The Fremantle Planning Strategy (FPS) is the key strategic town planning document for Fremantle and should be read in conjunction with the City Planning Scheme No. 4 and the Fremantle City Plan.

The purpose of the FPS is to:

a) set out the framework of State and regional policies and interpreting these for Fremantle

b) provide the planning context for the zones, reservations and statutory provisions contained in the City Planning Scheme

c) provide the strategic direction of future population and employment; the broad strategies for housing, employment, shopping and business activities; and proposals for transport, parks, regional open space and other public uses.

The FPS addresses the following issues:

a) a description of the key characteristics of the municipality, its regional context and major planning issues

b) a statement of goals explaining the strategic land use directions which the Council is seeking to pursue

c) land use or development issues which provide a context for local planning decisions

d) the links between strategic planning in the municipality, the State and regional planning context

e) strategic policy statements about issues such as housing, business and industry, open space and recreation, transport, infrastructure, and environment

f) more detailed strategies for particular areas or specific issues contained in the strategy

g) an outline of how the strategy will be implemented including reference to any Local Planning Policies and guidelines which may be required, planning scheme measures and proposals of the State Government and Council to facilitate development including capital works.

The FPS identifies the Site as a 'Public Purposes' reserve for a technical school (see Figure 3 below), per the MRS at the time; however, the Site is now zoned 'Urban' under the MRS and 'Development' under LPS4, meaning that it can be developed for other purposes.

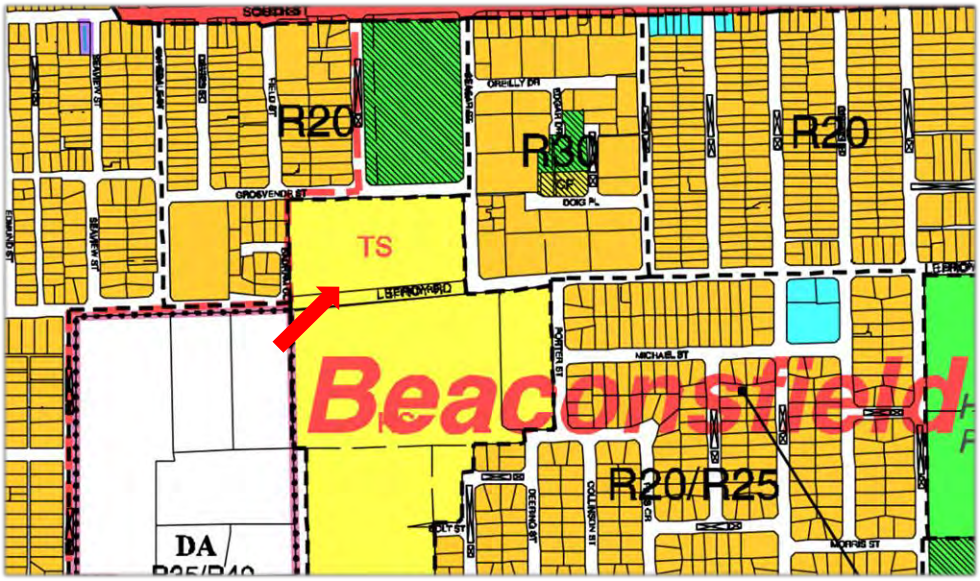


Figure 3: Excerpt from Fremantle Planning Strategy Map (2001) (site identified by red arrow)

The FPS sets a number of city-wide goals, which include the following:

- To accommodate a diverse mix of people, cultures and lifestyles.
- To ensure the community has access to an adequate range of services and facilities.
- To provide greater housing choice to cater for a diverse and sustainable population.

- To ensure development promotes a sense of community and encourages participation in community life.
- To promote a safe and healthy environment.
- All development compliments and contributes to the community's desired identity and character for Fremantle.
- To encourage the development of business and employment generating activities in appropriate locations.
- To ensure urban form and development contribute to sustainability (environmental, social/cultural and economic).
- To provide safe and accessible open spaces.
- To integrate planning for land use and transport to achieve sustainable urban development.
- To reduce reliance on, and the impact of, private motor vehicles.
- To encourage the use of public transport and promote Fremantle as a major public transport node.
- To promote and enhance the pedestrian and cycling transport modes.

The FPS also sets the following objectives for Beaconsfield:

1. Facilitate low to medium density residential development in the area and some higher density residential development within the South Street Local Centre and Lefroy Road Neighbourhood Centre and around the Lefroy Road quarry to provide for a variety of dwelling types and sizes.
2. Ensure residential redevelopment is compatible with the heritage character and scale of the built environment, streetscapes and urban spaces of Beaconsfield and the amenity of adjoining properties.
3. Facilitate the development of the Lefroy Road and the South Street Local Centre as vibrant community hubs which serve the day-to-day needs of nearby residents and to facilitate the redevelopment of major sites within the Local Centre that contribute to a high standard of design and amenity as well as a distinctive architectural character.
4. To facilitate the environmental remediation and redevelopment of underutilised land.
5. To protect significant environmental features, especially Clontarf Hill, through the reservation of 'Open Space' areas.
6. To ensure safe access and movement for pedestrians and cyclists.

Draft Fremantle Local Planning Strategy (2022)

The draft Local Planning Strategy vision is the same as the Strategic Community Plan 2015-2025. This vision outlines the community's long-term values, aspirations and priorities for the City.

Draft Local Planning Strategy and Strategic Community Plan 2015-2025 Vision:

"A Destination City. A city that is clever and creative, inspiring and inclusive. A city that welcomes and celebrates all people and cultures. A city that encourages innovation, prosperity and achievement. A compassionate city that cares for the wellbeing of people and the environment we share. A city that thrives on diversity and dares to be different."

From a land use planning perspective, to achieve this vision, the City's planning direction is:

- A consolidated revitalised City Centre, 'Perth's second city', a place of excitement, culture and core centre functions servicing a growing local, regional and international population.
- Population growth, housing diversity and planning for differing needs in well serviced locations focusing on development areas, transit corridor and contextually appropriate infill and varied housing typologies.
- Acknowledgement of the Aboriginal and European history of the place and conservation of built Heritage.
- The climate emergency, protection of the natural environment and sustainable urban and built form.
- Economic diversity including strengthening connections to south-west, and enhancing knowledge-based, blue and creative economies.
- Activities and attractions that complement one another, and Fremantle's unique attributes and its place in the region.
- Maintenance of a fine grain, highly walkable environment with high levels of amenity and quality public spaces, as well as improved connections and active transport throughout the region to allow ease of movement for people and goods.
- Review and provision of more efficient and effective utilisation of infrastructure to optimise community benefit.

Fremantle has an established character and form with strong heritage and cultural values. Accordingly, these measures are not stand alone, not solely urban planning, and need to work in concert with non-land use planning strategies and initiatives.

Consistent with the State Planning Framework for Local Planning Strategies, planning issues of relevance to the City are presented under set themes. Table 2 below shows how these themes correspond to the City's Strategic Community Plan 2015-2025:

State Planning Framework Theme	Corresponding Strategic Community Plan Focus Area
• Community, urban growth and settlement	Transport and Connectivity, Character, Culture and Heritage Places for People

	Health and Happiness
• Economy and employment	Economic Development
• Environment	Environmental Responsibility
• Infrastructure	Transport and Connectivity Capability

Table 2. State Planning Framework themes and corresponding Community Strategic Plan focus areas

Under each theme planning issues are identified. Planning directions and actions are then outlined for each planning issue. Planning directions are short statements that specify what is to be achieved or desired for the issue / opportunity. Each planning direction is supported by an action(s), that clearly and concisely outlines what is proposed and how it is to be undertaken, rationale, timeframe and responsible party.

The Site is identified in the draft Fremantle Local Planning Strategy for 'Future Urban Intensification' (see Figure 4 below):

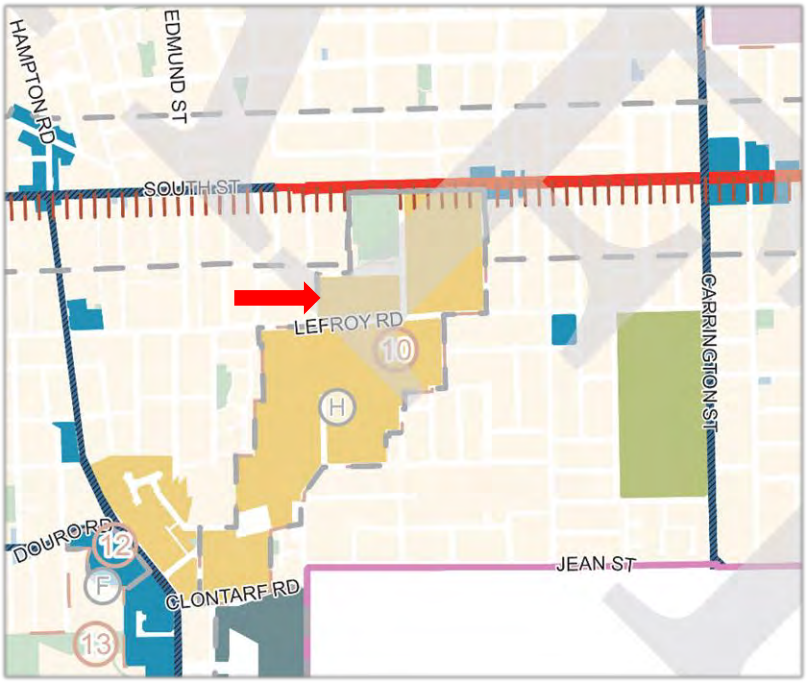


Figure 4: Excerpt from draft Fremantle Local Planning Strategy Map (2022) (site identified by red arrow)

The State Government's strategic spatial plan, Perth and Peel @3.5million and accompanying Central Sub-Regional Planning Framework, estimates some 800,000 new homes are required to accommodate Perth and Peel's projected population growth of 3.5 million by 2050 (or 'beyond'). The documents prescribe a 47% infill target or 380,000 additional dwellings. Approximately 213,130 of these new infill dwellings are expected to be delivered in Perth's Central Sub-Region, with the City of Fremantle allocated a target of 7,030 dwellings equating

to a population increase of between 10,545 - 15,470 by 2050 based on 2011 figures.

Development uptake in the past ten years has been impacted by the broader economic context. Initially this was the fallout of the GFC, and then ongoing macroeconomic factors and high construction costs limiting the capacity of the market to absorb faster release. These, and other local and specific, constraints will likely carry on into the future. Nonetheless, according to WA Tomorrow forecasting the City of Fremantle will have 33,720 residents by 2031. The City's analysis of the City's 2016 population correlated with building permits in the years 2016-2021 and the City's population of 31,930 in the 2021 census suggest the City will exceed the WA Tomorrow medium growth forecasts and is on track to meet a medium/high forecast. If this growth carries on the City will additionally meet the Perth and Peel @3.5million target of 7,030 dwellings by 2050.

Perth and Peel @3.5million sets objectives for more intense development to be located within existing activity areas and along urban corridors well served by transport infrastructure. The increase in population in the City of Fremantle will be accommodated in new dwellings across all suburbs within development areas and well located to transit. The suburb of Fremantle will likely see the most marked population increase in the City Centre and Queen Victoria gateway as well as the Knutsford and Swanbourne Street development area, followed by North Fremantle (Fremantle Port land not accounted for) in McCabe Street, and Beaconsfield in the Heart of Beaconsfield master planned area. Hilton, White Gum Valley and Samson will see smaller population increases.

The planning response to this theme is broad in scope. To promote diverse, affordable, accessible and safe communities, the City is planning for future development that is well located and serviced, sympathetic to the character, history and heritage of the place, and provides for housing, open space and community facilities to suit the needs of existing and future communities. In summary, the planning response, identified through the analysis undertaken in Part 2, includes:

1. Urban Structure

   The recommended planning direction is to maintain a fine grain walkable urban structure and environment whilst accommodating changing retail trends, regional traffic growth and changing lifestyle and transport preferences, which can be achieved via the following actions:

   - Maintain & consolidate activity in a hierarchy of centres within walkable catchments
   - Undertake centre and retail assessment to establish long term viability and potential of centres taking into account changing retail dynamics and population change
   - Maintain density opportunities within centres and areas well serviced by high frequency public transport

- Continue to advocate for detailed planning and delivery of rapid transit along designated corridors, including undertake corridor planning. Maintain consolidation in established nodes (centres) co-located with bus stops in the interim.
- Promote neighbourhood and urban design which improve the quality and legibility of the pedestrian and cycle environment and network especially in new developments.

2. Housing

The first recommended planning direction is to accommodate diverse housing (including adaptable, accessible and affordable) which meet or exceed infill targets while accommodating different community needs and incomes, in a market-driven economy.

This can be achieved by maintaining a mix of densities throughout City accommodating differing housing typologies, and by continuing to support and incentivise housing diversity, particularly for adaptable, accessible and affordable housing.

The second recommended planning direction is to accommodate an increased number of people living in Fremantle in well serviced locations, including the City Centre. This includes increasing urban sustainability and optimising use of public infrastructure (including public transport) without losing Fremantle's iconic character, heritage values and urban canopy, or making investment and renewal unviable.

This can be achieved via the following actions:

- Continue to accommodate population growth and 7,030 dwelling targets (by 2050) within: High-density inner-city development, Development Areas, activity centres, mixed use corridors and nodes, and through some local area-based infill in specific locations
- Review and update structure plans to align with contemporary standards. Include specified minimum yield outcomes where appropriate
- Monitor development rates and periodically review feasibility constraints and impediments to uptake.

3. Built form and character

The first recommended planning direction is to continue to protect Fremantle's Aboriginal and built heritage as a significant asset and an integral part of Fremantle's sense of place, and to support adaptive reuse and the ongoing utility, interpretation and value of heritage buildings.

This can be achieved by maintaining and reviewing the Heritage List, Heritage Areas, Local Heritage Survey and associated policies.

The second recommended action is to promote high design quality in significant new buildings, which can be achieved by maintaining focus on design quality and review through continued reference to Design Principles and provision for a Design Review Panel. This will require review of design principles and terminology to align with SPP 7.0.

4. Public Open Space and Community Facilities

   The recommended planning direction is to continue to service a growing population within a constrained environment with limited open space, aging community facilities and a small rate base.

   This can be achieved by promoting inclusion of additional open space in significant Development Areas (where this provides for functional open space and / or maintains accessibility) and making equitable and effective provision for funding of community facility upgrades required to support new development.

Fremantle's economy has gone through numerous evolutions in its time and continues to do so. Whilst Fremantle remains a Strategic Metropolitan Centre, Perth's 'second city' and an ocean gateway, its primacy as a commercial and service destination has been challenged by the growth in other centres, a depressed regional office market and global declines in bricks and mortar retailing. Its popularity as a tourist and entertainment destination has increased and it continues to accommodate businesses and jobs under a diverse array of industries.

Maintenance of suitable zoning, access to infrastructure, and support for emerging industry and colocation and consolidation are important in optimising the potential of all industries to thrive and call Fremantle home over the next 10-15 years.

Overall, the local planning strategy facilitates trade, investment, innovation, employment and community betterment by providing suitably zoned and serviced land for commercial activities and services. This includes facilitating opportunities for local employment, tourism, healthcare and knowledge-based industry as well as avoiding land use conflicts by separating incompatible uses through zoning and the provisions of buffers (i.e. Fremantle Port and O'Connor buffers).

In summary, the planning response, identified through the analysis undertaken in Part 2, includes maintaining opportunity for new investment, business and residential populations in high quality new development in suitable locations.

Local Planning Scheme No. 4

The purposes of the Scheme are to:

a) set out the Council's planning aims and intentions for the Scheme area, including individual precincts

b) set aside land as reserves for public purposes

c) zone land within the Scheme area for the purposes defined in the Scheme

d) control and guide land use and development

e) set out procedures for the assessment and determination of planning applications

f) make provision for the administration and enforcement of the Scheme

g) address other matters contained in schedule 7 of the Planning and Development Act

h) ensure that urban development can be adequately and efficiently serviced

i) ensure that compatible land uses are achieved adjacent to or where specified, within Special Control Areas.

The aims of the Scheme are to:

a) accommodate a diverse mix of people, cultures and lifestyles

b) ensure the community has access to an adequate range of services and facilities

c) provide greater housing choice to cater for a diverse and sustainable population

d) ensure development promotes a sense of community and encourages participation in community life

e) promote a safe and healthy environment

f) protect and conserve Fremantle's unique cultural heritage

g) ensure all development complements and contributes to the community's desired identity and character for Fremantle

h) develop diverse and attractive neighbourhood centres that provide a community focus for neighbourhood areas

i) develop a diverse and attractive city centre that functions as a town centre and a regional centre

j) encourage the development of business and employment generating activities in appropriate locations

k) ensure urban form and development contribute to sustainability (environmental, social/cultural and economic)

l) provide safe and accessible open spaces

m) promote management of regional traffic that contributes positively to the community and landscape and minimises the impact of regional traffic flows

n) integrate planning for land use and transport to achieve sustainable urban development

o) reduce reliance on, and the impact of, private motor vehicles

p) reduce the demand for, and balance the provision of parking, to ensure convenient access while promoting economic, environmental and social sustainability

q) encourage the use of public transport and promote Fremantle as a major public transport node

r) promote and enhance the pedestrian and cycling transport modes

s) ensure universal access to buildings, spaces, services and facilities for all people

t) facilitate and encourage effective public involvement in planning issues of significance to the character, amenity and environmental attributes of the City

u) recognise and preserve the traditional setting of existing dwellings including curtilage, garden areas and open space

v) promote the compatible use of land surrounding essential infrastructure

w) promote the use of water sensitive design principles.

The Site is zoned 'Development' under LPS4. The objective of the Development Zone (cl. 3.2.1(h)) is to provide for future residential, industrial, commercial or other uses in accordance with a comprehensive structure plan or Local Development Plan prepared in accordance with the provisions of the Scheme.

C2312-8 PLANNING INFORMATION REPORTS - DECEMBER 2023
Attachment 1 - Schedule of applications determined under delegated authority

1. SOUTH TERRACE PIAZZA SOUTH TERRACE, NO. 36 (LOT 102), FREMANTLE - ALTERATIONS TO EXISTING BUILDING (JD DA0320/23)

2. HENRY STREET, NO. 2 (LOT 501), FREMANTLE – INTERNAL OFFICE FITOUT- (JL DA0311/23)

3. TAPPER STREET, NO. 2 (LOT 1814), WHITE GUM VALLEY – ANCILLARY DWELLING ADDITION TO EXISTING SINGLE HOUSE – (JL DA0222/23)

4. SOLOMON STREET, NO. 64 (LOT 3), FREMANTLE - ADDITIONS AND ALTERATIONS TO EXISTING SINGLE HOUSE – (JD DA0285/23)

5. BROMLEY ROAD, NO. 14 (LOT 194), HILTON - SINGLE STOREY GROUPED DWELLING – (JD DA0294/23)

6. SOUTH TERRACE, NO. 170 (LOT 1), FREMANTLE - TWO STOREY ANCILLARY DWELLING ADDITION TO EXISTING SINGLE HOUSE – (DA0278/23)

7. HOPE STREET, NO. 75A (LOT 28), WHITE GUM VALLEY - ANCILLARY DWELLING ADDITION AND ALTERATIONS TO EXISTING SINGLE HOUSE – (JD DA0279/23)

8. REES STREET, NO. 5 (LOT 9), O'CONNOR – TWO INDUSTRY BUILDINGS – (GB DA0268/23)

9. DARLING STREET, NO.10 AND 10A (LOTS 360 AND 361), WHITE GUM VALLEY- TWO-LOT FREEHOLD SUBDIVISION (BOUNDARY REALIGNMENT) - (JL WAPC164219)

10. SOUTH TERRACE NO.372 (LOT 15), SOUTH FREMANTLE – ADDITIONS AND ALTERATIONS TO EXISTING SINGLE HOUSE (JD/JL DA0319/23)

11. SAMSON STREET, NO.28 (LOT 650) WHITE GUM VALLEY – ADDITIONS AND ALTERATIONS TO AN EXISTING SINGLE HOUSE – (JL DA0332/23)

12. WATKINS STREET, NO. 104 (LOT 19), WHITE GUM VALLEY - TWO STOREY SINGLE HOUSE – (JD DA0260/23)

13. MEWS ROAD, NOS. 11-12, FREMANTLE - DEMOLITION OF EXISTING BUILDINGS AND ADDITION OF PRIVATE MARINA AND TWO-STOREY WORKSHOP AND OFFICE BUILDINGS (ED DA0296/23)

14. TERRAZZO LANE, NO.17 (STRATA LOT 1) FREMANTLE – ADDITIONS AND ALTERATIONS TO EXISTING GROUPED DWELLING - (JL DA0282/23)

15. CENTRAL AVENUE, NO. 8 (LOT 69), BEACONSFIELD - ADDITIONS AND ALTERATIONS TO EXISTING SINGLE HOUSE (ED DA0297/23)

16. LITTLE HOWARD STREET, NO. 19 (LOT 50), FREMANTLE – ADDITIONS (TWO STOREY) AND ALTERATIONS TO EXISTING SINGLE HOUSE (ED DA0316/23)

17. BELLEVUE TERRACE, NO. 19 (LOT 1), FREMANTLE – UNAUTHORISED ADDITIONS AND ALTERATIONS TO EXISTING SINGLE HOUSE (ED DA0327/23)

18. ARUNDEL STREET, NO. 10 (LOT 1), FREMANTLE - ADDITIONS AND ALTERATIONS TO EXISTING SINGLE HOUSE – (JD DA0289/23)

19. WRAY AVENUE, NO. 69-73 (LOT 31), FREMANTLE – EXTERNAL PAINTING (MURAL) TO EXISTING BUILDING (JL DA0349/23)

20. SOUTH TERRACE, NO. 223 (LOT 1), SOUTH FREMANTLE – PARTIAL CHANGE OF USE TO ART GALLERY – (JD DA0147/23)

21. YORK STREET, NO. 80A (LOT 2), BEACONSFIELD - VARIATION TO PREVIOUS PLANNING APPROVAL FOR DA0394/22 (TWO STOREY GROUPED DWELLING) – (JD VA0022/23)

22. TYDEMAN ROAD, NO. 44 (MULTIPLE LOTS), NORTH FREMANTLE – UNAUTHORISED ADDITIONS TO EXISTING TAVERN (ED DA0298/23)

GOVERNMENT OF WESTERN AUSTRALIA

Landgate

Reference: 01842-2019

Geographic Naming Approval

The City of Fremantle in their application at Record number 2023-107188 and related correspondence, has requested the approval for a private road name at Lot 500 on Deposited Plan 405756.

The requested name honours Fortunata and Giuseppe Fusari who were both active in their community. The laneway is adjacent to the Fusari's home where they lived for 70 years.

This naming proposal is considered appropriate.

Accordingly, your approval is requested for the following:

New Road Name – Locality of Beaconsfield.

Apply the name **Fusari Lane** to the private road as shown on the map at page 2.

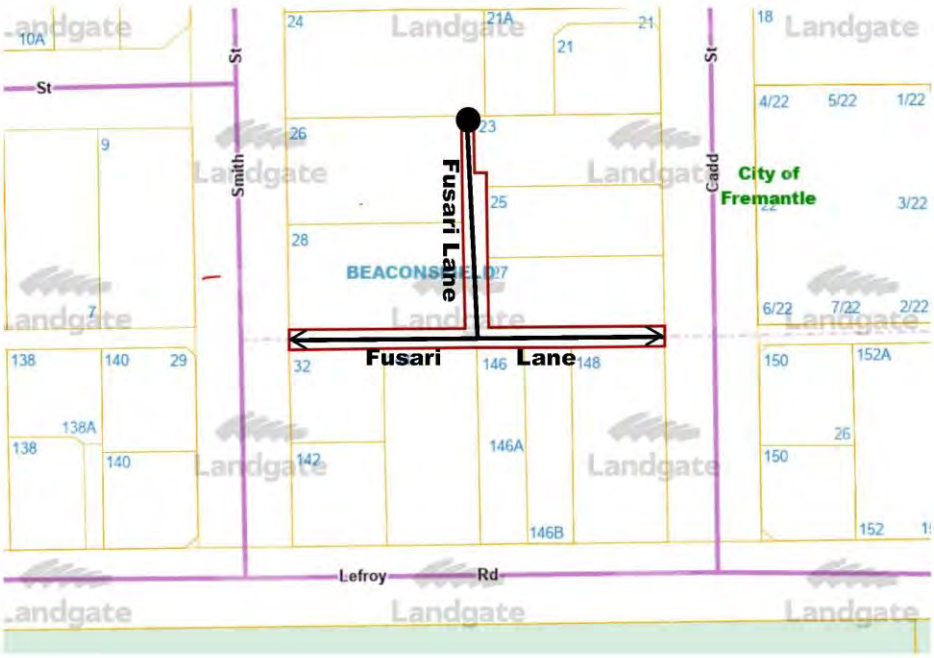
T.M. Holland

Land Definition
Location Services
2023 Job 3976 (TMH/GHC)
28 November 2023

Glenn Christie
Glenn Christie (Nov 28, 2023 07:51 GMT+8)

APPROVED
under delegated authority
by Order of the Minister for Lands
Land Administration Act 1997
section 26 & 26A

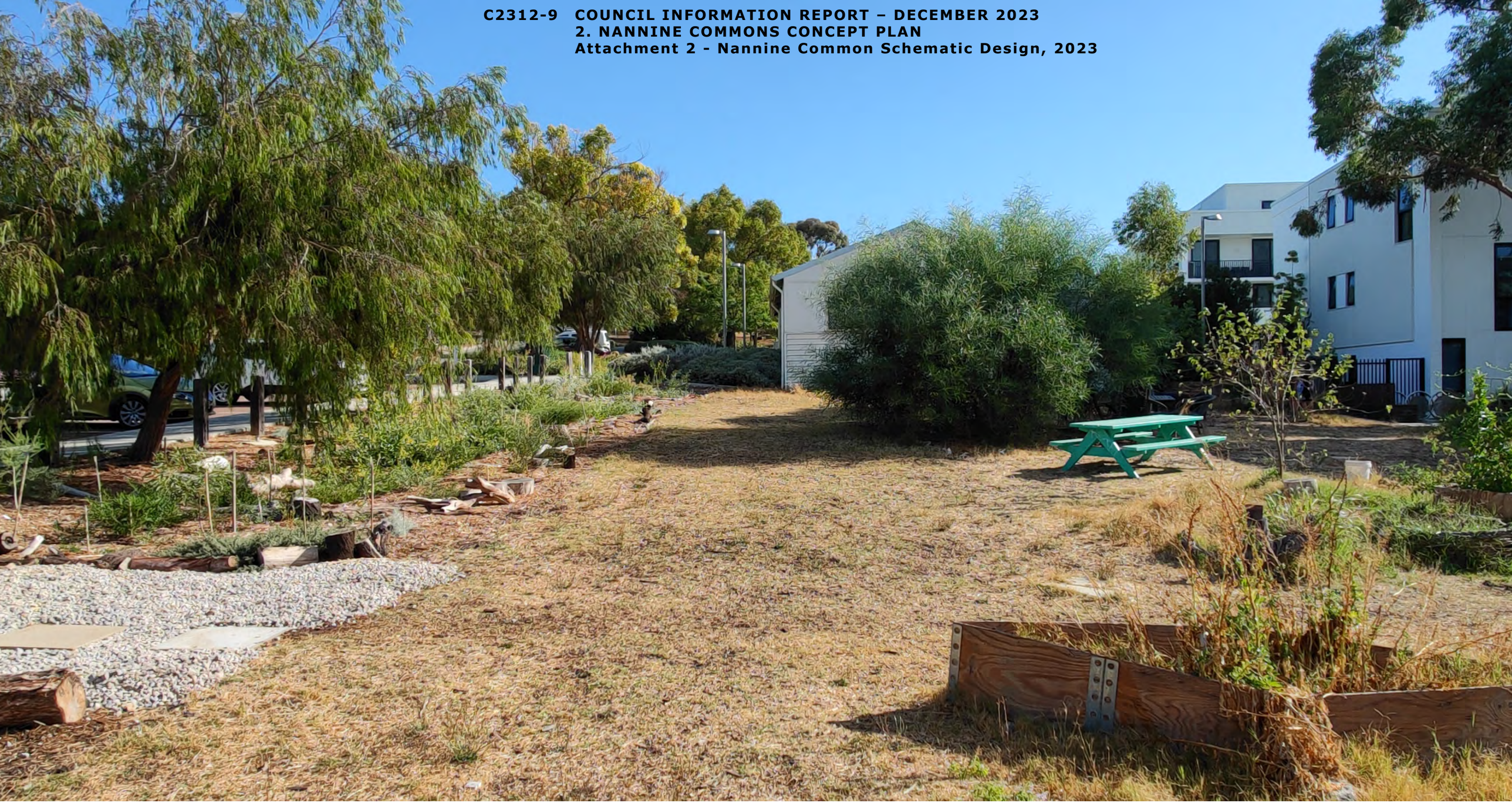
Attachment 2 - Landgate map with laneway (proposed Fusari Way) outlined in red.



Walyalup Civic Centre
151 High Street Fremantle
PO Box 807 Fremantle WA 6959

T 9432 9999 TTY 9432 9777
1300 MY FREO (1300 693 736)
ABN 74 680 272 485

info@fremantle.wa.gov.au
fremantle.wa.gov.au



CITY OF Fremantle

JOSH BYRNE & ASSOCIATES

NANNINE COMMON SCHEMATIC DESIGN

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Document Status

Date of issue	Rev #	Reason for issue	Author	Reviewed by	Approved by
24/04/23	0	Issue for Comment	PV/MC	PV	PV

This document may only be used for the purpose for which it was commissioned in accordance with the Terms of Engagement.

WHADJUK ACKNOWLEDGMENT

We pay respect to the Whadjuk people; elders, past and present, who are the traditional custodians of the land on which this project is located.

DESIGN APPROACH

JBA with the City of Fremantle has worked with the consolidated community feedback to develop the design principles, site analysis and schematic design presented here.

The Project offers the opportunity to provide a strong local experience focused on the richness of the ecological and cultural landscape to connect people with place. Informed by our mapping process and from our experience and understanding of the site context and location, we have outlined initial design criteria below.

CULTURAL / PHYSICAL UNDERSTANDING OF SITE

The design can be an interweaving of the landscape, stories, and identities to create a meaningful understanding of place. It is understood that respecting and raising awareness and appreciation of the diverse cultural heritage of the area is an important part of this Project. The Project can embody diversity and respect for local knowledge and history in the development fabric.

CLIMATE RESILIENCE AND CLIMATE LEADERSHIP

The Southwest has a drying climate. This means that water conservation needs to be front of mind in any new land development. This begins with the integration of stormwater drainage in the landscape so that rainfall events hydrate soils and recharge groundwater through water sensitive urban design and effective stormwater infrastructure.

SOCIABILITY AND COMMUNITY PRESENCE

An activated public realm is crucial for growing a sense of identity and community that is positive, robust, and resilient. The design needs to integrate multipurpose passive and active public spaces that are well connected and safe. The landscape should enhance these aspects through activation, site lines, and desire lines. This kind of place activation is the perfect complement to crime prevention through environmental design (CPTED).

Good design can achieve multiple outcomes, that is spaces where people feel comfortable and enjoy being in and passing through while reducing opportunities for antisocial behaviour.

DESIGN PRINCIPLES

HERITAGE AND COMMUNITY

Nannine Common should feel like it belongs within the Sullivan Hall precinct and have a community vibe, especially given that it is located along the community axis of the Booyeembara Park Ecoscape Masterplan. To acheive this:

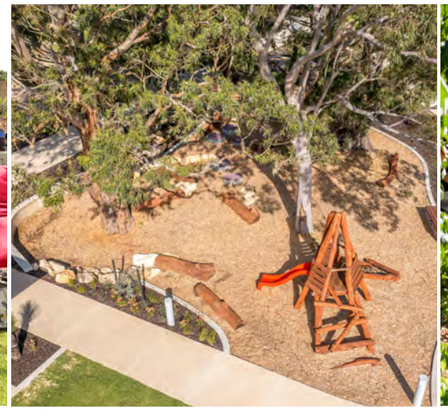
- Protect and maintain the rear facade of Sullivan Hall and preserve sight lines to and from Sullivan Hall and the surrounding residential areas,
- Incorporate design elements that are consistent with the existing character of the precinct,
- Nannine Common could host various events and activities that complement those offered at Sullivan Hall, such as outdoor yoga classes, live acoustic music performances, gardening activities and cultural festivals

HABITAT AND BIODIVERSITY

- Strengthen ecological linkage along Nannine Avenue between Booyeembarra Park and Hope Street Sump
- Provide low kerb crossing points for wildlife such as bobtails
- Enhance endemic species plantings to support habitat
- Establish programs to link both ecological and social activities

MEETING PLACE

- Cater to a series of diverse spaces promoting gatherings, meeting, and a sense of identity within the broader community
- Provision of shade and weather protection to increase comfort



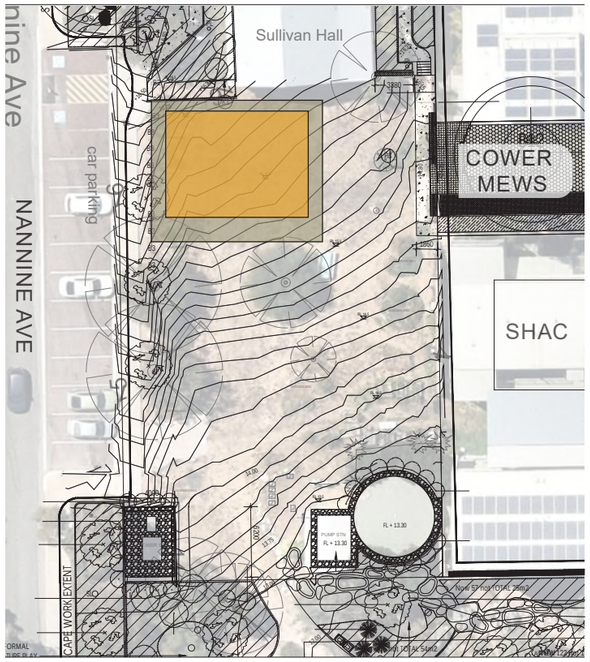
ACTIVITY NODES

- Key elements within the precinct focus on pedestrian connectivity, view corridors, social cohesion, and active wellness
- Establish a well connected hierarchy of spaces and programs that complement each other and offer varying sensory experiences and activities; formal, incidental, open, intimate, sunny, sheltered, hard and soft
- Provide universally accessible, high-quality public facilities for all ages and demographics

PRODUCTIVE GARDEN

- Provide a series of productive gardening opportunities, including fruit and nut trees, raised planters and in ground edible plants
- Provide an area for the storage of equipment and tools
- Develop a material palette of durable materials and elements that are designed for disassembly or recyclable
- Provide seating opportunities

BUILDING PLACEMENT SCENARIOS - 120 M2

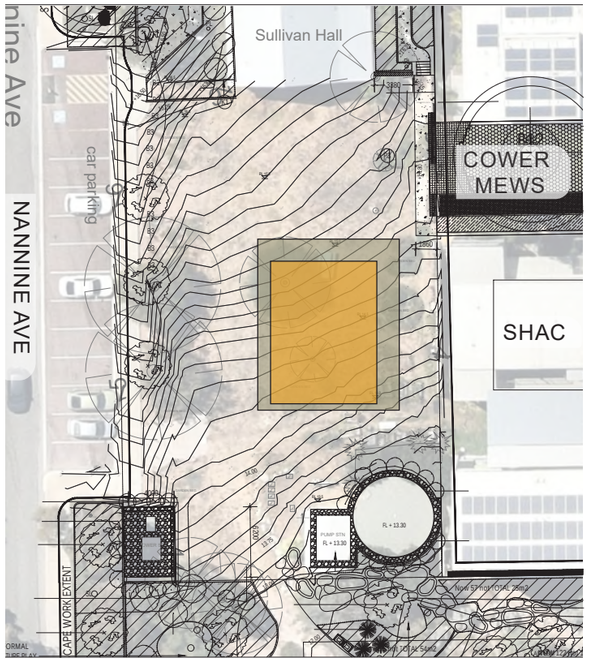


OPPORTUNITY

- Remaining POS is continuous
- Peppermint trees (*Agonis flexuosa*) not impacted

CONSTRAINT

- Large building mass will dominate the space
- South facing building
- Visual impact
- Blocks Sullivan Hall
- Cut and fill requirement
- Retaining requirement
- Significant terracing requirement for remaining areas to create usable spaces
- Universal access difficult to achieve to the southern side of the building. equirements across level changes to be considered

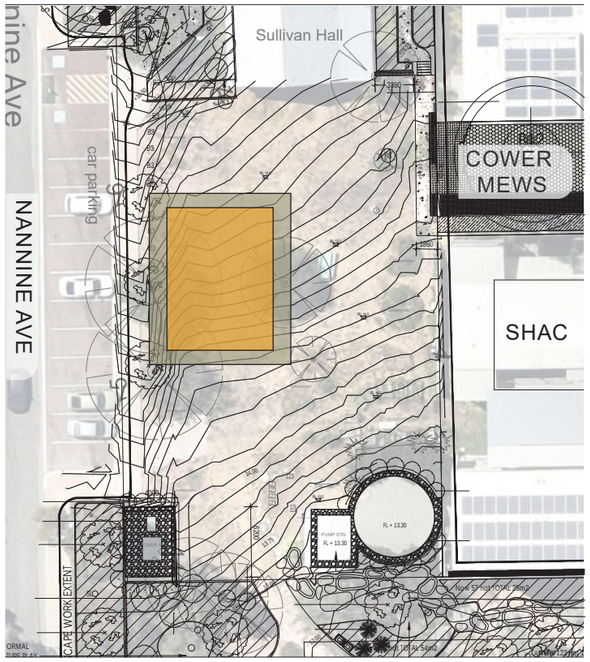


OPPORTUNITY

- Biodiversity corridor and peppermint trees (*Agonis flexuosa*) not impacted
- Provides visual separation from Sullivan Hall

CONSTRAINT

- Large building mass will dominate the space
- West facing building
- Remaining POS is continuous, however is divided into three smaller zones
- Significant terracing requirement for remaining areas to create usable spaces
- Connectivity considerations due to natural topography
- Disabled access to building across level changes to be considered
- Natural topography runs perpendicular to building
- Blocks views and solar access for SHAC
- Significant cut and fill requirement
- Significant retaining requirement

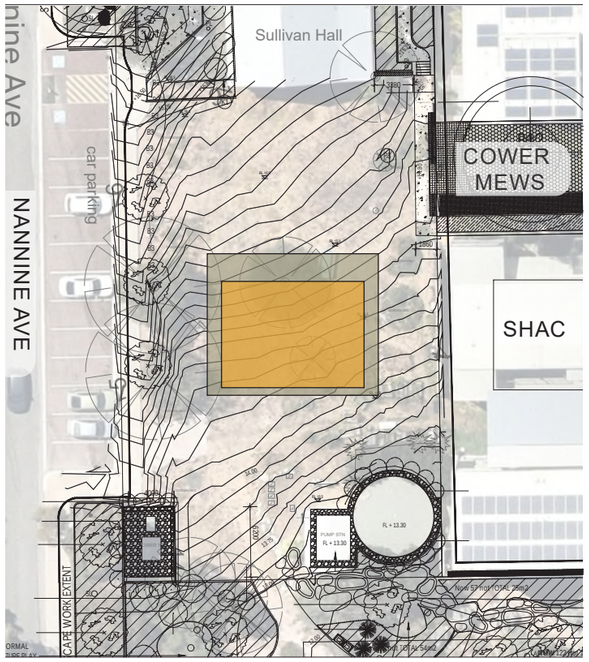


OPPORTUNITY

- Streetfront building location

CONSTRAINT

- Large building mass will dominate the space
- East facing building
- Peppermint trees (*Agonis flexuosa*) and a large section of the biodiversity corridor would require removal
- Remaining POS is continuous, however is divided into three smaller zones
- Significant terracing requirement for remaining areas to create usable spaces. Connectivity considerations due to natural topography
- Natural topography runs perpendicular to building
- Significant cut and fill requirement
- Significant retaining requirement



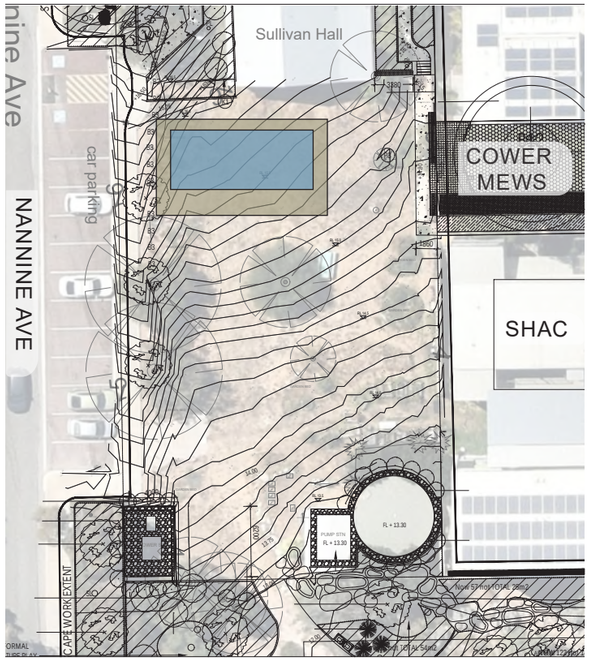
OPPORTUNITY

- North facing building
- Provides visual separation from Sullivan Hall
- Biodiversity corridor and peppermint trees (*Agonis flexuosa*) impacted to a lesser extent
- Allows connection through to SHAC and Cowers Mews

CONSTRAINT

- Large building mass will dominate the space
- Divides usable POS area. Connectivity considerations
- Blocks views and solar access for SHAC
- Cut and fill requirement
- Retaining requirement
- Significant terracing requirement for remaining areas to create usable spaces
- Disabled access requirements across level changes to be considered

BUILDING PLACEMENT SCENARIOS - 60 M2

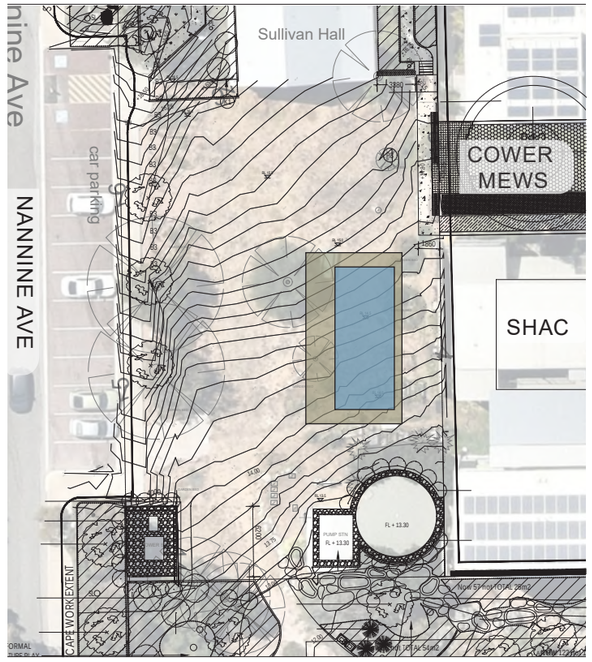


OPPORTUNITY

- Remaining POS is continuous
- Peppermint trees (*Agonis flexuosa*) not impacted

CONSTRAINT

- South facing building
- Visual impact
- Blocks Sullivan Hall
- Cut and fill requirement
- Retaining requirement
- Terracing requirement for remaining areas to create usable spaces
- Disabled access requirements across level changes to be considered

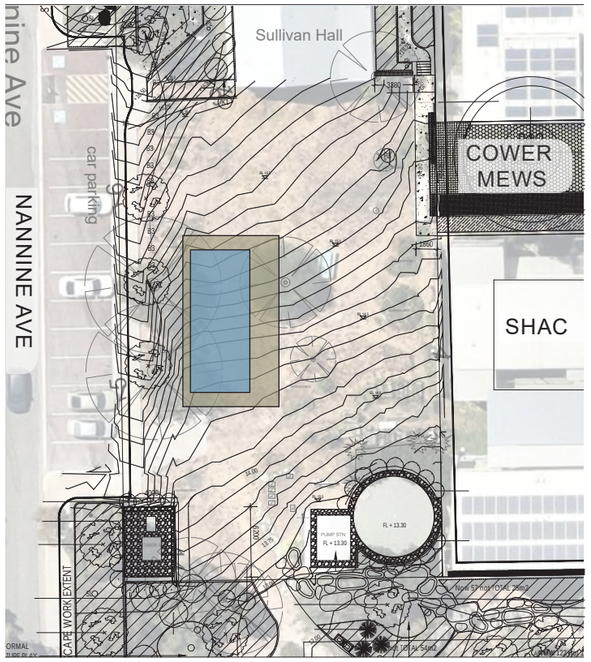


OPPORTUNITY

- Biodiversity corridor and peppermint trees (*Agonis flexuosa*) not impacted

CONSTRAINT

- West facing building
- Remaining POS is continuous, however is divided into three smaller zones
- Significant terracing requirement for remaining areas to create usable spaces
- Connectivity considerations due to natural topography
- Disabled access to building across level changes to be considered
- Natural topography runs perpendicular to building
- Blocks views and solar access for SHAC
- Significant cut and fill requirement
- Significant retaining requirement

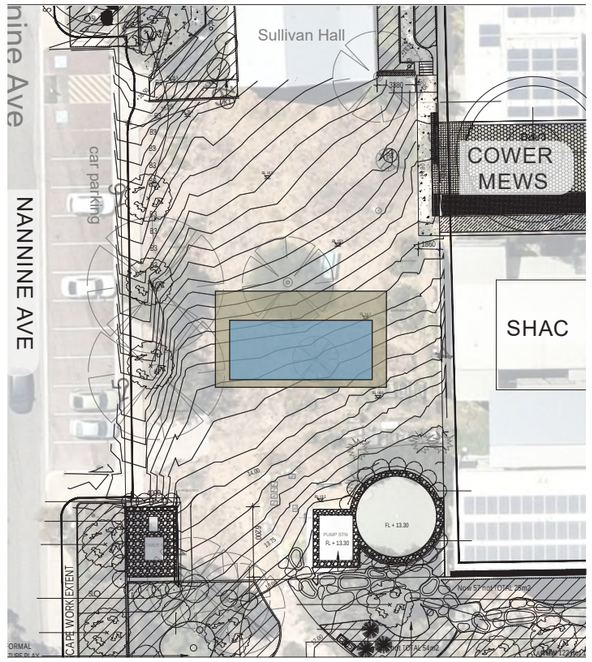


OPPORTUNITY

- Streetfront building location

CONSTRAINT

- East facing building
- A large section of the biodiversity corridor would require removal and peppermint trees (*Agonis flexuosa*) would be affected
- Remaining POS is continuous, however is divided into three smaller zones
- Significant terracing requirement for remaining areas to create usable spaces. Connectivity considerations due to natural topography
- Natural topography runs perpendicular to building
- Significant cut and fill requirement
- Significant retaining requirement



OPPORTUNITY

- North facing building and a terraced or sloped sunny lawn area for the community
- Allows Sullivan Hall to act as a backdrop to the space while providing separation
- Peppermint trees (*Agonis flexuosa*) maintained
- Allows room for a generous biodiversity corridor and connection through to SHAC and Cowers Mews

CONSTRAINT

- Divides POS into two clear areas
- Less cut and fill requirement than other options
- Retaining requirement
- Regrading or terracing requirement for remaining areas to create usable spaces
- Disabled access requirements across level changes to be considered

MOVEMENT NETWORK

LEGEND

- PEDESTRIAN STREET PATH
- PATHWAY
- HABITAT TRAIL
- CONNECTION TO BOO PARK MOUNTAIN BIKE TRAIL
- NATURE, PLAY AND SEATING OPPORTUNITIES
- EXISTING BOUNDARY FENCE

0 5 10 15 20 25m

Scale 1:500

DESIGN ELEMENTS

DESIGN ELEMENTS

The landscape masterplan synthesises the design principles to create these key responses:

- Retain biodiversity corridor and existing peppermint trees (*Agonis flexuosa*).
- Add rocks and logs as habitat for bobtails, bandicoots and lizards.
- Low key nature play / seating nodes as alternative route to terrace levels. Logs, rocks and steppers up slope with pockets of planting.
- Access path - will require disabled access consideration when working levels.
- Potential community building 60m2 with community uses to be determined through ongoing discussions with the community.
- Low garden bed to frame Sullivan Hall aspect.
- Turf / planting / rock revetment to deal with levels between path and terraces.

PRECEDENT IMAGERY

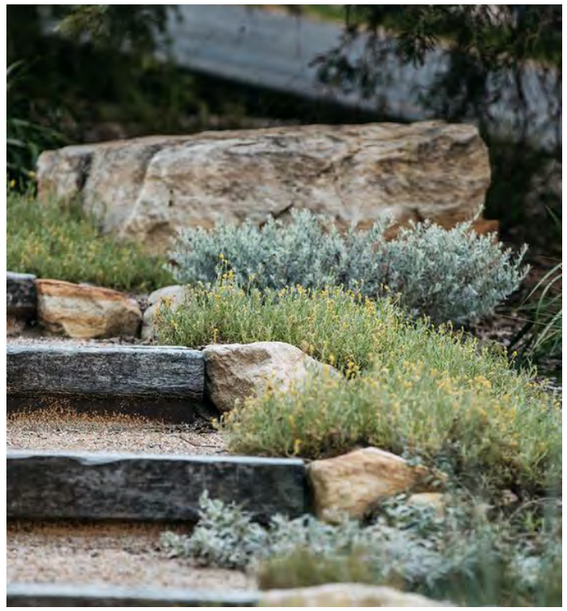


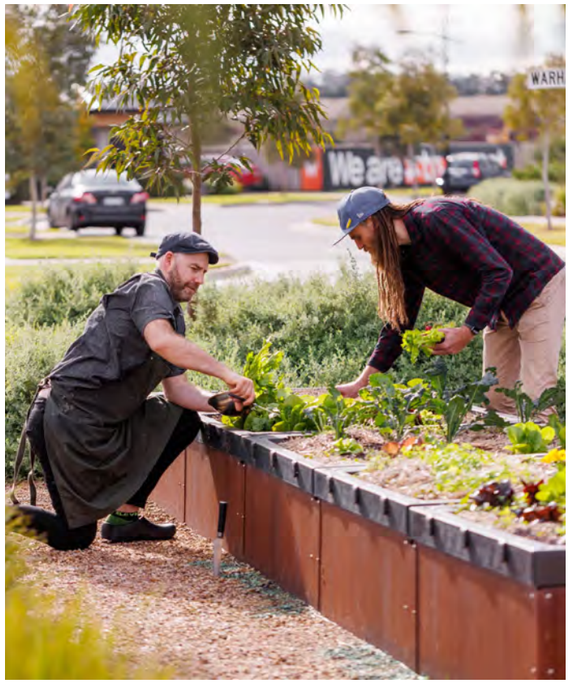
Fig Landscapes

Nature Play Landscaping

Arbour See design studio

Urban Orchard by Josh Byrne & Associates Image: Robert Frith Acorn Photo Agency

Perth Garden Festival display 2019 Img:Garden Deva



Kitchen+Garden+web (we love aintree)

Urban Orchard by Josh Byrne & Associates Image: Robert Frith Acorn Photo Agency

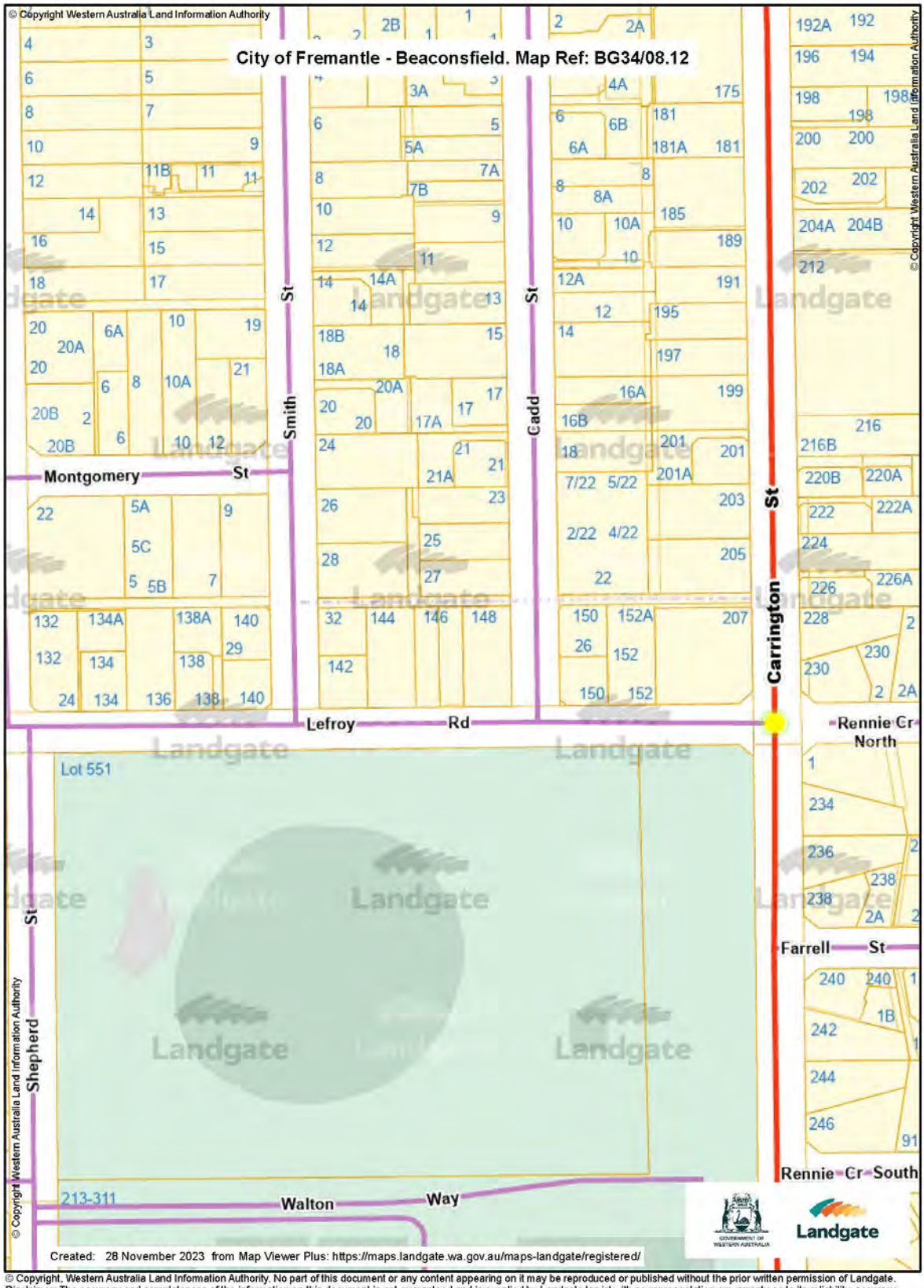
Surman Weston Hackney School of Food Img: Jim Stephenson

JOSH BYRNE & ASSOCIATES

LANDSCAPE • SUSTAINABILITY • COMMUNICATIONS

T 08 9433 3721 **E** design@joshbyrne.com.au **W** joshbyrne.com.au

A Suite 109 Atwell Buildings 3 Cantonment Street Fremantle WA 6160



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CITY OF Fremantle

Nannine Common Draft Master Plan Community Engagement Report

August 2023

fremantle.wa.gov.au

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INTRODUCTION:

This project aims to develop a comprehensive vision and design framework for Nannine Common based on community engagement. In December 2022, City Fremantle (the City) collaborated with Josh Byrne & Associates (JBA) to facilitate a community engagement session and online survey. The Key Findings were summarised in the Engagement Report and include:

- The community highly values the biodiversity corridor for wildlife and expressed the desire to improve connections between Booyeembara Park and the Hope Street basin for visitors and wildlife. Suggestions were made to traffic-calm Stevens Street to enhance these connections.
- There is consistent support for establishing an accessible pathway through Nannine Common to connect Nannine Avenue and Cower Mews.
- The community expressed the need for a versatile outdoor space that can be used for everyday activities and small events. They specifically mentioned the importance of having a stage and projections onto existing buildings for occasional community events.
- The community desires the presence of shady trees, endemic or western australian planting, seating areas, and low-key play elements within Nannine Common.
- There is a request for a shared food garden that the entire community can utilise. This garden should include irrigation systems, raised planters for growing vegetables and herbs, and the inclusion of shared fruit and nut trees.
- Suggestions were made to include a water tank and garden shed within Nannine Common for the storage of garden tools.
- A portion of the respondents expressed the need for a Community Hub building to accommodate various on-site activities such as gardening, harvests, cooking, and community events. The building should also include enclosed storage spaces.

DRAFT MASTER PLAN

DESIGN PRINCIPLES

In May 2023, JBA collaborated with the City to create a Draft Master Plan Package, guided by the Engagement Report's Key Findings and ongoing site analysis. The Design Principles employed by JBA aimed to prioritise community needs, ensure sustainable development, celebrate cultural heritage and community spirit, in summary:

HERITAGE AND COMMUNITY:

- Nannine Common should feel like it belongs within the Sullivan Hall precinct and have a community vibe, especially given that it is located along the community axis of the Booyeembara Park Ecoscape Master Plan,
- Protect and maintain the rear facade of Sullivan Hall and preserve sight lines to and from Sullivan Hall and the surrounding residential areas,
- Incorporate design elements that are consistent with the existing character of the precinct, and
- Nannine Common could host various events and activities that complement those offered at Sullivan Hall, such as outdoor yoga classes, live acoustic music performances, gardening activities and cultural festivals.

BIODIVERSITY AND HABITAT:

- Strengthen ecological linkage along Nannine Avenue between Booyeembara Park and Hope Street basin.
- Provide low kerb crossing points for wildlife such as bobtails.
- Enhance endemic species plantings to support habitat.
- Establish programs to link both ecological and social activities.

MEETING PLACE:

- Cater to a series of diverse spaces promoting gatherings, meetings, and a sense of identity within the broader community.
- Provision of shade and weather protection to increase comfort.

ACTIVITY NODE:

- Key elements within the precinct focus on pedestrian connectivity, view corridors, social cohesion, and active wellness.
- Establish a well-connected hierarchy of spaces and programs that complement each other and offer varying sensory experiences and activities; formal, incidental, open, intimate, sunny, sheltered, hard and soft.
- Provide universally accessible, high-quality public facilities for all ages and demographics.

PRODUCTIVE GARDEN:

- Provide a series of productive gardening opportunities, including fruit and nut trees, raised planters and in-ground edible plants,
- Provide an area for the storage of equipment and tools,
- Develop a material palette of durable materials and elements that are designed for disassembly or recyclable, and
- Provide seating opportunities.

MASTER PLAN DESIGN INTENT:

The Nannine Common Master Plan integrates nature, creativity and community. The emphasis on biodiversity corridor enhancement, accessible pathways, and inviting nature play and seating areas fosters a connection between the community and the natural environment. Adding a productive garden bed and adaptable spaces creates community gatherings and celebration opportunities, including an informal amphitheatre and stage. The central area of the plan features a community building intended for community discussion.

Key considerations of the master plan:

EXTENDING WILDLIFE HABITATS: Biodiversity corridor enhancement, protection of existing peppermint trees, and additions of rocks and logs will provide for local wildlife such as bobtails, bandicoots, and lizards.

LOW KEY NATURE PLAY AND SEATING NODES: This provides an interactive and natural environment for visitors to enjoy.

ACCESS PATH: The design will include an access path that considers disabled access.

PRODUCTIVE GARDEN BED AND ARBOR: A low or raised garden bed enhancing the visual appeal and integration of the community building within the surroundings.

DEALING WITH LEVEL DIFFERENCES: Minimise retaining with boulders, turf and planting to create an area that can be used for picnics, gatherings, informal seating and for performances.

CONNECTION TO SULLIVAN HALL AND SURROUNDS: Clear paths to Sullivan Hall and across the site to connect the streets.

COMMUNITY BUILDING: The location and size of the community building in Nannine Common was determined through analysis of the site, considering various factors to ensure it best accommodates the building and all other requested activities and criteria. Extensive site assessments, including topography, existing structures, sun studies, access points, and environmental considerations, were conducted to identify the most suitable spot for the building. The 60 - 80m2 size was deemed appropriate to strike a balance between functionality and integration with the surrounding landscape.

ASPECTS TO CLARIFY WITH THE COMMUNITY:

At Nannine Common, a significant consideration has emerged regarding whether to include a community building or dedicate the public space to a community garden, productive garden, a park or a combination of all these options at varying scales. To address this, we must carefully consider the community's desires, needs, and overall goals and this is the intent of further engagement in relation to the master plan.

DRAFT MASTER PLAN ENGAGEMENT:

ENGAGEMENT METHODOLOGY:

COMMUNITY SESSION: The City invited the community for a 1-hour interactive sit-down session to discuss the concept that JBA prepared for Nannine Common. The session occurred on Wednesday, 10 May 2023, at Sullivan Hall, White Gum Valley. The Draft Nannine Common Master Plan Concept and Homework were released a week before the event, allowing the community to review and familiarise themselves with the proposed plans.

MY SAY FREO, ONLINE SURVEY: Following the community event, an online survey was conducted from April 29 to May 30, 2023, to gather feedback from both event attendees and community members who couldn't participate on the night. The survey aimed to understand the community's priorities and gather additional comments on the proposed concept for Nannine Common. With 39 completed surveys, it provided a comprehensive perspective to complement the insights from the event.

EMAIL CORRESPONDENCE: Community members' emails also provided diverse perspectives and have shaped the key findings and the project's next steps on P14.

PROMOTION:

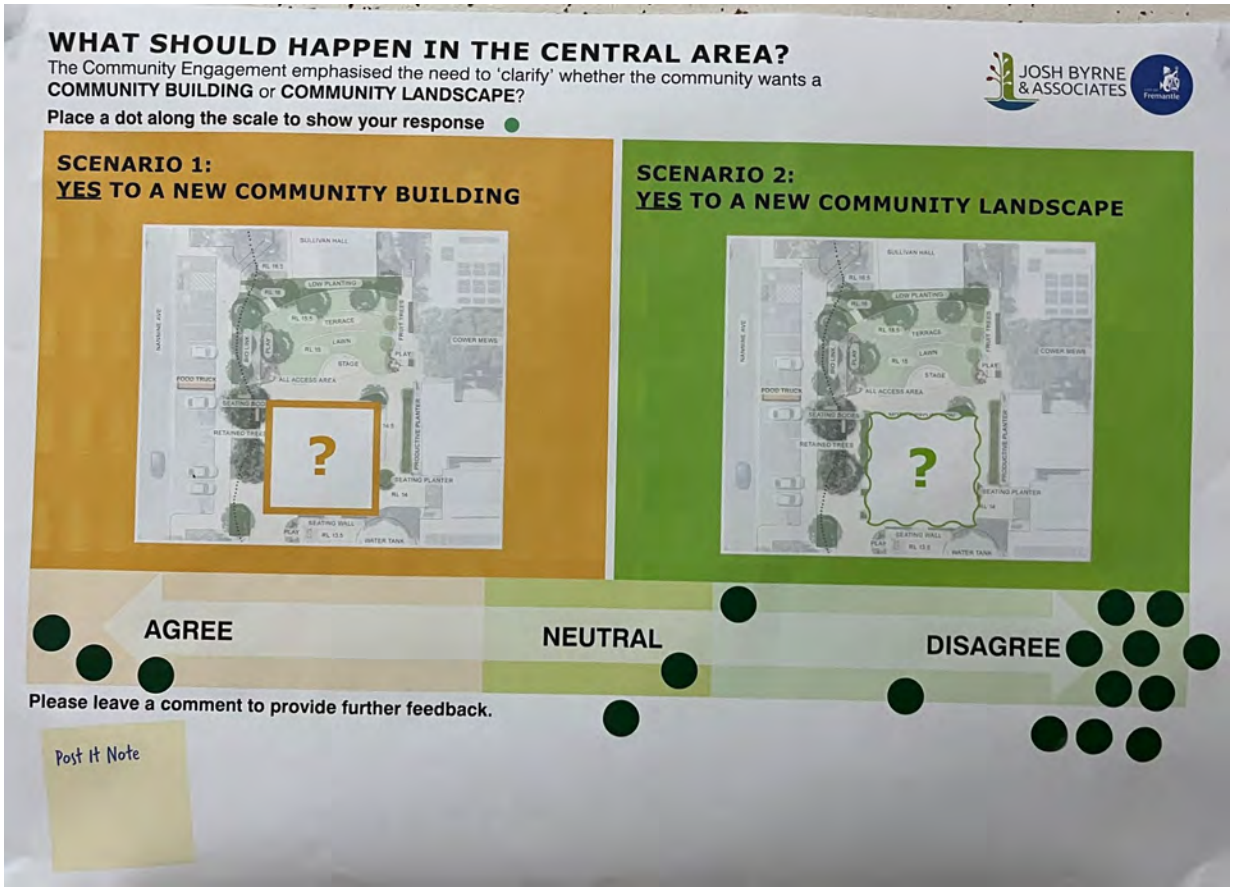
- My Say Freo, Newsletter project update post, 11 April 2023
- My Say Freo, Newsletter Event notification post, with the Draft Master Plan for Nannine Common, 4 May 2023
- My Say Freo, Newsletter Survey notification post, 16 May 2023
- CoF Facebook post, 2 and 17 May 2023

EVENT ANALYSIS:

ATTENDEE DEMOGRAPHICS: Approximately 18 people attended the community engagement event. Demographic information indicates that the session was primarily attended by residents of White Gum Valley who are in their late 50s.

OPENING PRESENTATION & FORUM: JBA gave a presentation on the draft concept, and then took questions from attendees. The conversation focused the central area and how the space would be used, and who it would be for. This allowed City officers to move attendees into the engagement exercises that were designed to further facilitate these conversations.

EXERCISE 01: 'Dotmocracy' is a participatory decision-making tool allowing all participants to express their opinions and preferences on a topic. Participants vote on their chosen options using a limited number of stickers. The exercise was conducted to gauge the collective sentiment of the attendees.



Summary of the votes:

- 61% of attendees like the idea of a community landscape,
- 16% of attendees were in favour of a building,
- 16% were undecided.

Note: Participants were also informed that they could contribute their opinions online.

EXERCISE 02: Participants were organised into groups of 3-5.

COMMUNITY BUILDING SCENARIOS: Findings from the Community Engagement emphasised the need to 'test' the idea of a Community Hub at Nannine Common.

Summary of comments across all groups:

Scenario 1A: Larger Building

- Some groups expressed opposition to a large building and were against the idea of having any structure too close to Sullivan Hall, as they believed it would be too imposing for the site,
- Conversely, another group felt that a larger building could offer improved storage options and the opportunity to establish a meaningful relationship with Sullivan Hall, potentially enhancing the overall functionality and cohesiveness of the area.

Scenario 1B: Modest Building

- A modest building was considered appropriate for year-round use on the site, particularly due to its potential to provide storage space and host outdoor events. However, careful alignment was necessary to avoid obstructing pathways,
- Some participants found the building's size suitable for community use, while another group felt it was still too big. Concerns were raised about the structure's placement affecting sunlight exposure, which could impact solar heating and vegetable growth.

Scenario 1C: Hut & Shelter

- An attendee from Group 3 expressed ambivalence towards a performance space/stage area and favoured scenario 1C, which involved a hut and shelter, deeming it most suitable and least intrusive to the site. They believed that anything larger could alter the site's character and result in increased noise during numerous events/functions,
- Group 4 also strongly supported scenario 1C, there are already several other community spaces within the area that service the neighbourhood.

EXERCISE 03: Participants were organised into groups of 3-5.

PRODUCTIVE OR COMMUNITY GARDEN OR LOCAL PARK? The Community Engagement emphasised the need to 'clarify' whether the community wants a Community Garden, Productive Garden, or Local Park.

Summary of comments across all groups:

Scenario 1A: Community Garden

- Garden needs sufficient light, and a northern positioning is considered optimal; the building was in the wrong spot. Placing a building in front of planters reduces the overall area and sunlight exposure,
- Building near the hall allows for a larger planter area,
- A successful community garden requires a large, strong group for maintenance and should be open to the whole valley,
- There is an opportunity for upskilling community members,
- Proper raised planters are necessary,
- Community members should responsibility for crop selection and connect with local community groups like SHAC and WGV Orchard.

Scenario 1B: Productive Garden

- This scenario is expected to be better maintained,
- However, some concerns were raised that a productive garden might become too prescriptive, potentially leading to a shift in decision-making power from the community to the council.

Scenario 1C: Local Park

- Feedback highlighted the importance of large/tall trees in the area to support wildlife,
- If a community garden or productive garden is implemented, additional trees will be required elsewhere to compensate for any potential loss,
- Some members of the community expressed the view that there are already sufficient local parks, especially Booyeembarra Park, and may not perceive the necessity for another park in the area.

EXERCISE 04: Participants were organised into groups of 3-5.
CENTRAL AREA:
Do you have further ideas or comments for the central area?

Summary of comments across all groups:

- Consider the feasibility of a kitchen upgrade within Sullivan,
- Consider the amphitheatre's capacity to better plan events,
- Explore the concept of a pop-up stage instead of a permanent structure to allow for more flexible use,
- Incorporate a pizza oven to add a unique and enjoyable element to the area,
- Focus on reducing clutter and integrating new structures, potentially attaching them to the back of Sullivan Hall,
- Address concerns about a large community building dominating the space and ensure the preservation of public open space,
- Strive to create ample soft and open public spaces to promote community enjoyment and relaxation,
- Consider establishing a productive garden to foster community engagement and provide fresh produce for the area.

MY SAY FREO, ONLINE SURVEY ANALYSIS:

PARTICIPANT DEMOGRAPHICS:

100% of the 39 survey participants live in White Gum Valley, 69% were 45 years and older and belonged to the following community groups:

- White Gum Valley Community Orchard Inc: 24%
- Other: 24%
- Friends of Booyeembara Park: 17%
- Nannine Common Incorporated: 14%
- SHAC: 9%
- Mountain Biking Collective: 7%
- Booyeembara Park Reference Group: 2%

Tell us something that you LIKE about the Nannine Common Draft Concept.

Approximately half the participants supported the proposed 60m2 building in the central area, along with the lawn, terrace, projection screen and stage. The sloped or terraced area had the potential for outdoor film screenings and was positively received by respondents. There were suggestions to fund the building through grants and community management. In addition, many participants were opposed or unsure of whether a building was necessary.

Many participants appreciate the inclusion of a play nodes, seating and fruit trees, gardening opportunities and the improved integration with the surrounding landscape.

Is there something you DON'T LIKE about the Nannine Common?

Based on the comments provided, there is support and concern regarding the proposed Nannine Common Draft Concept Master plan. Here's a summary of the main points:

WIDE ACCESS AREA: Some individuals feel that the pathways are wider than necessary if the grass area can function as an accessible pathway most of the time.

LACK OF BUILDING PURPOSE: There are concerns about the need for more information regarding the proposed building's functionality and management. Some believe that a 60m2 building needs a clear purpose or usefulness.

WRONG LOCATION AND SIZE OF THE BUILDING: Suggestions include placing the building closer to Sullivan Hall for better access and making the grassed area flat for multiple functions. The size of the building is also questioned as being to small.

IMPACT ON VIEWS AND SUNLIGHT: Some worry that the proposed building will block views and daylight for SHAC residents. They suggest alternative locations.

NEED FOR A BUILDING: Several people feel there is no need for a building or structure on Nannine Common, as there are already existing community spaces nearby. If a structure is necessary, it is suggested to be smaller.

The engagement emphasised the need to 'clarify' whether the community wants a Community Building or Community Landscape at Nannine Common. Ranked highest to lowest:

1. Community building and Landscape combined.
2. Community Landscape
3. Community Building
4. It should be something else completely!
5. I don't mind what happens here.

If you said YES to a Community Building:

Ranked highest to lowest:

1. Scenario 1B: Modest Community Building
2. Scenario 1A: Larger Community Building
3. Scenario 1C: Community Hut with Outdoor Shelter

If you said YES to a Community Building, please explain your answer.

Based on the participant feedback who supports the building, there was support for a central hub for various activities and events. Here are some key points that can be derived from the feedback:

PURPOSE: The building should provide indoor space for community activities, especially during inclement weather. It should include rooms for small to medium meetings/gatherings, a basic kitchen, storage space, and a sheltered veranda. The goal is to accommodate many potential users and activities, including social clubs, choirs, cooking and sustainability classes, intergenerational activities, music and crafting circles, playgroups, and more.

SIZE: The suggested size for the building ranges from 60m2 to 80m2, with additional space for storage. This would allow for flexible use and accommodate different group sizes.

LOCATION: Some participants suggest that the building should be near Sullivan Hall for better integration and accessibility. The surrounding outdoor spaces should be flat and versatile, allowing multiple functions and group sizes. Others see the benefit of the central location as it is better integrated into the surrounding context.

FUNDING: Some participants said they thought that the community is willing to contribute to the funding of the building through various means, including voluntary levies, community donations, builder discounts, and grant applications to state, federal government, and lottery funders.

MANAGEMENT: Some participants felt the building should be run by a not-for-profit organisation with a volunteer management committee. Membership should be open to all community members to ensure equal access and inclusivity.

SULLIVAN HALL: Some participants liked the design by JBA as it was felt it complemented Sullivan Hall and provided additional facilities for smaller groups, meetings. This would leave Sullivan Hall for larger public gatherings and activities.

If you said YES to a Landscape Amenity, please rank the scenarios 1 to 3 (1 being your preferred).

1. Scenario 1B: Productive Garden
2. Scenario 1C: Local Park
3. Scenario 1A: Community Garden

If you said YES to a Community Landscape, please explain your answer. Consider the following factors:

Below is a summary of ideas of Nannine Common from the participants.

- In terms of usage, Nannine Common it was felt could serve as a peaceful walking area, a place for outdoor meetings and communal events, a venue for outdoor movies and social events, and a space to promote sustainability and awareness of locally grown native edibles.
- There were suggestions to have Nannine Common Inc manage a community garden. Nannine Common Inc is described as an incorporated body established to facilitate the development of a licensed community garden open to all residents of White Gum Valley. While others favoured a low-key park incorporating more native plants, fruit and nut trees, and shared vegetable gardens, with basic amenities like rainwater tanks, crushed limestone paths, and reticulation.
- Some said the maintenance and management of the space could involve a combination of council maintenance and community volunteer efforts. Others though the council should maintain.

Do you have further ideas or comments for the central area at Nannine Common?

- Some participants felt the JBA Concept Plan for the WGV Development is well done, and a modest community hub is seen as a valuable addition. Others said to avoid constructing a new building in the middle of the open space.
- In addition, some called for funding to restore Sullivan Hall and to add a commercial kitchen.
- The proposed building is seen as an asset for community meetings, events, and knowledge sharing.

- Some express concerns about overshadowing their homes and request shadow diagrams to be shared.
- Some desire more garden space, a fire pit area, and additional open space for events and markets. They feel that decisions should be made based on previous consultations. Others preferred basic landscaping, paths, reticulation, native plants, fruit and nut trees, and a rainwater tank.
- The importance of sustainable principles and a fully sustainable building is highlighted. In addition, there were suggestions for planting citrus trees and other sustainable plants, emphasising the importance of community involvement for the area's sustainability.

What do you think should be done first at Nannine Common with our budget of $20,000

The participants in the survey suggested a variety of actions to be taken regarding the area. In summary:

- Removing weeds, spreading mulch, creating planter boxes, and planting trees. They also propose adding informal seating, such as tree logs, for a more relaxed and natural atmosphere.
- Some participants are keen to develop plans for a community hub and proceed with the landscaping of the area. This indicates a desire to create a space that fosters community engagement and interaction.
- Some participants emphasise the importance of a productive garden for growing organic food. They see it as a valuable resource when the cost of living is increasing, providing a sustainable and accessible food source for the community.
- Others felt creating a parking space that accommodates community gatherings.
- Some participants expressed a preference for upgrading Sullivan Hall. They see the potential in repurposing the hall to meet the needs and desires of the community.
- On the other hand, some recommend engaging an architect to design a new building. This suggests a desire for a new and purpose-built structure that aligns with the vision and goals of the community.

In summary, the participants propose a range of actions, including landscaping, developing a community hub, focusing on productive gardens, creating park spaces, upgrading existing structures, and engaging an architect for new building design. These suggestions reflect the diverse perspectives and priorities within the community.

Any further comments regarding the Draft Concept Master Plan for Nannine Common?

- The Draft Concept Master Plan feedback for Nannine Common is mixed. Some participants express support and appreciation for the plan, commending the City and JBA for their efforts in listening to and incorporating the community's input into the plan. They believe the plan will revitalise the area and serve as a vibrant community space.
- However, some participants expressed concern with certain aspects of the plan. Some were not supportive of including a building, stating that the existing Sullivan Hall is sufficient and should be upgraded instead.

- Others express concerns about the focus on visual heritage and suggest that more attention should be on the community spirit.
- There are participants who appreciate the existing open space and suggest keeping it free of buildings. They believe the area is already well-loved and useful and only requires a few improvements to continue serving the community.
- Many participants highlighted the need for traffic calming measures on Stevens Street to ensure the safety of wildlife and pedestrians.
- Others mention the lack of venues for mothers' groups, playgroups, and community activities, emphasising the need for such spaces.
- Overall, the feedback reflects varying opinions regarding the building, landscaping and community activities.

EMAIL SUBMISSION ANALYSIS:

SUMMARY OF DIVERSE EMAIL SUBMISSIONS:

Opposing to a building:

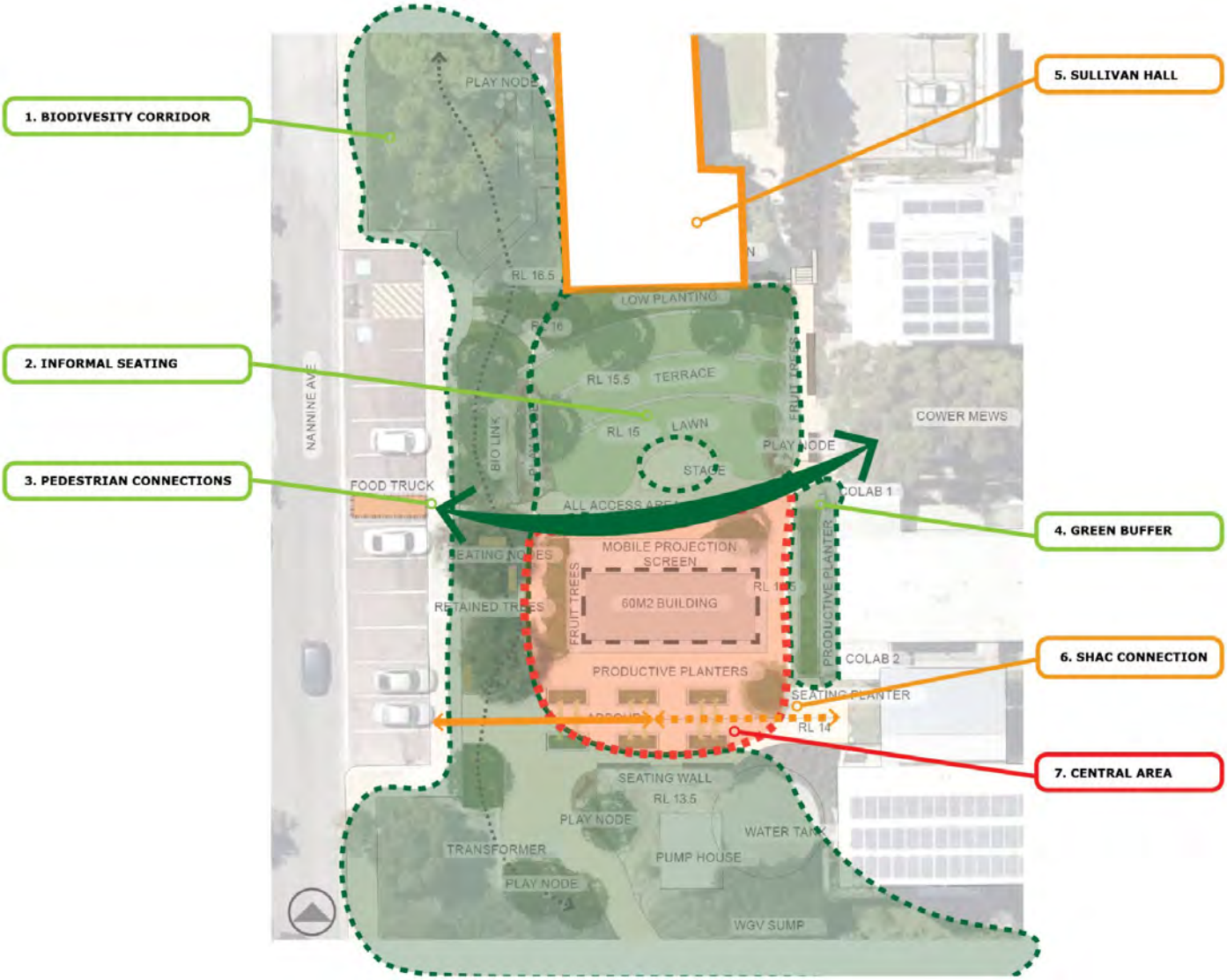
- Suggests repurposing Sullivan Hall instead of a building at Nannine Common.
- Raises concerns about the proposed terracing of the land.
- Supportive of actioning a Community Garden.
- Advocates for an environmentally balanced approach, considering local fauna and sustainability principles.
- Proposes creating natural spaces for both human and biodiversity.
- Suggests circular seating, a water feature, and storytelling stepping-stones.
- Prefers natural colours.
- If a building is necessary, it should be a small shelter.

Supporting the Building:

- Support for the masterplan with the central building.
- Advocates for a dedicated community organisation to oversee collaborations and project management.
- Suggests seeking inspiration from similar community hub buildings.
- Encourages community involvement in refining the design.
- Some concerned raised about the exclusivity of a community garden and questions the community's commitment.

The submissions received demonstrate a rich array of ideas, concerns, and suggestions, stemming from various individuals participating in the discussion. These contributions closely align with the themes and feedback gathered through the My Say Fremantle Online Survey and Event Analysis.

CONCLUSION:



The diagram below captures the essence of the feedback for Nannine Common's concept masterplan to be read with the adjacent overall findings.

OVERALL FINDINGS:

AGREED UPON:

1. Biodiversity Corridor: There is unanimous support for extending the Booyembara Park and connecting it to the Hope Street swale to enhance biodiversity.

2. Informal Seating: The idea of creating an area with seating for everyday use, as well as occasional events and gatherings, along with a small stage, is well-received. The design will utilise existing levels to minimise retention and associated costs.

3. Pedestrian Connectivity: Increasing walkability and enhancing connections within the area is endorsed by all participants.

4. Green Buffer: The concept of a green buffer is positively received by participants.

NEEDS FURTHER DISCUSSION:

5. Sullivan Hall: Further investigation is required to determine how Sullivan Hall can integrate and function with Nannine Common. Exploring upgrades and potential openings to the park was suggested.

6. SHAC Connection: Design development is needed to ensure a proper connection while maintaining the shared nature of Nannine Common.

7. Central Area: The purpose of the central area is unresolved. Some advocate for a new building, while others favour improving Sullivan Hall. Preferences vary from community gardens to lower-key productive gardens and local parks.

NEXT STEPS:

The concept masterplan for Nannine Common highlights areas of agreement, yet the unresolved central space holds particular importance. To address this, the City proposes a workshop where the community can share their ideas, concerns, and hopes. Together, we aim to create a solution that aligns with our shared vision, considering both current and future amenities. With inclusivity in mind, the community will receive at least one month's notice before the workshop, allowing ample preparation time for all involved. It is important to note that no budgets have been allocated for the delivery of the greater masterplan and resolution of the plan is essential in determining future budgets.

FURTHER INFORMATION FOR CONSIDERATION

The City is actively engaged in the search for qualified golf course operators who possess the necessary skills, experience, and financial stability to effectively manage and maintain the golf course through a lease arrangement and associated management agreements. It's important to emphasise that the City is currently in the process of diligently reviewing the Expression of Interest (EOI) submissions for this project.

The ongoing assessment of the EOI responses holds the potential for adjustments to the original plans for the Community Centre at the Fremantle Golf Clubhouse. These modifications may, in turn, prompt a revaluation of the proposed community facility. In the spirit of transparency and openness, it's essential to acknowledge that these developments could also impact the decision regarding the exact placement of a community facility within White Gum Valley.

The interconnected nature of these projects underscores the critical need for meticulous planning and robust community engagement. Such measures ensure that the final outcomes align harmoniously with the community's distinct needs and aspirations.

Shark Bite Mitigation and Safe Swimming Areas Investigation: Final Report

Report prepared for: City of Fremantle & Town of East Fremantle | Prepared by: Stantec Australia Pty Ltd

Ref: cof/toef-ma-2023-01 | Date: 03/11/2023

Revision Schedule

Revision No.	Date	Description	Authors	Quality Reviewers	Independent Reviewer	Project Manager Final Approval
V0.1	02-11-2023	Draft	Joey Laugharne Joel Jebaratnam Amber Evans Bronte Scott Dr Glenn Shiell Dr Will McBeth Dr Daryl McPhee	Dr Glenn Shiell Dr Will Macbeth	Dr Daryl McPhee	Dr Glenn Shiell

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Executive Summary

Background

Interactions between humans and sharks in Western Australia, especially those involving 'shark bites', is a highly emotive subject that draws the close attention of the public and government. Shark bites occur when a shark closes its jaws on a person's, arm, leg, foot, head or torso; typically, under enough force to cause injury or death. In response to a fatal shark bite incident in Fremantle in February 2023, Stantec Australia was engaged by the City of Fremantle (CoF) and Town of East Fremantle (ToEF) to identify shark bite mitigation strategies for the protection of residents.

This report presents the findings of a 3-stage project, which on aggregate aimed to provide the CoF and ToEF with options for the installation of suitable shark bite mitigation strategies at a short-list of sites in the Fremantle area (the Area of Interest, AoI).

Approach / Objectives

The project was conducted in three stages as illustrated in **Figure ES1**, with each comprising discrete objectives. The objective of stage 1 was to review and identify the available shark bite mitigation options based on a review of precedents and the international literature. The objectives of stages 2 and 3 were to evaluate the performance of the short-listed mitigation strategies across the AoI, before providing the CoF and ToEF with a list of optimal locations based on a weighted multicriteria analysis (w-MCA).

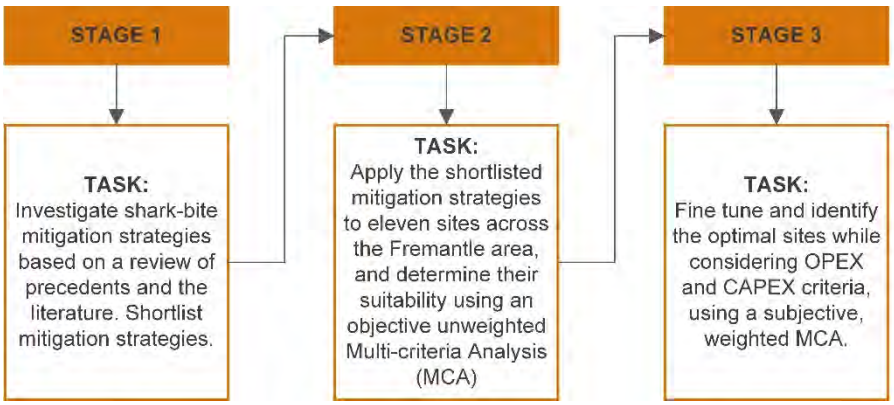

Figure ES1: **Staged objectives for the shark-bite mitigation project.**

Findings

Stage 1 – Review of Shark Bite Mitigation Options

A review of the international literature and known precedents revealed a total of eleven shark-bite mitigation strategies, from direct exclusionary barriers and electrical deterrents to a range of passive strategies centred on surveillance technologies: from drones and acoustic detection to human observation methodologies. The suitability of each of each was subsequently evaluated against the following criteria:

- Environmental risk
- Compatibility with existing WA government measures
- Potential for risk reduction
- Estimated OPEX and CAPEX, and
- Other perceived advantaged and disadvantages.

Of the eleven strategies assessed in our review, physical shark barriers were deemed most suitable and were therefore chosen for further investigation. Electrical barriers, while initially viewed as a potential option, were ruled out at this stage of the project due to inherent complexities with instalment and maintenance in the AoI, and the public perception that unlike a physical barrier they do not mitigate the risk enough for most to place their trust in. The use of surveillance

techniques as a singular solution was also ruled out due to their incompatibility in the AoI as well as their significant OPEX requirements. Their use in combination with physical barriers was however presented as a viable option depending on the resources available to the user (both human and economic).

Stage 2 - Potential Application of Options in the ToEF and CoF

Stage 2 of the project examined the application of physical barriers at eleven sites across the AoI encompassing: Leighton Beach, Port Beach, Bathers Beach, South Beach on the Indian Ocean, and North Fremantle Foreshore, South Fremantle Foreshore, Gilbert Fraser Reserve, Harvey Beach, Swan River Yacht Club, John Tonkins Reserve, and East Fremantle Yacht Club, along the Swan River Foreshore. Each site was evaluated against physical, environmental and social criteria, encompassing depth and space requirements, environmental sensitivity, wave energy, fauna interactions and proximity to public transport and parking opportunities, together with potential resource conflicts such as recreational boating and fishing.

The relative desirability of the sites was initially evaluated using an objective unweighted-multicriteria analysis (u-MCA). The u-MCA used a point system to score the suitability of sites based on their unique physical, environmental and social characteristics: For the physical and social criteria, a score of **+1** was issued if the criterion was met; a score of **0** was issued if the criterion was partly met or the result was uncertain; and a score of **-1** was issued if the criterion was not met. A similar scoring system was used for the environmental criteria. In this instance, the classifications of met, partly met and not met were replaced with low (**+1**) moderate (**0**) and high impact (**-1**) results.

Port Beach, North Fremantle Foreshore, South Fremantle Foreshore, Gilbert Fraser Reserve, Harvey Beach, Swan River Yacht Club and the East Fremantle Yacht Club scored poorly in the u-MCA based on their shallow depth, lack of space, access difficulties, lack of parking amenities and conflicting resource uses. South Beach (85%), Leighton Beach (71%), John Tonkin Reserve (71%) and Bathers Beach (57%) by contrast scored highly against most criteria, and were hence presented to the CoF and ToEF as the preferred sites for further investigation.

Stage 3 – Finetuning of Options

Stage 3 of the project used a weighted-MCA (w-MCA) to fine tune the site selection process. Unlike the u-MCA, , the w-MCA assigned weightings to the physical, social and environmental criteria, as well as two new criteria (operational [OPEX] and capital [CAPEX] costs); the latter of which were provided directly from two WA-based barrier manufacturers via Request for Information. In the weighted-MCA (w-MCA), higher weightings were applied to the social and economic criteria: OPEX, public access and CAPEX; and lower weightings were applied to physical and environmental criteria: sediment transport and encroachment on sensitive benthic habitats, such as seagrass and/or macroalgae.

On aggregate, results of this study suggested the **ToEF's John Tonkin Reserve** and **CoF's South Beach** were the **most suitable options for the installation of shark barriers**. Both provided good public access and amenities and presented negligible environmental risks. Both sites maintained suitable depths, a gentle sloping bathymetry and a low risk of competing resource conflicts.

Bathers Beach in the CoF presented an alternative option provided the barrier could be maintained as a permanent installation, without the need for seasonal removal. OPEX was reduced significantly in this instance owing to costs associated with the annual removal of the barrier in winter. The option to install a barrier at Bathers Beach, however, should also be considered in the context of the lower scores achieved for access and amenities, and potential environmental sensitivity given the presence of platform reef at this site.

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Abbreviations

Abbreviations	Full Name
AoI	Area of Interest
CAPEX	Capital Expenditures
FSLC	Fremantle Surf Lifesaving Club
MCA	Multi-Criteria Analysis
OPEX	Operating Expenses
SBMS	Shark-Bite Mitigation Strategy
ToEF	Town of East Fremantle
WA	Western Australia
wMCA	Weighted Multi-Criteria Analysis

Glossary

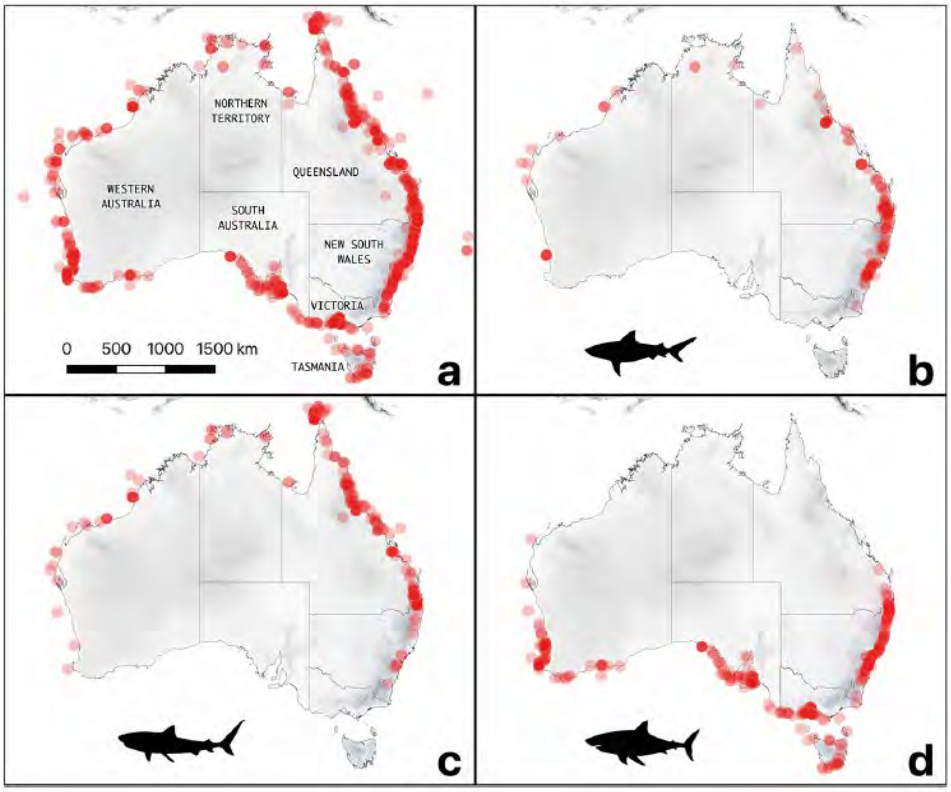
Term	Definition
Bather	Any person engaged in in-water recreational activities of bodysurfing or swimming in
Bathymetry	The measurement of depth of water in oceans, seas, or lakes
Beach Enclosures	A barrier covering the full water column by a series of anchors and floats which prevents
Biocide	A substance that destroys living things
Biofouling	The fouling of underwater structures and surfaces by aquatic organisms such as
Coastal Waters	The immediate nearshore environment out from ocean beaches but not in protected
Dangerous Shark	A shark capable of inflicting a harmful unprovoked bite, which in coastal regions most
Emerging (New) Technologies	Technology to deter or detect sharks that has been recently developed or is under
Estuarine Waters	Coastal water bodies where freshwater runoff from the land meets the saltwater of the
Metocean	Refers to the combined wind, wave and climate conditions of the ocean at a certain
Macrophyte	An emergent, submergent or floating type of aquatic plant visible by the naked eye
Personnel Device	A shark deterrent worn by an individual or that is part of an individual's watercraft
Shark Barrier	A device enclosing a section of a beach that physically prevents sharks from gaining
Shark Detector	A device or activity that is used to detect sharks
Shark Deterrent	A device or activity that deters or repels sharks from approaching a person or area
Surfer	Surfboard or bodyboard rider

1. Introduction

1.1 Incidence of Shark Bites in Australia

Interactions between humans and sharks in Western Australia, especially those involving 'shark bites', is a highly emotive subject that draws the close attention of the public and government. Shark bites occur when a shark closes its jaws on a person's, arm, leg, foot, head or torso; typically, under enough force to cause injury or death. There is much debate about the frequency of shark encounters and whether the incidence of shark bites is increasing. While the incidence of shark bites has increased on average over the past 40 years (Riley et al. 2022), the data are inconsistent; while increases have been recorded in some regions, other have recorded decreases or have remained stable (Riley et al. 2022).

Since 1791, Australia has recorded 1,196 shark bites primarily due to interactions with bull, tiger and white sharks (Riley et al. 2022) (**Figure 1-1**). At the end of 2020, Australia was ranked number two in the world for the number of total bites per annum, which has risen from an average of nine bites per year from 1990–2000, to 22 bites per year from 2010–2020 (Riley et al. 2022). Although many different shark species are involved in human-shark interactions in Australia, the majority of fatalities and serious bites are from white sharks (*Carcharodon carcharias*), tiger sharks (*Galeocerdo cuvieri*) or bull sharks (*Carcharhinus leucas*) (McPhee, 2014; Riley et al., 2022).

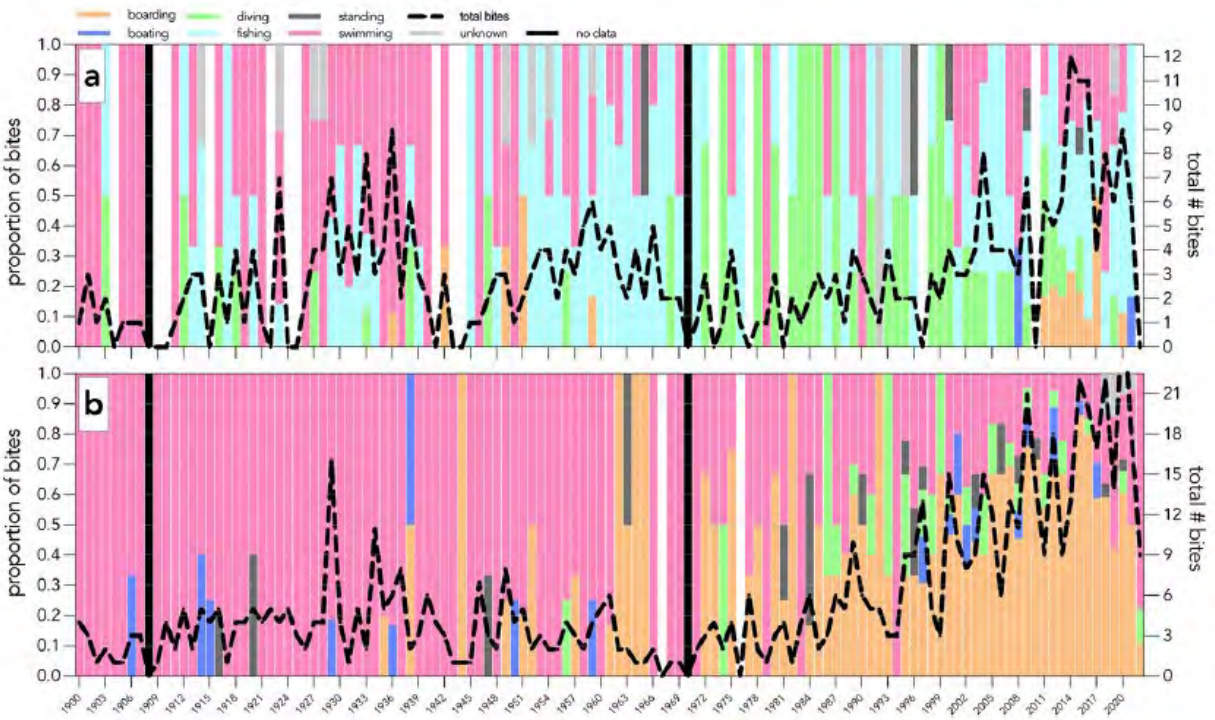


Notes: Each shark-bite incident is indicated by a red dot. (a) all shark-bite incidents; (b) bites most likely inflicted by bull sharks, (c) tiger sharks, and (d) white sharks. Two bite incidents that occurred at the Australian external territory, Cocos (Keeling) Islands, are not included on these maps. Background layers show elevation and major, perennial watercourses. Source: Riley et al. (2022)

Figure 1-1: Geographical locations of 1,196 shark bites in Australia between 1791 and 2022.

The potential drivers for the observed increase are the subject of debate. The strongest and most widely accepted hypothesis is that it is due to the steady increase in human population growth in coastal areas, and the corresponding increase in water-based recreational activities (Amin, 2012; McPhee, 2014; Chapman and McPhee, 2016). Other common and not mutually exclusive considerations include changes in the abundance and sizes of sharks in coastal regions, changes in the abundance and distribution of prey, changes in habitat, and climate related changes in temporal and physical environmental variables (Hazin et al., 2008; Chapman and McPhee, 2016; Afonso et al., 2017; Lemahieu et al., 2017; Lagabrielle et al., 2018).

The incidence of unprovoked shark bites is particularly high among board riders. Shark bites have increased for boarders (including surfboarding, bodyboarding, kiteboarding, sailboarding, wakeboarding, and stand-up paddle boarding) over time, particularly since 1960 (**Figure 1-2**). Based on these data, the risk of an unprovoked shark bite while indulging in these activities is approximately twice that of swimming. This is likely due to the increase in popularity of board sports, particularly surfing, since the 1960s.



Notes: Panels represent shark bites in Australia that are; (a) provoked or (b) unprovoked. Boarding includes surfboarding, bodyboarding, kiteboarding, sailboarding, wakeboarding, and stand-up paddle boarding. Swimming includes snorkelling, spearfishing, freediving, body surfing, clinging to an object, falling into water, floating, or wading. Diving includes scuba-diving, hookah diving, or hard-hat diving. Fishing includes cleaning fish. No data for years 1908 and 1970. Source: Riley et al. (2022).

Figure 1-2: Number of shark bites (black, dashed line) by proportion of activity 1900 to 2022.

Shark bites may be classified as provoked or unprovoked. A ‘provoked’ bite is one where the person attracts or initiates physical contact with a shark (accidentally or on purpose) or was fishing for, stabbing, feeding, netting, or handling a shark, or where the shark was attracted to the victim by activities such as fishing, spearfishing and cleaning of captured fish (Riley et al. 2022). An ‘unprovoked’ encounter is defined as an incident where a shark is in its natural habitat and has made a determined attempt to bite a human where that person is not engaged in provocative activities (Riley et al. 2022). Of these, unprovoked shark bites receive the most attention in the media and are the key driver of social anxieties around shark / human interactions (Muter et al. 2013; Hardiman et al., 2019; Le Busque et al., 2019).

While the probability of an unprovoked shark bite remains low, the vivid and shocking nature of a shark bite ensures a high degree of media reporting and public concern (Neff, 2012; McPhee, 2014). This is reflected in the psychology of the public, who are more concerned about unprovoked shark bite than drowning at a beach which is a statistically greater risk (Crossley et al., 2014; McPhee, 2014). The public are also more likely to overestimate the recorded number of fatal and non-fatal unprovoked shark bites by a factor of four (Simmons and Mehmet 2018, Crossley et al., 2014).

The public views shark bite mitigation as a combination of personal accountability and government responsibility (Lucrezi et al., 2017), although some form of government response (or additional response) is expected when an unprovoked shark bite occurs, especially on multiple occasions over a short period of time (Simmons et al., 2021). Responses to unprovoked shark bites involve public policies and management approaches that contend with the needs of public safety, the responsibility to protect threatened species and the increasing recognition of the role of sharks in the ecological functioning of marine and/or estuarine environments (Simpfendorfer et al., 2011; O’Connell and de Jonge, 2014; McPhee, 2014; Gibbs and Warren, 2015; Pepin-Neff and Wynter, 2018).

1.2 Management of Shark Bite Risk

Shark bite mitigation programs are a particularly challenging and a problematic case for decision makers and managers where conflicting views within a community are heightened by the sensitive topic of human life versus species protection (Cullen-Knox et al., 2017). Within Australia, the Queensland, New South Wales and Western Australia (WA) Governments have active shark management policies, which in the past has included the use of contentious lethal methods such as nets and drumlines. Following a spate of fatalities between 2010 and 2013, for example, the WA Government trialled the use of lethal drum lines in Perth's coastal waters between January and April 2014. Despite the Barnett Government's intent to continue the program, the trial was discontinued in late 2013 following opposition from the WA Environmental Protection Authority and a rethink of the programs' effectiveness in WA.

In recent times, polices have evolved to include the development and trialling of non-lethal methods of mitigation, increasingly sophisticated surveillance and the development and implementation of education and awareness programs. The WA Government, for example, is developing multiple initiatives as part of its Shark Mitigation Strategy (SMS) to enhance community safety by ensuring rapid and effective operational responses to shark sightings and by investing funding into scientific research to better understand shark movements and behaviour in WA waters. The SMS was first developed by the WA Government in 2008 to manage shark-human interactions at the State's beaches (Department of the Premier and Cabinet, 2016). The program initially involved aerial and beach patrols but has since evolved to include a range of complementary measures, carried out in partnership with the WA Department of Primary Industries and Regional Development, Surf Life Saving WA, WA Water Police and Surfing WA. These include:

- **Beach and aerial surveillance**:
  - Helicopter and beach patrols over metropolitan and Southwest beaches.
  - Jet skis and event support to assist evacuations when a shark is sighted.
  - Drone patrols to monitor beaches and support events.
- **Subsidising the cost of independently evaluated personal shark deterrents for surfers and divers;**
- **Additional beach enclosures.** Six beach enclosures are currently in place at Old Dunsborough, Busselton, Middleton Beach (Albany), Cottesloe, Sorrento Beach and Quinn's Beach. City of Melville is due to install a beach enclosure at Bicton Baths in 2024 and funding has also been offered to the City of Mandurah to install a beach enclosure at Falcon Beach;
- **Surfing Western Australia (Surfing WA) partnership.** A shark mitigation partnership with Surfing WA provides funding for jet skis and drones for event patrols, as well as free first-aid training that is tailored specifically for surfers;
- **A specialised Shark Response Unit (SRU)** has been developed within the State Government to respond to shark incidents and work with other first responders to improve warning notifications and responses, so they are continually improved;
- **Beach Emergency Number (BEN) signs.** BEN signs are being installed at key coastal locations across the state to improve response times to any emergency incidents;
- **Legislative ban on shark cage diving** for tourism and other activities which may change the behaviour of sharks;
- **Whale carcass management.** Collaboration across government departments and land managers to tow whale carcasses that are adrift, when conditions are suitable, and a program to trial additional towing options. Where possible, small whale carcasses will be towed when removal by land is not practical;
- **SharkSmart website** provides the latest research, and safety information relating to sharks and includes a real-time shark activity map highlighting the latest sightings and tagged shark detections;
- A new **SharkSmart App** so water users can easily check for the latest shark information at their local beach;
- **Integrated shark notification and response system** provides 'real-time' information on shark sightings and tagged shark detections to land managers and the public, to assist people in making informed decisions about their water use;
- **Sea Sense** campaign to help improve safety by informing water users on Western Australia's shark mitigation strategies, and how to use them to enjoy the beach with confidence, as well as how to check for the latest shark information, and how to report sightings**.**

1.3 Study Objectives

The City of Fremantle (CoF) and Town of East Fremantle (ToEF) have several favoured swimming locations along the coastline and Swan River foreshore. In response to a fatal shark bite incident adjacent to the Fremantle traffic bridge in February 2023, the CoF and ToEF engaged Stantec to investigate the range of available shark bite mitigation strategies, with the intent to protect local swimmers across the Area of Interest (AoI), encompassing a 30 km^2 area between South Beach and East Fremantle Yacht Club.

This report presents the findings of a 3-stage project, which on aggregate aimed to provide the CoF and ToEF with options for the installation of suitable shark bite mitigation strategies at one of more sites, across both jurisdictions. The specific objectives of the study are detailed below**:**.

Stage 1

- Investigate and summarise the range of effective mitigation measures by way of a review of the scientific and grey literature; and
- Conduct a preliminary analysis of the suitability of the measures in the context of their proven efficacy and their cost, both capital and operational.

Stage 2

- Assess the feasibility of installing barriers at the 11 sites identified by CoF and ToEF; and
- Develop a shortlist of sites for final assessment under Stage 3 of the project, using an unweighted-multi-criteria analysis.

Stage 3

- Gather additional information on the make, construction and cost of the barriers;
- Summarise the funding options available to the CoF and ToEF; and
- Provide a final shortlist of sites based on a weighted multi-criteria analysis (wMCA), incorporating estimates of CAPEX and OPEX.

2. Approach

2.1 Study Area

The AoI for this project encompassed a ~30 km^2 area comprising seven Swan River sites and four Indian Ocean sites. The Indian Ocean sites, South Beach, Leighton Beach, Bathers Beach and Port Beach, and a subset of the Swan River sites, Southern Fremantle Foreshore, Northern Fremantle Foreshore, Gilbert Fraser Reserve and Harvey Beach are located within the CoF. The remaining Swan River sites, John Tonkin Reserve, Swan River Yacht Club and East Fremantle Yacht Club are in the ToEF (**Figure 2-2**).

2.2 Project Stages

The project was conducted in 3-stages as summarised in **Figure 2-1**. The objective of stage 1 was to review and identify the available shark bite mitigation options based on a review of precedents and the international literature. The objectives of stages 2 and 3 were to evaluate the performance of the short-listed mitigation strategies across the AoI, before providing the CoF and ToEF with a shortlist of optimal locations based on a multicriteria analysis (MCA).

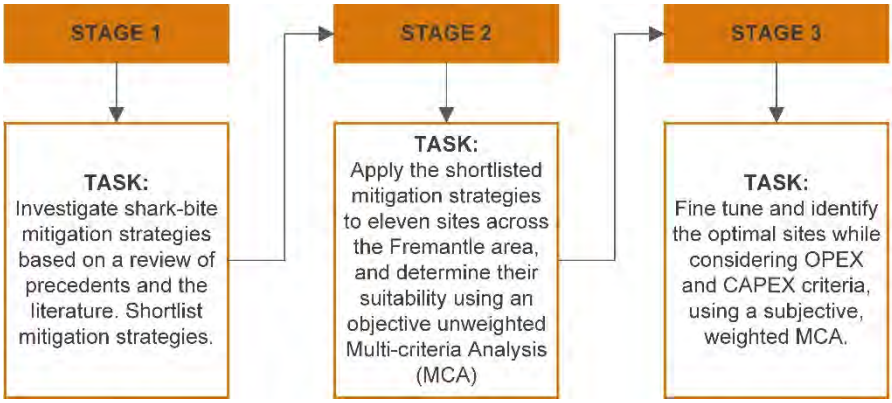


Figure 2-1: Summary of project stages for the shark bite mitigation project.

The MCA provided a means of objectively evaluating the pros and cons of a site based on the analysis of multiple data layers. The review was conducted in the context of the unique environments presented by each option, including the potential social, economic and environmental constraints affecting the successful deployment and uptake ('public utilisation') of the strategies at each location.

2.3 Review of Shark-Bite Mitigation Strategies

Stage 1 of the project proceeded based on a review of known shark bite mitigation precedents and other options described in the literature. Up to 23 discrete sources of data were reviewed in the process, encompassing two (2) technical reports, twenty-one (21) peer-reviewed articles and numerous government and industry-based websites.

The review focussed on the available shark-bite mitigation strategies from direct exclusionary barriers and electrical deterrents to a range of passive strategies centred on surveillance technologies applied in other states and jurisdictions, including those trialled in Western Australia. All mitigation and surveillance strategies were reviewed in the context of their potential to de-risk (or reduce) the probability of shark bite incidents, due to interactions with 'dangerous sharks'. For the purposes of the review, dangerous sharks were defined as those capable of inflicting a harmful unprovoked bite, which in coastal regions include white, tiger and bull sharks (Riley et al. 2022).

Figure 2-2: Sites considered for application of shark bite mitigation strategies.

2.4 Shark Bite Mitigation Performance Criteria

The efficacy of the potential mitigation strategies was analysed in the context of the AoI, considering factors such as water clarity, demonstrated shark bite risk reduction, environmental risk and high level OPEX and CAPEX estimates. A semi-quantitative analysis was undertaken whereby the strategies were ranked based on their perceived performance against the criteria in **Table 2-1.**

Table 2-1: Performance criteria used in the shark bite mitigation performance analysis.

Criteria	Assumptions
Environmental risk	• Environmental risks were assessed in the context of shading or physical disturbances to benthic primary producing organisms comprising seagrasses and macroalgae; • Other considerations included perceived disruptions to fish movement and migration and electrical or ultrasonic disruptions to other elasmobranchs, excluding sharks; • Risks to marine mammals were also considered, but were assessed as low due to a dolphins ability to escape barriers via 'porpising' (jumping).
Compatibility with existing WA government measures	• Compatibility was assessed with respect to existing warning or other mitigation strategies, such as SMS alerts, smart drumline or helicopter surveillance measures.
Potential for risk reduction	• The potential for risk reduction was considered in the context of whether the technology was proven based on data, or whether it provided a 'virtual' electronic or a 'physical' barrier to sharks. • Using these criteria, surveillance and electronic barriers were typically ranked lower than physical barriers.
Estimated high level OPEX and CAPEX	• Performance was ranked against high-level OPEX and CAPEX estimates, e.g., OPEX [helicopter surveillance] >> OPEX [drone surveillance]; CAPEX [Acoustic Buoy] >> CAPEX [human visual surveillance]. • OPEX and CAPEX estimates were fine tuned in latter stages of the project, (i.e., stage 3 based on actual estimates provided by manufacturers).
Other factors	• Other factors considered include: o Water clarity o Resilience to wave environments o Potential impacts on sediment transport o Availability of suitable observation vantage points o Spatial range of detection method o Past performance

2.5 Initial Shortlisting of Suitable Sites

During the scoping phase of the project, the CoF and the ToEF provided Stantec with a list of sites, including four on the Indian Ocean and seven along the Swan River foreshore (**Figure 2-2**). Each of the sites were initially evaluated using an unweighted MCA (u-MCA). In a u-MCA, all criteria are treated with equal significance; in other words, none of the criteria were considered more or less important than others.

The objective of the u-MCA was to assess the likely success (or compatibility) of the installed shark barriers at each of the sites based on competing social, physical and environmental criteria (**Table 2-2**). Physical considerations included bathymetry (water depth), available space, meteorological conditions, wave climates, suitable anchoring substrate, sediment and debris transport, and coastal erosion rates. The environmental considerations included sensitive habitats, marine fauna interactions, and the potential accumulation of seaweed or seagrass wrack, the latter of which may apply destructive forces on the infrastructure resulting in structural failures. Social considerations were quantitatively and/or anecdotally considered in the context of other recreational and commercial uses.

Table 2-2: Physical, environmental and social criteria included in the initial site suitability analysis.

Category	Criteria
Physical	Depth and Space Requirements
	Metocean Climate
	Sediment and Debris Transport
Environmental	Sensitive Habitats
	Marine Fauna Interactions
Social	Existing Access and Amenities
	Compatible/conflicting Recreational/Commercial use

The suitability of each site was objectively assessed using a simple but objective scoring system. For the physical and social criteria, a score of **+1** was issued if the criterion was **met**; a score of **0** was issued if the criterion was **partly met** or the result **uncertain**, and a score of **-1** was issued, in the event the criterion was **not met**. A similar scoring system was used for the environmental criteria. In this instance, the classifications of met, partly met and not met were replaced with **low (+1)**, **moderate (0)** and **high impact (-1)**.

Following the w-MCA, the sites were scored and ranked based on their cumulative totals. Scores were determined by summing the results for each criterion following the application of the weightings. Each site was then ranked based on its cumulative score percentage, representing the cumulative score divided by the total number of points available. Following this process, the four top performing sites were shortlisted for further analysis under Stage 3, as detailed below.

2.6 Identification of Optimal Sites

In stage 3 of the Project, the analysis was extended to economic criteria, including operational (OPEX) and capital (CAPEX) expenses provided by local manufacturers, via a Request for Information (see **Box 1**).

The w-MCA, including the estimates of OPEX and CAPAEX, was applied to the top four ranking sites identified in Stage 2 of the project. Unlike the u-MCA, the weighted MCA (w-MCA) assigned weightings to the criteria based on their perceived importance. For example, OPEX was weighted higher than CAPEX given the expectation the State Government may fund the purchase of the barriers.

In the w-MCA, higher weightings were applied to the social and economic criteria: OPEX, public access and CAPEX. Lower weightings were applied to physical / environmental criteria: sediment transport and encroachment of sensitive benthic habitats, such as macroalgae and seagrass. The objective was to examine the performance of the top four ranking sites under an expanded and weighted set of criteria, to ultimately identify the optimal sites for development.

w-MCA was used to determine the suitability of sites following the aggregation of the data layers under three different scenarios (w-MCA1 to w-MCA3):

- **W-MCA1**: in this scenario, OPEX (x10) was weighted twice as highly as CAPEX, existing access and amenities (x5). All other criteria were weighted at x1. This scenario assumed year-round installation at Bathers Beach.
- **W-MCA2**: OPEX was again weighted twice as highly as CAPEX and existing access and amenities. It differed to scenario 1 in assuming the annual removal of the barrier at Bathers Beach.
- **W-MCA3**: the final scenario assigned equal weightings to OPEX, existing access and amenities (x10). These in turn were weighted twice as highly as CAPEX (x5). It also assumed year-round installation at Bathers Beach.

Box 1:

Additional information on manufacturers design, CAPEX, OPEX and site-specific installation requirements was acquired from the two Western Australian shark barrier manufactures via a request-for-information facilitated through the CoF and ToEF. The manufacturers were supplied a list of ten questions as follows.

1. Describe the design and construction of the barrier system. Is it segmented?
2. How does your product minimise Impacts associated with biofouling?
3. Can the system be maintained all year round, or does it need to be removed in winter?
4. What is the recommend maximum depth and width of the system in low and high energy coastal environments?
5. How strong is the system? What are the risks of breakage during above average wave conditions, while clean and under befouling load?
6. Are the systems designed with multiple recreational activities in mind? Such as can surf-skis pass over the top?
7. Can you please provide a cost per metre (m) x height (h) for the recommended options, including the barrier itself and associated anchoring systems?
8. Please provide an estimate of the maintenance costs per annum for cleaning and repair (and possible seasonal removal and reinstallation as necessary)?
9. Risks and other considerations regarding installation in open coastal environments, estuaries or 'between existing infrastructure' (i.e., breakwaters, existing groins).
10. How does your product minimise impact on marine fauna?

Box 1: Additional details sought from the barrier manufacturer via a request for information.

3. Results/ Findings

3.1 Potential Shark Bite Mitigation Strategies

3.1.1 Electrical Barriers

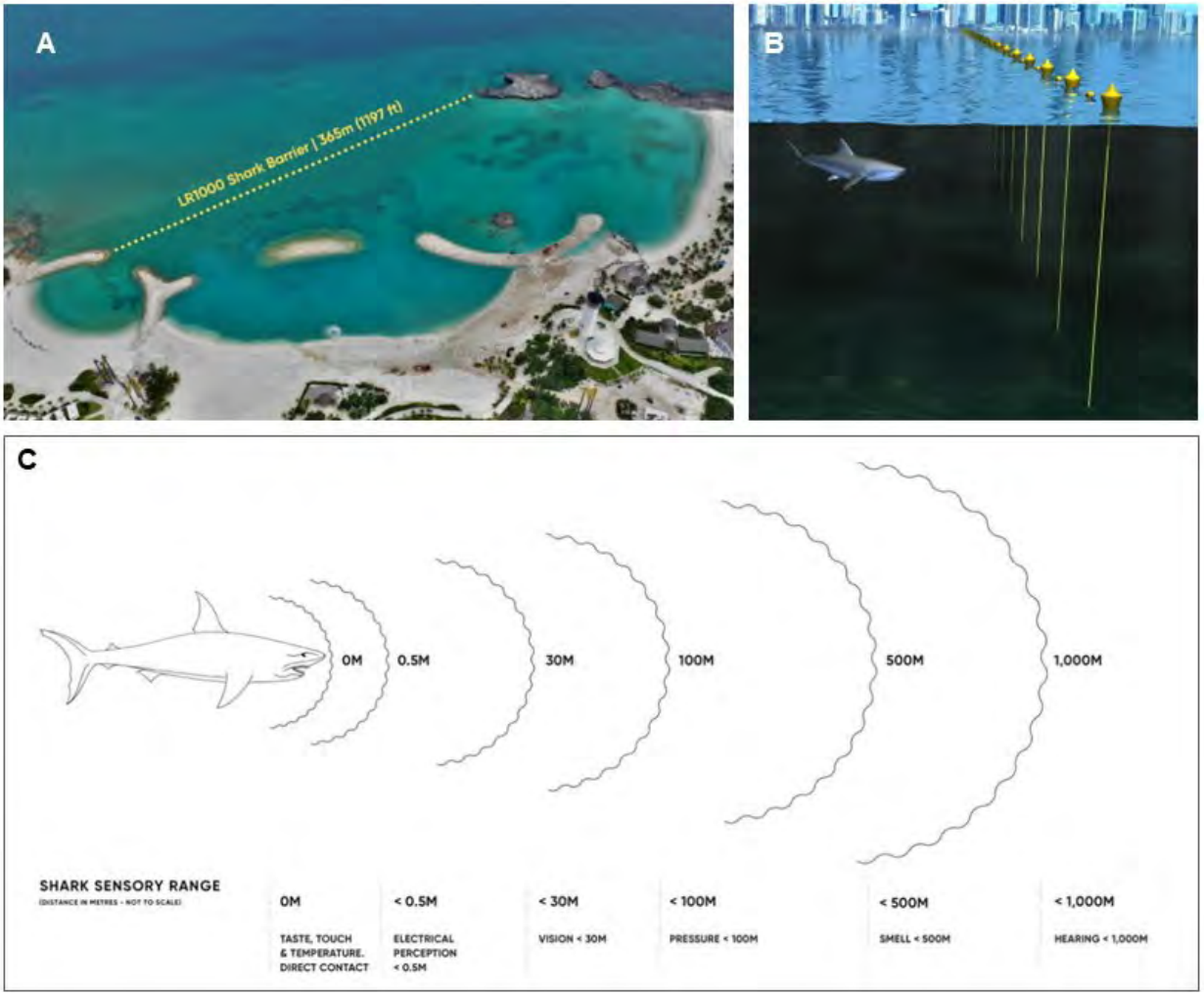
Electrical deterrent barriers provide an electric field that may provide protection for an area based on an exploitation of shark sensory biology. Elasmobranchs (sharks and rays) possess a specialised set of receptors called 'ampullae of Lorenzini', that enable them to detect weak electrical potentials generated by other animals as well as inanimate objects, for the purposes of detecting and locating prey. Electrical barriers have been shown to influence shark behaviour, by eliciting an avoidance response.

One example of this technology is the Ocean Guardian LR1000 Shark Barrier, which relies on the same technology used in personal shark shield devices used by surfers and divers, and those approve for consumer rebates by the WA Government. The LR1000 is a larger unit for protecting swimming areas (**Figure 3-1**). It has been used in the Bahamas and has purportedly proven to be successful in deterring dangerous species of sharks.

The technology purportedly has no impact on other marine life and can be used to create a shark free zone in suitable areas. The LR1000 is mobile and can be easily removed using a two-person crew in under two hours. This has been useful in protecting equipment from damaging storms. This is a critically important design feature, considering heavy sea state locations exposed to weather events such as cyclones.

The LR1000 is designed to be light in weight with drop antennas that are not tethered to seabed. With the LR1000, buoys containing power modules will be spaced approximately 3 m – 4 m (10'–13') apart along a length of cable that sits either on the ocean surface or the ocean floor, depending on the customers' requirements and location. Antenna electrodes hang off each buoy to create the shark barrier curtain (**Figure 3-1)**. Because the antenna electrodes are free floating there is little physical resistance to heavy sea states, tides, and winds. Seaweed is less likely to be trapped by the system, and the LR1000 buoys floating on the top of the ocean present less drag for the swells and waves. The system is capable of handling swells of up to five metres. Each installation can be tailored to site circumstances with installations over 1000 m achievable to a maximum depth of 12 m.

The LR1000 system is remotely monitored. System operations can be confirmed in real-time with this aiding maintenance. The manufacturer encourages people be kept out of the direct vicinity of the deployed barrier especially anyone with a pacemaker, who is pregnant, or has a health condition which could be affected by the electric field (Shark Shield, 2013).



Notes: (a) example coverage of the LR1000 deployed across an embayment; (b) conceptual diagram showing the vertical antennae which emit the electrical field; (c) generic shark sensory range. Source: Ocean Guardian

Figure 3-1: Ocean Guardian LR1000.

3.1.2 Physical Barriers

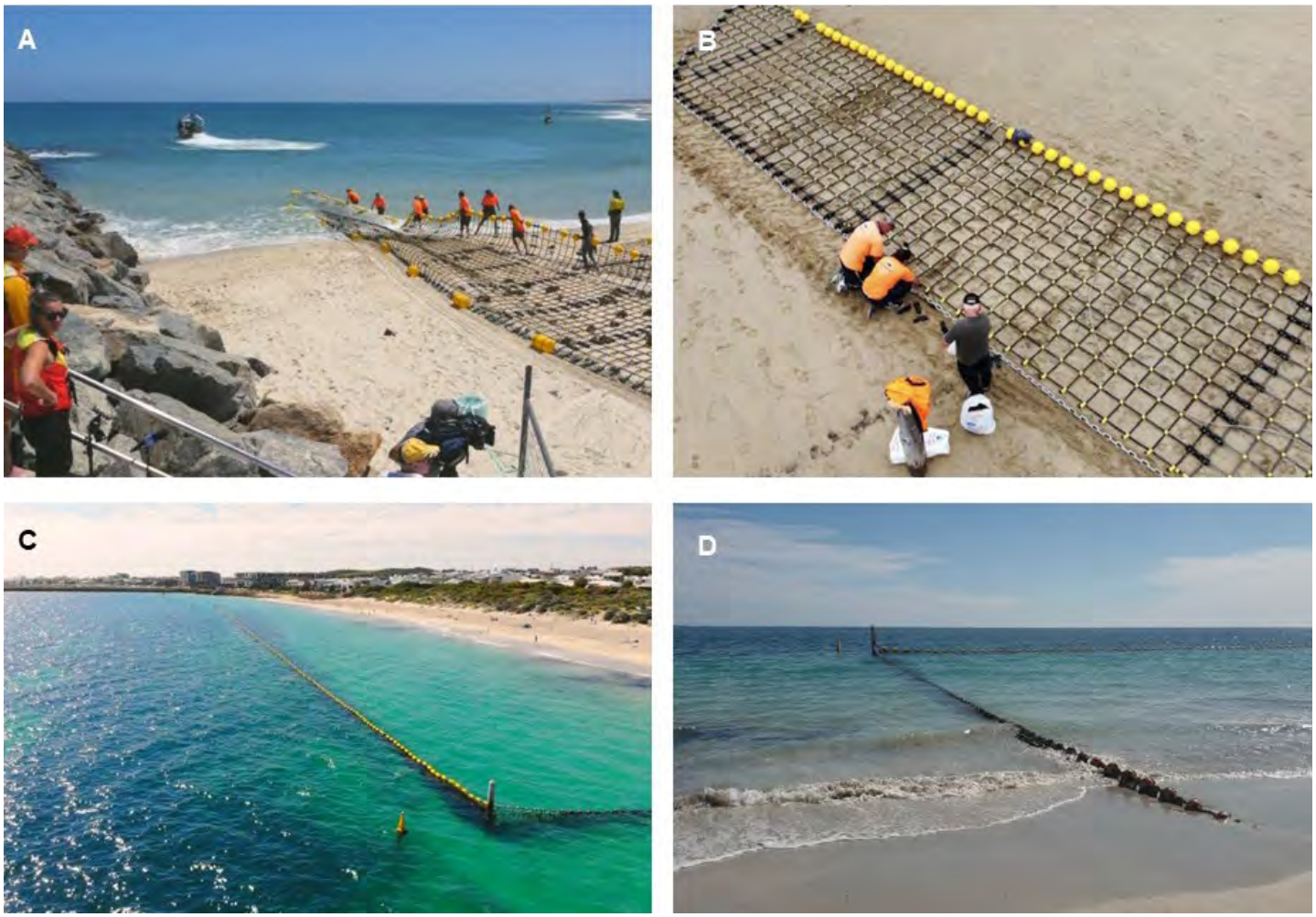
Often confused with shark nets, shark barriers form a fully enclosed swimming area that prevents sharks from entering. Shark barrier design has evolved from rudimentary fencing materials to netted structures held in place with buoys and anchors. Unlike shark nets, shark barriers do not aim to capture or kill sharks, but instead act as a physical barrier that separates sharks from water users.

Barriers are highly effective in excluding sharks but must be designed to withstand local physical energy conditions and locally trialled to ensure efficacy. Biofouling is also a potential issue that can greatly limit the cost-effectiveness of the approach. The potential for biofouling will be geographically variable and transferability of information on biofouling from one location to another requires caution. Physical barriers are not suitable for deployment on surfing beaches, or beaches subject to significant wave action. Location of physical barrier requires careful site selection to ensure consideration is given to fish migration, existing fishing and other recreation activities (i.e., surfing), while ensuring coastal processes are not impeded. There are two WA based manufacturers of physical barriers: eco shark barrier and bionic / aquarius nets.

The eco shark barrier 2019 is comprised of a network of durable components. These work together to form an enclosure that is flexible enough to allow the passage of small marine life (**Figure 3-1A-D**). It is rigid enough to prevent the entry of large marine animals, including sharks and to withstand forces of nature. The Eco Shark Barrier Net utilises a modular design consisting of thousands of small polymer squares (295 mm). The modular design has a 450 kg breaking strain when used independently, or 12 tonne breaking strain with anchored support ropes. This physical barrier is held upright by surface floats with chain and anchors holding the bottom of the net to the seabed.

The system was initially trialled at Coogee Beach, Sorrento Beach and Cottesloe Beach and the Esperance foreshore (Western Australia) between December 2013 - March 2014 and then again, as part of an extended 3-year trial between November 2014 and 2017 (**Figure 3-2**). The trials were successful. During the trials, the system withstood waves to 1.5 metres with no reports of marine fauna entanglements.

The installation of an Eco Shark Barrier Net at Lennox Head in NSW proved less successful. It met with community opposition from surfers and physically failed due to the prevailing sea conditions there. The trial was discontinued by NSW Department of Primary Industries.

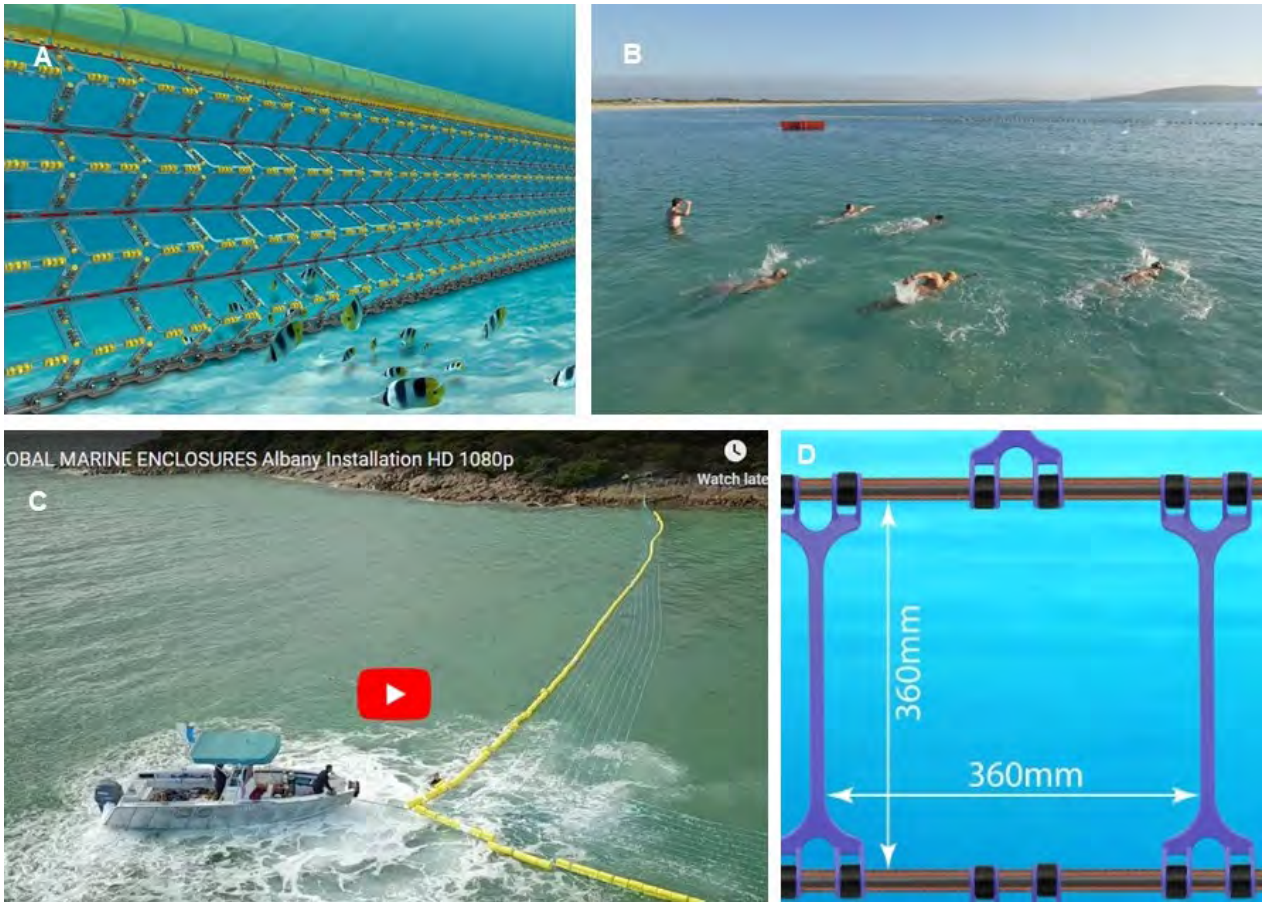


Notes: (a-d) images of the deployment, design and installation of the eco shark barrier nets. Source: Eco Shark Barrier

Figure 3-2: Eco Shark Barrier Net.

The Bionic Barrier, Aquarius Barrier and Aquarius Barrier (Gen 2) are all physical barrier nets manufactured by Global Marine Enclosures. The Bionic Barrier is a durable nylon plastic shark barrier that protects swimmers and surfers from large marine creatures. The barrier is a seabed-to-surface, fully enclosed marine enclosure that excludes large marine animals whilst allowing fish and small marine animals to pass through unharmed. The advantage over the Aquarius and Aquarius Gen 2 products is in its hinged design, which allows it to adapt to changes in water depth (**Figure 3-3A**).

The Aquarius Barrier is advanced shark barrier technology combining the strength of heavy-duty marine ropes with robust nylon struts that avoid marine entanglement. The Aquarius Barrier is strong, durable and very cost-effective due to its simplified design. The Aquarius Gen 2 Barrier builds on the design of the Aquarius Barrier and is the latest product from Global Marine Enclosures. It is stronger than the Aquarius Barrier. Its strength allows the barrier to withstand extreme ocean forces in high-energy exposed beach locations. The barrier can remain installed all year round, depending on the environmental conditions and client requirements. It can also withstand seaweed migration through the area.



Notes: (a) Bionic barrier with its hinged design; (b) an aquarius barrier installed in Albany WA; (c) an aquarius gen 2 barrier net (d) the dimensions of the aquarius gen 2 barrier net. Source: Global Marine Enclosures.

Figure 3-3: Bionic Barrier and Aquarius Barrier Nets.

The Aquarius and Aquarius gen 2 barrier nets were designed with input from the University of Tasmania. The study was conducted under the guidance of David Harte and Todd O'Brien who established that 360mm squared was the most suitable dimension for the apertures and that an 11% surface area of vertical cover was the most appropriate in consideration of Tidal and Wave Interaction, Parallel Wave Interaction, Barrier Layout and Flow Angles in relation to drag coefficient.

There are currently two installations of Aquarius Barriers in WA: One at Quinn's Beach (Wanneroo) extending 85 m offshore and 300 m along the beach and one at Middleton Beach (Albany).

3.1.3 Human and Acoustic Surveillance Methods

Shark Spotters Program

In response to a series of shark bites in South Africa a Shark Spotters Program was developed and trialled in Cape Town (Oelofse and Kamp 2006). The program provides information in real time on the presence or absence of dangerous sharks (mostly white sharks) to beach goers. The guiding principles of the program are to:

1. Find a balance between people's safety and white shark conservation,
2. Reduce the spatial overlap between people and sharks, and
3. Consider socio-economic factors, public safety and environment/ wildlife.

The program relies on a series of flags to communicate the presence or absence of sharks and the reliability of spotting given the conditions at the time (Table 3-4).

Figure 3-4: Shark Spotter Program flag warning system. Source: Shark Spotters Program.

Commencing in 2004 the program has recorded over 1,700 sharks. The program operates throughout the year at five beaches and seasonally at another three. Shark Spotters are positioned at strategic points along the Cape Peninsula, primarily along the False Bay coastline (**Figure 3-5**). A spotter is placed on the mountain with polarised sunglasses and binoculars. This spotter is in radio contact with another spotter on the beach. If a shark is observed the beach spotter raises a white flag and sounds an alarm (**Figure 3-4**) When the alarm sounds the water users are directed to leave the water. Warnings are provided in real time via Facebook and Twitter. The program has been successful in restoring a significant degree of public confidence; however, it has not completely eliminated shark bites in Cape Town.

Figure 3-5: Shark Spotters in South Africa. Source: Alison Kock.

Disadvantages of the program include the need for elevated vantage points (>40 m), poor viewing conditions (sun glare, turbidity, reef) and fatigue, generated by long days often in difficult conditions. Bathers are warned of poor viewing conditions by a black flag (**Figure 3-5**). Fatigue may lead to human error as spotters undertake long shifts in difficult conditions (little shelter from the elements: rain, wind, heat), and often work for months without a sighting (Oelofse and Kamp 2006). Observers in the Shark Spotters Program are also trained in first aid and can identify a swimmer at risk or drowning, but this service would largely be redundant at patrolled beaches in WA. A Shark Spotters Program would require a coordinator whose initial role would include the design of reporting requirements, assist with developing appropriate training and its implementation, as well as have overall responsibility for the program. In the first instance in a limited trial (e.g., at one beach), the coordination role is unlikely to be onerous and may be incorporated with current beach authority duties. There is scope to integrate Shark Spotting activities within existing lifesaving and life-guard activities at patrolled beaches and this will influence the cost of the program.

A trial of Shark Spotters Program occurred in northern NSW but unlike the South African approach it relied on volunteers rather than paid employees and did not provide the continuity or consistency of spotting activity (D McPhee, pers. ob).

Acoustic and Satellite Tagging

The use of acoustic and satellite tagging for assessing movement patterns and habitat use of a range marine animals (including sharks) is well established. The contemporary approach involves the use of arrays of fixed receivers to detect tagged animals across an array of global locations. The heart of the Ocean Tracking Network (OTN) is located at Dalhousie University (Nova Scotia), a $168-million ocean research and technology facility. The OTN has receivers stationed in Western Australia and Tasmania. Receivers are also located on the Australian east coast under the Animal Tracking and Monitoring System (AATAMS), which is part of the Integrated Marine Observing System (IMOS).

Notes: (left) Virginia Institute of Marine Science; (right) CSIRO

Figure 3-6: Tagging sharks with acoustic tags.

Acoustic and satellite tagging is used in WA to provide warning when tagged sharks swim close to popular beaches under the Shark Smart program (**Figure 3-6**). Information collected from tagged sharks, together with direct observations from the public, is communicated to beach goers via Twitter and a website. The approach involves the deployment of satellite-linked (VR4G) acoustic receivers, and data-recording acoustic receivers (VR2W) on the sea floor. The former is used for near real time communication while the latter are used for research (after being downloaded on an annual basis).

The ability of acoustic and satellite tagging to identify the presence of dangerous sharks is a function of the number of sharks that were captured, tagged and released. The greater the number of tagged sharks utilising the coastal area, the greater the likelihood that a shark will be detected. The system also required consideration of the range and the spacing of the receivers together with the cost of maintenance.

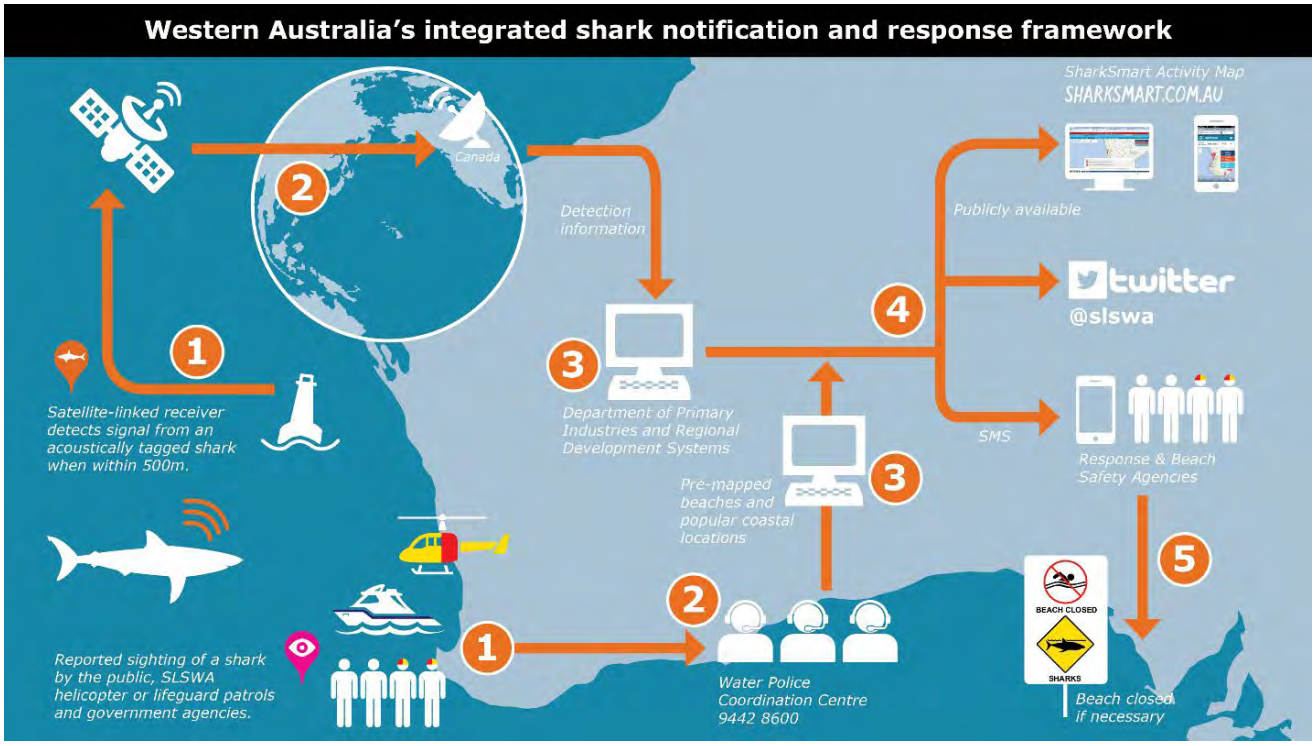


Figure 3-7: Western Australia's shark smart integrated communication and alert framework.

Cleverbuoy

Cleverbuoy uses multi-beam sonar unit (Tritech Gemini Unit) to identify large underwater objects (**Figure 3-8**). Multi-beam sonar technology was previously only used by the navy and the oil and gas industry but is now in more general use in environmental monitoring and assessment as costs have fallen. It is widely used to map seabeds (Brown and Blondel, 2009). The advantage of the approach is that it does not rely on the capture and tagging of sharks.

A Cleverbuoy unit consists of a buoy anchored to the seabed. The sonar transducer is attached to the base mounting on the seabed (an anchor system) and there is an antenna on the surface of the buoy which transmits the sonar data. The transducer is reported by the manufacturer to emit sonar to a maximum distance of 85 m in a wedge that covers 120 degrees, though the effective width of the beam will be highly dependent on water depth.

Sonar data from Cleverbuoy is transmitted via a closed system (i.e., CPU on buoy with modem connected to Optus 3G network with redundancy back to dedicated Optus satellite) to a server where software (made by Tritek) aims to distinguish sharks from other objects (i.e., sharks are identified as objects >2 m that are self-propelled). The software has a set level of probability to provide a shark alert to an end user who can be located anywhere. The alert informs the end user which buoy has a shark nearby and specifies the GPS location of the buoy.

Parsons et al. (2015) assessed the ability of the Tritech Gemini imaging sonar to detect sharks. They specifically examined the ability of the technology to observe sharks of 1.4 to 2.7 m in length at ranges of 1 to 50 m. They found that within 5 m range shark shape, length and swimming action were readily discernible; however, beyond this range, and unless swimming pattern could be clearly discerned, reliable identification of a shark was problematic. They identified that for a given frequency and noise level, maximum detection and identification ranges are reliant on system source level, beam pattern, bathymetry, object target size and acoustic reflectivity. In terms of the deployment of a vertical array of sonars to cover an area, Parsons et al. (2015) identified that issues of interference where beams from more than one unit overlap is an important consideration. Overall, they concluded that a vertical array in shallow waters (< 15 m) may not provide suitable benefits at ranges greater than 75 m.

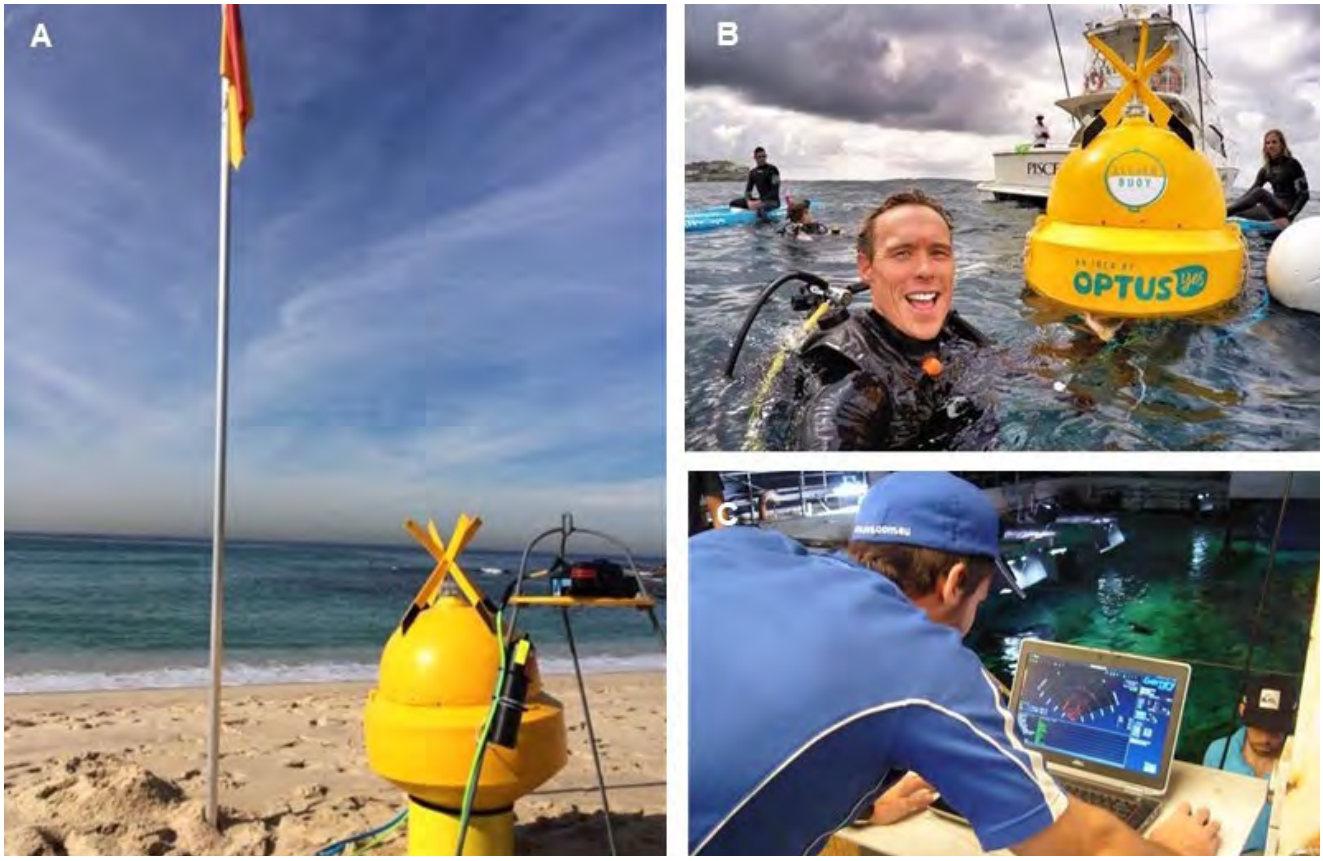


Figure 3-8: A Cleverbuoy unit deployed for testing at Bondi Beach, NSW. Source: Craig Anderson.

Cleverbuoy was trialled at Hawks Nest Beach (Port Stephens). These trials identified that although White Sharks can be detected and identified, the range of a sonar unit was limited (maximum range 46 m). Refinements and further field testing were identified by the initial trials as necessary but, as discussed in McPhee et al. (2021), effectively overcoming the challenges is difficult. Cleverbuoy was also trialled in WA in 2017 at a cost of $462,000: these trials identified significant and unresolved difficulties and concluded that the system could not yet be adopted as a public safety tool for WA. Currently Cleverbuoy is not commercially available, and the development of the approach for shark bite mitigation appears to have ceased.

3.1.4 Manned and Unmanned Aerial Surveillance Methods

Unmanned Aerial Vehicles (Drones)

Drones have been extensively trialled within NSW for their potential to be used as a shark spotting tool (Butcher et al., 2019; Colefax et al., 2019, 2020a, 2020b, 2021; Kelaher et al., 2020) and are now used by lifeguards and volunteers at 50 NSW beaches in 2021/22 to facilitate evacuations in the event there are large sharks of relevant species present. During 2018/19, approximately 9,000 drone flights were undertaken with approximately 2,000 hours of flying. During this period 350 sharks were spotted, resulting in 48 beach evacuations. Drone flights are restricted to normal patrol hours (9AM to 4PM). Several studies noted that water depth and water clarity significantly impaired detection probabilities by drones and the greater precision achieved from post-hoc analysis of video footage (Butcher et al., 2019; McPhee et al., 2021). Kelaher et al. (2019, 2020) also noted the substantial improvement in precision achievable with post-hoc analysis. However, for shark bite mitigation the focus needs to be on detections in real-time.

Colefax et al. (2019) identified that out of 360 flights approximately 12.2% of flights were cancelled mainly due to weather. Separate fauna sightings totalled 386, with 17 (4.4%) confirmed as sharks. Ten of these sightings were correctly identified in the field while a remaining seven were detected in post survey video analysis. These results highlight the prevalence of potential errors in sighting in real time and a potential role for artificial intelligence in improving identification of target sharks using drones.

The use of drones can be paired with a mobile phone App to communicate shark detections, although their use to date has been limited. The Drone Shark App is available via iTunes and provides drone footage to beach users. It has a free service which provides previous day's footage as well as identifying when and where the drones are operating, and a paid subscription service. At this stage the beach coverage of the Drone Shark App is limited to Bondi,

Tamarama and Bronte beaches in NSW from dawn to 8:00pm though it is expected that this will expand in time. The use of drones may be spatially limited by Civil Aviation Safety Authority (CASA) requirements and may not be supported by waterfront property owners due to privacy and noise concerns.

Manned Aerial Vehicles

Helicopters and fixed wing aircraft have been historically used in several Australian states as a high-profile approach to enhancing beach safety including for the detection of large sharks. A single manned aircraft allows a large area of coastline to be surveyed but is limited in survey time at a single location. Manned fixed wing aircraft travelling along a coastline spend a short amount of time over each beach (often less than a minute) given their tendency to maintain minimum airspeeds of at least 70 km per hr (Rowat et al., 2009). Helicopters may loiter but are typically more expensive to operate.

Robbins et al. (2014) specifically assessed the efficacy of manned aerial surveys (helicopter and fixed wing aircraft) to detect sharks using 'dummy' sharks. Even with good water clarity (approx. 6 m), observers in fixed-wing or helicopters detected sharks analogues only if they were shallower than 2.5 m and 2.7 m below the water surface, respectively. During subsequent work with analogues placed less than 2.5 m underwater, observers still recorded sightings infrequently, with overall sighting rates of only 12.5% and 17.1% for fixed-wing and helicopter observers, respectively. Although helicopter observers had consistently higher success rates of sighting analogues within 250 m of their flight path, neither aircraft observers sighted more than 9% of analogues deployed over 300 m from their flight paths. Overall, the low rates of detections led the authors to express doubts on the efficacy of manned aerial beach patrols (using human observers) as an effective early-warning system to prevent shark bites.

SMART Drumlines

An additional method to mitigate the risk of unprovoked shark bite is deployment of the Shark-Management-Alert-in-Real-Time (SMART) Drumlines. This approach differs from those discussed elsewhere in this report in that it is not a deterrent or a barrier, but rather it is a method of capture with the aim of relocating the shark through a system designed to reduce the mortality of animals captured by a drumline. The fishing gear is composed of classical material used for a standard drumline; however, the buoy sends an alert when a shark has been captured. Contractors mobilise immediately to release the captured animal. Deployments of SMART drum lines have made an important contribution to the capture and subsequent acoustic tagging and relocation of sharks in NSW, QLD, WA and Reunion. The tagging of sharks is important for the efficacy of acoustic listening stations.

The WA Government conducted a two-year scientific trial to assess the effectiveness of SMART drumlines in reducing the risk of shark bites. While the number of animals captured by Smart Drumlines was relatively low, survivorship of sharks was higher than for standard drumlines. A constraint with the approach is that it is only effective if the contractor can mobilise immediately; poor weather conditions, particularly through the winter months, limits this ability. There may also be practical challenges of requiring a contractor to be on standby 24/7 and some studies have questioned whether the presence of the baited SMART drumlines may attract sharks although this was found not to be the case (Guyomard et al., 2020).

Due to the low number of white sharks caught, and doubts about whether the program reduced the risk to beach goers, the program was discontinued. (DPIRD, 2021).

3.2 Suitable Shark Bite Mitigation Strategies

Our review identified over 16 shark-bite mitigation strategies, of which nine were deemed readily available and suitable for further analysis. Other methods including shark repellent cables, rubber guard electric fencing, temporary barrier nets, bubble curtains, shark safe barriers, shark alert, and little ripper lifesaver drones, were eliminated as outdated or proven to be ineffective mitigation strategies. The shortlist of shark bite mitigation strategies detailed in **Sections 3.1.1** to **3.1.4** were subsequently analysed in the context of their application in the Fremantle AoI. A semi-quantitative analysis was undertaken whereby the strategies were ranked based on their documented and perceived performance, against the following criteria:

- Environmental risk
- Compatibility with existing WA government measures
- Potential for risk reduction
- Estimated OPEX and CAPEX, and
- Other perceived advantaged and disadvantages.

Results of the analysis found that the barrier systems, including the available electrical and physical barriers scored well against the compatibility and risk categories, but less favourably against the environmental, OPEX and CAPEX categories (**Table 3-9**). Surveillance technologies, by contrast, presented negligible environmental risks but scored relatively poorly against the risk mitigation and OPEX and CAPEX criteria (**Table 3-9**). Final rankings of the available strategies were as follows, with the LR1000, Eco Shark Barrier and Bionic/Aquarius Barriers occupying the top three:

LR1000 > Eco Shark Barrier > Bionic / Aquarius Barrier > Shark Spotters Program (South Africa) > Acoustic / Satellite Tagging > Cleverbuoy (NSW) > Unmanned Drones > Manned Aerial Vehicles (Planes / Helicopters) > SMART drumlines.

The LR1000, while initially viewed as a high-ranking option, was ultimately ruled out due to inherent complexities with instalment and maintenance, and the perception they offered a '**virtual**' rather than a '**physical**' barrier. The limitations of the LR1000 are in its complexity and engineering, which although relatively sophisticated, requires a constant source of energy. Based on the available information, the LR100 is more suited to sheltered, preferably 'scallop' shaped environments with nearby infrastructure. Its use in Western Australia, particularly at the Indian Ocean sites, would therefore present numerous challenges.

The use of surveillance techniques as a singular solution was also ruled out due to incompatibility for their use in the AoI as well as their significant OPEX requirements. Their use in combination with physical barriers may however present a viable option depending in the resources available to the user (both human and economic).

Of the potential strategies available, the application of physical barriers was therefore deemed the most suitable and was therefore chosen for further investigation. The application of physical barriers in the AoI was investigated in Stage 2 of the Project, as described below.

3.3 Initial Screening of Suitable Sites

The application of physical barriers in the AoI was examined using an unweighted multicriteria analysis (u-MCA) based on the unique physical, environmental and social attributes of the sites (**Sections 3.3.1** to **3.3.10)**. The relative suitability of the sites is detailed below and summarised in **Section 3.4**,**Table 3-9**.

3.3.1 Leighton Beach

Site Description

Leighton Beach, situated in the CoF, is the northern-most beach examined in this study. Leighton Beach spans approximately 1.5 km of coastline and is characterised by its flat beach topography and relatively small waves. The bathymetry of the beach is gently sloping, achieving a depth of approximately 4 m within 100 m of the beach front (**Table 3-10**). The beach is backed by a small and narrow dune system without extensive vegetation.

Site Suitability Ranking

Leighton Beach scored highly across most of the criteria. The site lost points due to scoring 'uncertain' results with respect to the metocean and sediment transport criteria. Given the exposed coastal nature of Leighton Beach, metocean conditions pose a risk to the barrier system. In particular, the possible hazardous metocean conditions associated with winter storms leading to greater wave energy and acute erosion events. These conditions may increase the risk of sediment and debris transport, accumulation of wrack and shoreline movement. For these reasons the metocean and sediment transport criteria were flagged as uncertain and lowered the suitability of this site to 71%, placing it equal 2nd in the rankings overall.

Table 3-1: Qualitative assessment of shark bite mitigation strategies for potential use in the AoI.

Name	Environmental Considerations	Compatibility with existing WA Government Measures	Reduces Risk	CAPEX	OPEX	Advantages / Disadvantages
LR1000 Shark Barrier	Negligible	Compatible with SMS measures	Uncertain	Mod	Mod	• Floating design likely unable to withstand large swell. Removable. • Modular design. • Realtime monitoring.
Eco Shark Barrier Net	Uncertain - Marine debris concerns. Disruption to fish migration, fishing and coastal processes need to be considered	Compatible with SMS measures	Yes - will exclude sharks provided it is not damaged	Mod	Low	• Physical barrier, highly effective at shark deterrent when structural integrity is maintained. • Failed during trials due to wave action with associated marine debris concerns.
Bionic Barrier and Aquarius Barrier Nets	Uncertain - Marine debris concerns. Disruption to fish migration, fishing and coastal processes need to be considered	Compatible with SMS measures	Yes - will exclude sharks provided it is not damaged	Mod	Low	• Evolution of the Eco Shark Barrier Net with replaceable sections (in situ). • Physical barrier, highly effective at shark deterrent when structural integrity is maintained. • Failed during trials due to wave action with associated marine debris concerns.
Shark Spotters Program	Nil	Compatible	Yes - as a local detection tool when biophysical conditions are suitable	Low	High	• Detection not deterrence. • For effective operation, vantage points with substantial elevation that are well above surf patrol tower height are required. • Water clarity and weather conditions also impact the likelihood of sightings.
Acoustic / satellite tagging	Negligible	Compatible	Uncertain	High	High	• Detection not deterrence. • Tagged sharks must be able to be detected at spatially relevant scales and this information communicated to water users.
Cleverbuoy	Negligible	Compatible	Uncertain	High	High	• Beyond a small range the reliable identification of a shark is problematic.
Unmanned aerial vehicles (Drones)	Negligible	Compatible	Limited	Mod	Mod	• Poor detection in areas with poor water clarity and at times when sun glare is high. • Covers a limited area but can be focused on areas of high use. • Use likely to be spatially limited by CASA requirements.
Manned aerial vehicles	Negligible	Compatible	Limited	High	High	• Poor detection in areas with poor water clarity and at times when sun glare is high. • Can cover a large distance but coverage at an individual location is low. .
SMART drumlines	High - May impact the same suite of species as standard drumlines, but improvements to survival rates for most species are plausible. May have high initial capture rates when deployed in new locations.	Incompatible	Limited in WA but moderate in other jurisdictions. Two-year trial independently evaluated and found to not be effective in WA conditions.	High	High	• Method of capture and relocation but can only be effective if sea conditions do not prevent a contractor immediately attending the drumline to deal with the captured animal. • SMART drumlines were trialled in WA, and it was determined that the technology was not effective as a shark mitigation measure in Western Australian conditions.

Notes: ■ Green shading represents advantage; ■ orange shading represents disadvantage; ■ yellow shading represents neutral benefit.

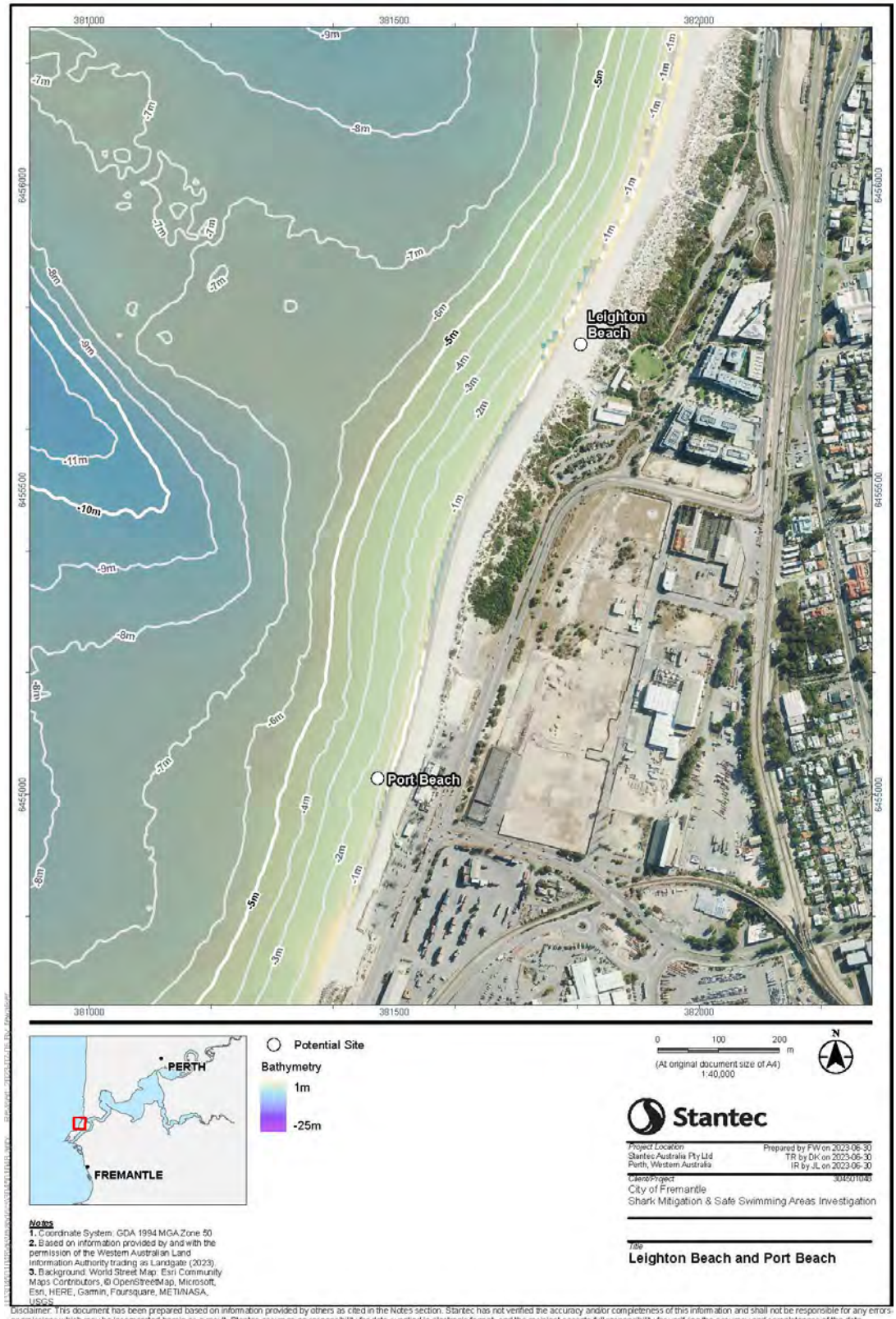


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Figure 3-9: Bathymetry of Leighton and Port Beaches.

3.3.2 Port Beach

Site Description

Located in the CoF, Port Beach maintains a similar gentle bathymetry to Leighton Beach and is characterised by a uniform topography with a minimal dune system (**Figure 3-9**). Rather, much of the beach is backed by rock walls built to limit erosion. Like Leighton Beach, the site is characterised by a gentle bathymetry achieving a depth of 4 m within 100 m of the beach front. The beach extends for approximately 1 km with an artificial headland separating the northern and southern sections of the beach. Fremantle Port adjoins the southern end of beach and provides some protection from south-westerly wind and wave activity.

Site Suitability Ranking

Port Beach ranked poorly relative to the other Indian Ocean sites. Whilst meeting requirements across four of the criteria its score was deflated by the uncertainty around suitable metocean conditions, risks associated with shoreline movement and its potential incompatibility with recreational and commercial use.

While wrack was identified as a potential concern (as with all the Indian Ocean sites), of greatest concern was the potential for acute erosion events. Shoreline variability is exacerbated in proximity to Fremantle Port, with the breakwater either inhibiting supply of sediment moving northwards or accreting sediment as it is captured moving southwards; both of which have the potential to negatively impact a barrier system.

Persistent ongoing erosion of Port Beach is attributed to the presence of Fremantle Port, with recent major nourishment works taking place to reinstate the southern part of Port Beach (M P Rogers & Associates, 2020). The extensive use of Port Beach by ocean swimmers as well as surfing in the winter also raised concerns for conflict surrounding beach use. For these reasons Port Beach scored relatively poorly at 42% placing it last among the Indian Ocean sites investigated (**Figure 3-10**).

Figure 3-10: Port beach. (A) Southern Aspect; (B) Northern Aspect.

3.3.3 Bathers Beach

Site Description

Bathers Beach, located in the CoF is a small, sheltered cove situated between South Mole and The Royal Perth Yacht Club (**Figure 3-11**). The beach is ~300 m in length and has an average width of ~25 m. The site is located near the Fremantle city centre, with access to mixed infrastructure including shops and restaurants. The beach maintains a gentle sloping bathymetry, from very shallow water at the shoreline to a maximum depth of ~5 m within 200 m of the shoreline. The site is bordered by a cultivated dune system to the north, making for a pleasant environment.

Site Suitability Ranking

Bathers Beach scored positively against 4 of the 7 criteria (**Table 3-2**). The site is naturally enclosed and bordered by suitable attachment points, including the south mole and yacht club breakwaters. The site is relatively sheltered providing an opportunity to maintain the barrier as a permanent installation, provided the aperture of the netting is sufficient to allow the wrack to pass through, and not become tangled. The site maintains naturally occurring pavement reef and macroalgal communities; these add interest and form attractive features for snorkelers, and swimmers, but also present an environmental risk should the barriers lead to shading or scouring effects.

Wrack is a common feature of the site particularly following winter storms (**Figure 3-11:A)** Parking options servicing beach users were considered limited, with most parking in the area catering to nearby infrastructure and businesses; whilst the nearest available public transport is situated at the Fremantle station approximately 800 m away from the beach. Bathers Beach scored 57% overall, placing it 3rd of the Indian Ocean sites and 4th overall.

Figure 3-11: Bathers Beach. (A) Northern Groyne; (B) Southern Aspect; (C) Northern- Most Shore.

Figure 3-12: Bathymetry of Bathers Beach .

3.3.4 South Beach

Site Description

South Beach, located in the CoF, is an extensive stretch of beach of ~1.5 km length. It is characterised by three distinct sections each separated by groynes (**Figure 3-12**). The beach is bordered by the Fremantle groyne to the north and Catherine Point to the south. Beach width varies seasonally depending on the extent of long-shore sediment transport, and the extent of accumulation on the southern sides of the groynes. This results in wide stretches of up to ~75 m and others as low as ~20 m. In most areas the beach backs onto vegetated dune systems and recreational parkland. The beach maintains a gentle sloping bathymetry achieving a depth of 4 m within 200 m of the beach front. The beach has a westerly aspect and is partly sheltered by a string of reefs, including Carnac Island that extend north of Garden Island. Water depths extend to a maximum of 3 to 4 m within 100 m of the beachfront (**Figure 3-13**).

Site Suitability Ranking

South Beach scored the highest of all the sites, scoring a total of 85% (**Table 3-2)**. The only criterion not to score +1 in the analysis was the potential for the accumulation and transport of seagrass and macroalgae wrack, which in high volumes may exceed the load limits of the barrier. From analysis of aerial imagery, wrack is shown to accumulate in the nearshore and onshore environments across all three stretches of beach, but is most concentrated in the northern corners of each beach between the groynes. The potential for the accumulation of wrack is likely to necessitate the seasonal removal of the barrier to prevent damage and dislodgment.

Figure 3-13: South Beach. (A) Northern Aspect Central Beach Section; (B) Southern Aspect Central Beach Section; (C) Northern Aspect in the Northern- Most Beach Section; (D) Example of Wrack Build-Up on the Northern-Most Beach Section.

Figure 3-14: Bathymetry of South Beach.

3.3.5 Northern and Southern Fremantle Foreshore

Site Description

The northern and southern foreshores sites are respectively located on the northern and southern banks of the Swan River between the Fremantle Railway Bridge and Stirling Bridge in the CoF (**Figure 3-15**). Each site is approximately 400 m in length. The northern foreshore is characterised by a narrow area of sand while the southern foreshore is rocky. Both sites are bordered by stone retaining walls. The sites are situated on a narrow stretch of the Swan River with steep banks leading into unfavourably deep water within a short distance (25 m) from the shore (**Figure 3-16**).

Site Suitability Ranking

The foreshore sites scored poorly or moderately poorly in 4 of the 7 criteria. The poor results were achieved on account of the site's depth and space requirements, access and amenities together with their poor compatibility with existing recreational and / or commercial uses. Current speeds at the sites are typically high relative to other sites along the Swan River. The strongest of these are on outgoing spring tides on the southern side of the river. Parking options are limited on both sides of the river which already service housing and established businesses. Pleasure and/or commercial vessels frequently pass through the area while in transit from nearby marinas to the nearby ocean. The foreshore sites performed poorly on account of achieving a +3 for three of the criteria, and 0 or -3 for the remaining criteria, leading to an overall suitability score of 0% (**Table 3-2**).

Figure 3-15: Fremantle Swan River Foreshores. (A) Northern Foreshore West; (B) Northern Foreshore East; (C) Southern Foreshore West; (D) Southern Foreshore East.

Figure 3-16: Bathymetry of the Swan River, North and South Fremantle.

3.3.6 Swan River Yacht Club

Site Description

The Swan River Yacht Club (SRYC), located in the ToEF, is situated on the southern Swan River foreshore approximately 5 km from the river entrance. It features a section of exposed foreshore extending some 150 m to the east of the SRYC boat pens. Depths at the site extent to approximately 3 m depth within 150 m of the beachfront (**Figure 3-17**).

Site Suitability Ranking

Although considered favourable from an environmental and physical perspective (particularly on account of its gentle bathymetry and low current speeds), the SRYC site performed relatively poorly due to its limited access, lack of parking and potential for incompatibilities between swimmers and recreational craft. It was considered that the proposed site lacks access for users due to its already limited parking options and the likelihood that most of the existing parking options are already utilised by SRYC members . Nestled between two large boating facilities, the parking needs of beach users may lead to potential conflict with the existing parking needs of boat users and patrons of the adjacent Fremantle Rowing Club. Based on achieving four positive scores and two negative scores out of the seven criteria, the SRYC scored 28% placing it 2nd of the ToEF options and 7th overall (**Table 3-2**).

Figure 3-17: Swan River Yacht Club, (A) Western Aspect, (B) Eastern Aspect.

Figure 3-18: Bathymetry of the Swan River Yacht Club.

3.3.7 John Tonkin Reserve

Site Description

The John Tonkin Reserve is situated on the southern foreshore approximately 4.5 km from the river entrance within the ToEF (**Figure 3-19**). The reserve is ~3 acres in area with a shoreline made up of six small bays separated by artificial headlands. To the south of the reserve is the Leeuwin Boat Ramp and its extensive carpark. The bathymetry of the site extends to approximately 3–4 m depth within a relatively short distance of 50 to 70 m (**Figure 3-18**).

Site Suitability Ranking

John Tonkin Reserve scored positive results in 5 of the 7 criteria, and neutral results in the remaining criteria for a total score of 71%, placing it equal 2nd overall and 1st of the ToEF sites (**Table 3-2**). The site scored a neutral result for the space and depth criteria given the narrow aspect of the site which may limit the available area for installation of a barrier relative to other sites. Nonetheless, a barrier of dimensions 100 m to 25 m is likely possible. The site also scored a neutral result for the metocean criteria given the morphology of the river at this site and potential for moderate to strong currents, particularly on outgoing (southward moving) spring tides. The site performed well against the social and environmental criteria and relative well against the social criteria, particularly with respect to the other river sites (**Table 3-2**) .

Figure 3-19: John Tonkin Reserve. (A) Eastern most Bay; (B) Central Bay; (C) Western most Bay.

3.3.8 East Fremantle Yacht Club

Site Description

The East Fremantle Yacht Club (EFYC) is located on the southern shoreline of the Swan River approximately 6.5 km from the river mouth in the ToEF (**Figure 3-21**). The site is restricted to a small stretch of beach to the east of the EFYC. Another popular swimming site, Bicton Baths is located approximately 100 m east of the site (**Figure 3-20:B)**.

Site Suitability Ranking

The EFYC scored positive results in 4 of the 7 criteria, and negative results in the remaining criteria for a total score of 14%, placing it equal 8th overall and 3rd of the ToEF sites (**Table 3-2**). The EFYC scored poorly due to not meeting the requirements for three criteria: depth and space, access and amenities and compatibility with existing recreational uses. Two short sections of shoreline were considered on the eastern and western sides of EFYC. The bathymetry at the sites was considered unsuitable for the installation of a barrier, reaching a depth of 5–7 m within 10 m of the shoreline (**Figure 3-21)**

The site also scored poorly against the social criteria given its proximity to existing boat pens utilised by the Cockburn Dragonboat club, and the limited parking options. Parking is limited in the area and any increase in beach users would likely conflict with existing parking needs of patrons of the yacht and Dragonboat clubs. In addition, it is understood that the City of Melville is planning to encase the existing Bicton Baths infrastructure with a barrier of their own.

Figure 3-20: East Fremantle Yacht Club. (A) Eastern Shore of Bicton Baths; (B) Bicton Baths Enclosed Space; (C) Eastern Aspect Featuring the Yacht Club and Possible Site Location.

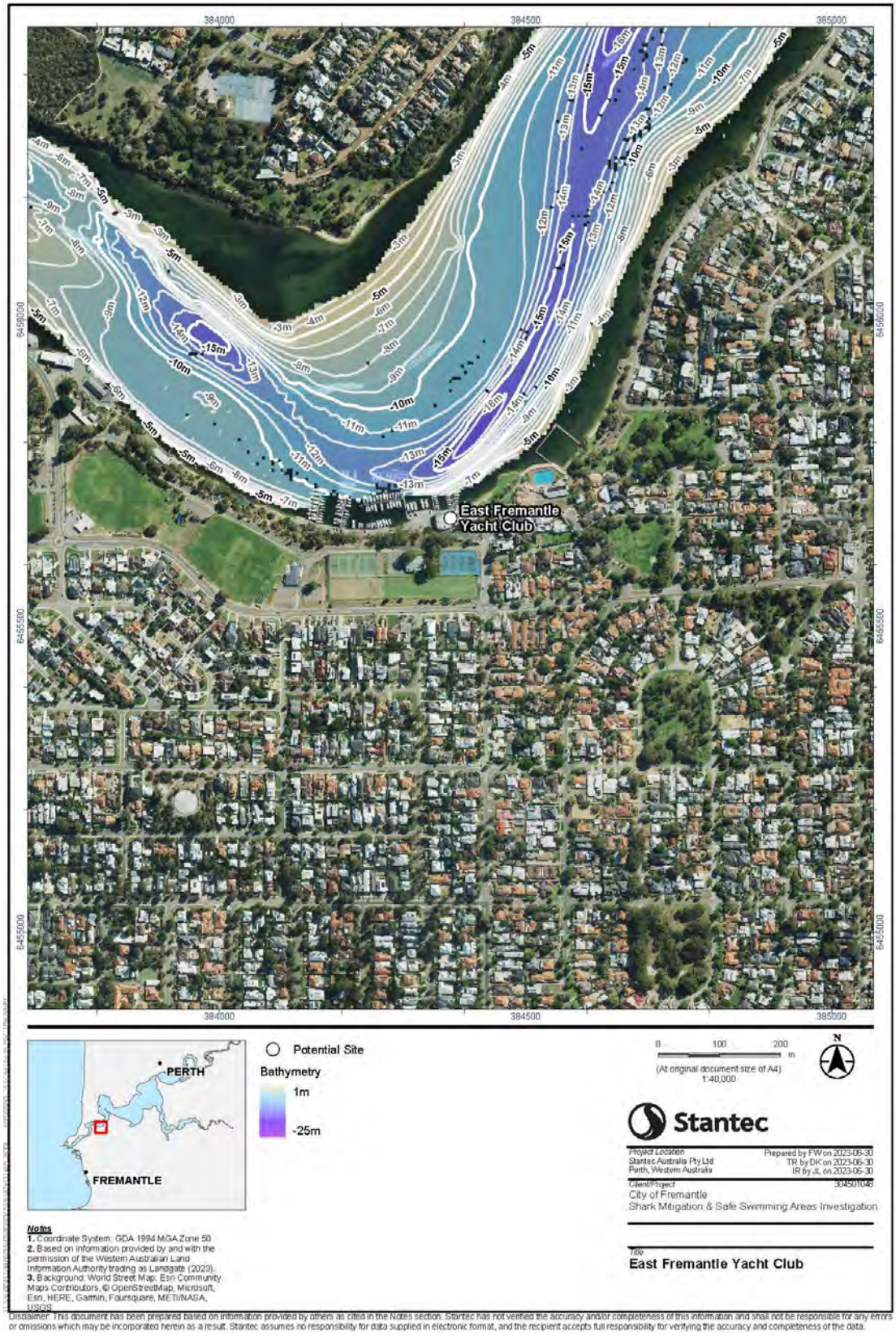

Figure 3-21: Bathymetry of the East Fremantle Yacht Club.

3.3.9 Harvey Beach

Site Description

Harvey Beach is a small beach on the western side of the Swan River in North Fremantle, located four kilometres from the river mouth in the CoF (**Figure 3-23**). The southside of the beach is adjacent to the Fremantle water police and is of ~60 m length. The shoreline is protected by a limestone wall that extends from the water police site boundary to the rock wall on the north side of the beach.

Site Suitability Ranking

Harvey Beach scored relatively poorly overall due to not meeting requirements for depth and space, existing access and amenities. Our analysis identified space as a key constraint due to the restricted length of the site and the presence of existing infrastructure (**Figure 3-22**). The site is relatively deep at approximately 4 m, which may present challenges for non-swimmers, particularly children, as well as challenges associated with the installation of a suitable barrier (**Table 3-2**).

There is limited parking nearby, which may cause local traffic congestion, particularly as the number of users grow (**Table 3-2**) . Harvey Beach scored positive results in four of the criteria, and negative results in two of the criteria for a total score of 42%. This score placed Harvey Beach 6th overall and 5th of the CoF sites.

Figure 3-22: Harvey Beach Entrance (Left) and Swimming Area (Right).

Figure 3-23: Bathymetry of Harvey Beach and Gilbert Fraser Reserve.

3.3.10 Gilbert Fraser Reserve

Site description

Gilbert Fraser Reserve (GFR) is located on the western side of the Swan River in the CoF (**Figure 3-21)**. The northern and southern boundaries abut a marina and the Stirling Bridge, respectively. The sandy subtidal shoreline consists of a mixture of sand and rock (**Figure 3-24**). The site is characterised by a relatively steep bathymetry achieving a depth of 3–4 m within 100 m of the shoreline.

Site Suitability Ranking

Despite some positives GFR failed both social criteria based on its depth and space. Although stretching for a total distance of 540 m, most of the site is difficult to access, leaving only a small fraction of easy to access shoreline. The only unobstructed beach features a steep bathymetry (**Figure 3-21**) characterised by sand and rocky features. The beach lies near boat pens to the north of the site and is situated adjacent to a busy boat channel. Parking is limited and any increase in beach users may conflict with existing parking needs of patrons of the football club, residential housing, the marina and a nearby school. On aggregate, GFR scored positive results in four of the criteria, and negative results in three of the criteria for a total score of 14%. This score placed GFR 9th overall and 6th of the CoF sites (**Table 3-2**) .

Figure 3-24: Gilbert Fraser Reserve. (A) Central access point, (B) Northern end of reserve, (C) Southern end of reserve, (D) Eastern view from the reserve.

3.4 Initial Shortlisting of Suitable Sites

Results of the uMCA with respect to the assessment and the ranking of the sites are detailed in **Table 3-2**. Based on u-MCA applied to the physical, social and environmental criteria, South Beach (85%), Leighton (71%) and Bathers Beach (57%) in the CoF emerged as the most suitable sites, while John Tonkin Reserve (71%) emerged as the most suitable site in the ToEF.

Key commonalities amongst the top three ranked sites were:

- Consistent positive or neutral results against all criteria, with no instances of negative results;
- Suitable space and depth requirements with typically gentle sloping bathymetries to maximum depths of 3–4 m; and
- Available parking with a high probability of use.

The key attributes of poorly ranking sites were:

- Consistent negative results against two or more criteria;
- Limited social amenities, with limited parking options;
- Potential for conflict with existing recreation pastimes, including fishing and boating; and
- Limited space and/or an unsuitable bathymetry (typically an unsuitably steep bathymetry, posing installation and safety challenges).

The final ranking of sites itemised by jurisdiction is summarised below:

City of Fremantle		Score
1.	South Beach	(85%)
2.	Leighton Beach	(71%)
3.	Bathers Beach	(57%)
4.	Port Beach	(42%)
5.	Harvey Beach	(14%)
6.	Gilbert Fraser Reserve	(14%)
7.	North & South Foreshore	(0%)

Town of East Fremantle		Score
1.	John Tonkin Reserve	(71%)
2.	Swan River Yacht Club	(28%)
3.	East Fremantle Yacht Club	(14%)

Table 3-2: Ranking of Sites Based on their Cumulative Scores (uMCA).

Jurisdiction	Site	Physical Criteria		Environmental Criteria			Social Criteria		Score	Comments
		Depth & Space requirements	Metocean Climate	Sediment & Debris Transport	Proximity to Sensitive Habitats	Marine Fauna Interactions	Access and Amenities	Compatible / Conflicting Recreational Uses	/ 100%	
CoF	S Beach	Met **(+1)**	Met **(+1)**	Uncertain **(0)**	Low **(+1)**	Low **(+1)**	Met **(+1)**	Met **(+1)**	**(6) 85%**	• The site ranked highly in the assessment, achieving positive results against most of the criteria. The beach has a westerly aspect and is partly sheltered by a string of reefs, including Carnac Island that extend north of Garden Island. • The beach maintains a gentle sloping bathymetry achieving a depth of 4 m within 200 m of the beach front. • Negative aspects, although few, included the potential for the accumulation of wrack and long-shore sediment transport. The frequency of winter storms and the accumulation of wrack are likely to necessitate the seasonal removal of the barrier to avoid damage to the system.
CoF	Leighton Beach	Met **(+1)**	Uncertain **(0)**	Uncertain **(0)**	Low **(+1)**	Low **(+1)**	Met **(+1)**	Met **(+1)**	**(5) 71%**	• Met the depth and space requirements. Ample beach front available (1.5 km). The suite has a gentle bathymetry achieving a depth of 4 m within 100m of the beach front. • The site is relatively exposed and experiences winter storm events and is potentially prone to large waves at other times. Sediment transport and wrack build up were identified as potential risks. Risks associated with the accumulation of wrack and winter storms are likely to necessitate the seasonal removal of the barrier. • The site lacks existing attachment points, necessitating the need for a C shaped barrier, adding extra length and therefore CAPEX. The site scored well with respect to potential environmental impacts, access and amenities and compatibility with existing recreational uses.
ToEF	John Tonkin Reserve	Uncertain **(0)**	Uncertain **(0)**	Met **(+1)**	Low **(+1)**	Low Impact **(+1)**	Met **(+1)**	Met **(+1)**	**(5) 71%**	• Negative features included the potential for strong currents and the relatively narrow morphology of the beach. Although narrow and limited by space, it was considered that the site may accommodate a small barrier of dimensions of approximately 100 x 25. • Nonetheless the limited size of the site also reduces the size of the barrier and therefore CAPEX. • A barrier as this site is expected to serve as a permanent installation, thus avoiding the costs associated with seasonal removal (relative to the beach sites) • The site performed well against the social and environmental criteria and relative well against the social criteria, particularly with respect to the other river sites.
CoF	Bathers Beach	Met **(+1)**	Met **(+1)**	Uncertain **(0)**	Moderate **(0)**	Low Impact **(+1)**	Uncertain **(0)**	Met **(+1)**	**(4) 57%**	• The site has several natural positive features: it's a naturally enclosed space characterised by sand and pavement reef, inhabited by extensive macroalgal communities: these add interest and form attractive features for snorkelers, and swimmers, but also present an environmental risk should the barriers lead to shading or scouring. South mole and the yacht club breakwaters provide existing attachment points, potentially reducing the length of the barrier and therefore CAPEX. • Of interest was the manufacturers insistence that the barrier at Bathers Beach may be retained as a permanent feature, without the need for seasonal removal. The option for a permanent feature has the potential to significantly reduce operational maintenance costs (OPEX), provided the risk of wrack accumulation is manageable. • Negative features included the potential for wrack accumulation on the seaward side of the net, and a potential lack of parking over the busy summer months
CoF	Port Beach	Met **(+1)**	Uncertain **(0)**	Failed **(-1)**	Low **(+1)**	Low **(+1)**	Met **(+1)**	Uncertain **(0)**	**(3) 42%**	• Port beach failed the sediment debris and transport criterion. The site's exposure renders it vulnerable to acute erosion events, usually at the onset of winter. Shoreline movement is exacerbated by the nearby Fremantle Port infrastructure. Like all the Indian Ocean sites, risks associated with the accumulation of wrack are likely to necessitate the seasonal removal of the barrier. • The site maintains a gentle sloping bathymetry, from very shallow water at the shoreline to a maximum depth of ~5 m within 200 m of the shoreline. • The beach is frequented by board riders presenting a potential resource conflict
CoF	Harvey Beach	Failed **(-1)**	Met **(+1)**	Met **(+1)**	Low **(+1)**	Low **(+1)**	Failed **(-1)**	Met **(+1)**	**(3) 42%**	• The Harvey Beach site was limited by available space. • The site is also relatively deep at approximately 4m which may present challenges for non-swimmers, particularly children, as well as the installation of a suitable barrier.
ToEF	SRYC	Uncertain **(0)**	Met **(+1)**	Met **(+1)**	Low **(+1)**	Low **(+1)**	Failed **(-1)**	Failed **(-1)**	**(2) 28%**	• Although favourable from an environmental and physical perspective (particularly on account of its gentle bathymetry and low current speeds), the SRYC site performed relatively poorly due to its limited access, lack of parking and potential for incompatibilities between swimmers and recreational craft. • Parking was considered limited, particularly given the potential for overlap with existing Fremantle Rowing Club.
ToEF	EF Yacht Club	Failed **(-1)**	Met **(+1)**	Met **(+1)**	Low **(+1)**	Low **(+1)**	Failed **(-1)**	Failed **(-1)**	**(1) 14%**	• The site was considered unsuitable due to the presence of a steep shoreline gradient, reaching a depth of 5-7 m within 10 m of the shoreline. • The site also scored poorly against the social criteria given its limited parking and potential incompatibility between swimmers and power craft, which frequent the area
CoF	GF Reserve	Failed **(-1)**	Met **(+1)**	Met **(+1)**	Low **(+1)**	Low **(+1)**	Failed **(-1)**	Failed **(-1)**	**(1) 14%**	• The site lies near boat pens and parking is limited. • Access to the site is difficult and the only unobstructed beach features a steep bathymetry characterised by sand and rocky features. • Most of the site is difficult to access leaving only a small fraction of useable shoreline.
CoF	N / S Foreshore	Failed **(-1)**	Uncertain **(0)**	Met **(+1)**	Low **(+1)**	Low **(+1)**	Failed **(-1)**	Failed **(-1)**	**(0) 0%**	• Situated on a narrow stretch of the Swan River Foreshore. The site is characterised by a steep bathymetry leading to unfavorably deep water (+5 m) within a relatively short distance (10 m). • The site experiences strong currents and is frequently by the movement of power craft. • Parking options are also limited.

Notes: ■ Green shading represents criteria met OR low environmental impact ('positive' result); ■ Orange shading represents criteria not met ('negative' result); ■ Yellow shading represents uncertainty around criteria, OR moderate environmental impact ('neutral' result); numbers in parenthesis are the scores against the criteria.

3.5 Optimal Sites for Development

The optimal sites for installation of barriers were chosen based on further, more detailed analysis of the four top ranking sites: South Beach, Leighton Beach and Bathers Beach in the CoF, and John Tonkin Reserve in the ToEF.

The optimisation process was conducted using an MCA as in Stage 2, but in this case proceeded using weighted physical, social, environmental and economic criteria (OPEX and CAPEX); the latter of which were provided directly from two WA-based barrier manufacturers: A and B (**Table 3-3**, **Table 3-4** and **Table 3-5**).

Table 3-3: Estimated construction and annual maintenance costs for shark barriers.

Item	Estimate 1 (Manufacturer A)	Estimate 2 (Manufacturer B)
Barrier cost per m (CAPEX) (Ex GST)	$1,212	$2,000
Maintenance cost per m/year (OPEX) (Ex GST)	$241 per m (maintenance), assuming a 400 m net	$285 per m (maintenance)
Removal and installation cost per year (OPEX) (Ex GST)	$302 per m (removal and reinstallation)	$200 per m (removal and reinstallation)

Table 3-4: Shark barrier CAPEX estimates at the shortlisted sites.

Site	Manufacturer	Estimated CAPEX (Excl GST)
South Beach (Net Length ~400 m)	A[1]	$657,760
	B[2]	$800,000
Leighton Beach[3] (Net Length ~480 m)	A	$754,720
	B	$960,000
Bathers Beach (Net Length ~340 m)	A	$585,040
	B	$680,000
John Tonkin Reserve (Net Length ~120 m)	A	$318,400
	B	$260,000

Notes: [1]CAPEX for manufacturer A is the total cost for Design and Certification, Installation and Cost of Barrier as provided separately by the manufacturer. [2] CAPEX for manufacturer B was provided only as a cost of $2,000 per metre of net without any further breakdown on installation. [3]Leighton Beach calculations have been scaled up from South Beach estimates according to the extra net length required.

Table 3-5: Shark Barrier OPEX estimates at the shortlisted sites.

Site	Total OPEX (Yearly) (Excl GST)
South Beach[1]	$194,000 to $201,360
Leighton Beach[1]	$201,360 to $232,800
Bathers Beach	$68,000[2] to $121,000[3]
John Tonkin Reserve	$37,000 to $96,360[4]

Notes: [1]South and Leighton Beach OPEX includes removal and reinstallation for the Winter period. [2]Assumes that the barrier does not require annual removal and reinstallation. [3]Assumes removal and reinstallation of the barrier over the winter period. [4]May be significantly reduced when more specific maintenance costs are provided, as manufacturers gave a single costing for maintenance irrespective of the length of net.

Results of the weighted analyses incorporating the physical, social, environmental, and economic criteria are summarised in **Table 3-6** to **Table 3-7**. and detailed in **Appendix A**.

John Tonkin Reserve performed the best of the sites, being placed first in all scenarios. Its consistent performance was attributed to its small size and therefore lower CAPEX, as well as its status as a permanent installation, thus avoiding the costs associated with seasonal removal and reinstallation. It also scored highly based on its public amenities and access, including a suitably large carpark.

Bathers Beach also performed consistently well in the rankings, placing second in scenarios wMCA1 and wMCA2, and third in scenario w-MCA3. Bathers Beach performed strongly in all scenarios given its smaller size and positioning (eliminating the need for side barriers), and particularly well in w-MCA1, under which OPEX was weighted twice as highly as CAPEX and social amenities (**Table 3-6** and **Table 3-7**). A defining feature of this site was the potential for the barrier to remain in situ on a permanent basis, thus reducing OPEX costs by approximately $53,000 per year. Bathers Beach otherwise scored poorly with respect to amenities, particularly availability of parking.

South Beach placed either second or third in the analyses depending on the weightings applied to social amenities. When social amenities and OPEX were weighted equally, Bathers Beach fell from second place to third place in the rankings (falling ~3%) while South Beach increased its ranking from third to second place following a 17% increase in suitability from 53.6 to 70.6% (**Table 3-8**). Bathers beach was downgrade in this scenario (55%) owing to the competition for nearby parking, particularly in summer.

Table 3-6: Results of w-MCA1.

Rank	Site	Jurisdiction	% Suitability
1	John Tonkin Reserve	ToEF	98.78
2	Bathers Beach	CoF	67.07
3	South Beach	CoF	53.66
4	Leighton Beach	CoF	34.76

Notes: w-MCA1: in this scenario, OPEX was weighted (10x the base weighting) twice as highly as CAPEX, existing access, and amenities (all of which were weighted at 5x the base weighting). This scenario placed a stronger emphasis on OPEX given the expectation CAPEX will be entirely of partly covered by the State Government. It also assumed Bathers Beach could be maintained as a permanent structure, thus significantly reducing its annual OPEX by ~$53,000.

Table 3-7: Results of w-MCA2.

Rank	Site	Jurisdiction	% Suitability
1	John Tonkin Reserve	ToEF	98.78
2	Bathers Beach	CoF	57.93
3	South Beach	CoF	53.66
4	Leighton Beach	CoF	34.76

Notes: w-MCA2: OPEX was again weighted twice as highly as CAPEX and existing access and amenities. However, it differed to scenario 1 in using a higher OPEX estimate for Bathers Beach assuming the barrier needed annual removal and reinstallation.

Table 3-8: Results of w-MCA3.

Rank	Site	Jurisdiction	% Suitability
1	John Tonkin Reserve	ToEF	79.92
2	South Beach	CoF	70.66
3	Bathers Beach	CoF	55.02
4	Leighton Beach	CoF	46.14

Notes: w-MCA3: the final scenario assigned equal weightings to OPEX, existing access and amenities. These in turn were weighted twice as highly as CAPEX. In this scenario, access to amenities was weighted higher than in any other scenario (wMCA1 and 2). It also assumed Bathers Beach could be maintained as a permanent structure, thus significantly reducing its annual OPEX by ~$53,000.

4. Conclusions

Shark Bite Mitigation Options

This report presented the findings of a 3-stage project, which on aggregate aimed to provide the CoF and ToEF with options for the application of suitable shark bite mitigation strategies at sites in the Fremantle AoI. Our review identified over 16 shark-bite mitigation strategies, of which nine were deemed readily available and suitable for further analysis. A semi-quantitative analysis was undertaken whereby the top nine strategies were ranked based on their performance against the following criteria:

- Environmental risk
- Compatibility with existing WA government measures
- Potential for risk reduction
- Estimated OPEX and CAPEX, and
- Other perceived advantages and disadvantages.

Of the potential strategies available, the application of physical barriers, including the electrical (LR1000) and physical barriers, 'eco shark' and 'bionic/aquarius' barriers, was deemed the most suitable and these strategies were chosen for further investigation. The LR1000, while initially viewed as a high-ranking option, was eventually ruled out due to inherent complexities with instalment and maintenance, and the perception that they offered a '**virtual**' rather than a '**physical**' barrier.

The use of surveillance techniques as a singular solution was also ruled out due to their incompatibility for the conditions present in the AoI as well as their significant OPEX requirements. Their use in combination with physical barriers was, however, presented as a viable option depending on the resources available to the user (both human and economic).

Potential Application of Shark-Bite Mitigation Options in the ToEF and CoF

During the scoping phase of the project, Stantec was provided with a list of sites including four Indian Ocean and seven Swan River foreshore sites (**Table 3-2**). Each of the sites was initially evaluated using an unweighted MCA (u-MCA). In the u-MCA, all criteria were treated objectively and with equal significance. The objective of the u-MCA was to assess the likely success (or compatibility) of the shark barriers at each of the sites based on competing social, physical, and environmental criteria. Based on u-MCA applied to the physical, social, and environmental criteria, South Beach (85%), Leighton (71%) and Bathers Beach (57%) in the CoF emerged as the most suitable sites, while John Tonkin Reserve (71%) emerged as the most suitable site in the ToEF.

Key commonalities amongst the top three ranked sites included:

- Consistent positive or neutral results against all criteria, with no instances of negative results;
- Suitable space and depth requirements with typically gentle sloping bathymetries to maximum depths of 3-4 m; and
- Available parking with a high probability of use.

The key attributes of poorly ranking sites included:

- Consistent negative results against two or more criteria;
- Limited social amenities, with limited parking options;
- Potential for conflict with existing recreation pastimes, including fishing and boating; and
- Limited space and/or an unsuitable bathymetry (typically an unsuitably steep bathymetry, posing installation and safety challenges).

The final ranking of sites itemised by jurisdiction is summarised below:

City of Fremantle		Score
1.	South Beach	(85%)
2.	Leighton Beach	(71%)
3.	Bathers Beach	(57%)
4.	Port Beach	(42%)
5.	Harvey Beach	(14%)
6.	Gilbert Fraser Reserve	(14%)
7.	North & South Foreshore	(0%)

Town of East Fremantle		Score
1.	John Tonkin Reserve	(71%)
2.	Swan River Yacht Club	(28%)
3.	East Fremantle Yacht Club	(14%)

Fine-tuning of Options – Optimal Sites for Application of Shark-Bite Mitigation Strategies

Optimal sites for the installation of barriers were chosen from South Beach, Leighton Beach and Bathers Beach in the CoF, and John Tonkin Reserve in the ToEF, based on further, more detailed analysis. The optimisation process was conducted using an MCA as in Stage 2, but in this case proceeded using weighted physical, social, environmental, and economic criteria (OPEX and CAPEX); the latter of which were provided directly from two WA-based barrier manufacturers.

In all the weighted scenarios, John Tonkin Reserve ranked the highest of the shortlisted sites, followed closely by Bathers Beach (Scenarios 1 and 2) and South Beach (Scenario 3). Bathers Beach performed strongly in all scenarios given its smaller size and positioning (eliminating the need for side barriers), and particularly well in w-MCA1, under which OPEX was weighted twice as highly as CAPEX and social amenities. A defining feature of this site was the potential for the barrier to remain in situ on a permanent basis, thus reducing OPEX costs by approximately $53,000 per year.

Final percentage suitability scores in w-MCA1 and 2:

1.	John Tonkin Reserve	(98.7%)
2.	Bathers Beach	(57-67%)
3.	South Beach	(53.6%)
4.	Leighton Beach	(34.76)

Under scenario wMCA3, South Beach improved it ranking from 3rd to 2nd place. The rankings in scenario w-MCA3 mirrored the results in the unweighted analysis, under which South Beach ranked the highest of the CoF sites and John Tonkin the highest of the ToEF sites (**Section 3.4**).

Final percentage suitability scores in w-MCA3:

1.	John Tonkin Reserve	(79.2%)
2.	South Beach	(70.6%)
3.	Bathers Beach	(55.0%)
4.	Leighton Beach	(46.1%)

Despite finishing third in two of the three weighted analyses, South Beach is considered highly suitable for the installation of a barrier given its gentle sloping bathymetry, parking amenities, wide, open sandy characteristics, and its demonstrated popularity amongst beachgoers.

While not as popular as a swimming beach, Bathers Beach, which finished second in two of three weighted analyses, may represent an alternative option for the CoF provided the barrier can be maintained as a permanent fixture, without the need for seasonal removal. Under this scenario, Bathers Beach represents very good value for money, noting that OPEX and CAPEX estimates for South Beach were the second highest of the sites investigated, behind Leighton Beach (see **Table 3-5**). The option to install a barrier at Bathers Beach should, however, also be considered in the context of the lower scores achieved for access and existing amenities, and potential environmental sensitivity given the widespread presence of platform reef at this site.

5. Study Limitations and Recommendations

A lesson learned from the roll out of the New South Wales (NSW) Shark Management Strategy has been that community sentiment requires close consideration, including opinions on the types of shark bite mitigation systems that are preferred or, in the case of alternative systems to catch and kill, which of those the community would consider for trialing. From discussion with managers of the NSW Shark Management Strategy, it is understood that community sentiment may vary between water user groups and non-water users, among water user groups and among regions. Lessons learned from the NSW Government suggest that community buy-in would be important to support and in some respect, drive, decisions regarding the future of the shark bite mitigation measures in the CoF and ToEF. Community sentiment would best be gauged by presenting the community with an informed list of options of potential alternatives against the status quo. This process would work best if the community were presented with the most highly ranked physical barrier systems for their region.

CAPEX and OPEX used throughout this report are estimates only and were provided by the manufacturers in the form of a request for information, not a request for quote, and as such the estimates are subject to change. Throughout this document OPEX has been closely considered as a key criterion for site suitability. It should, however, be noted that OPEX cost only refers to long-term scheduled maintenance of the barrier and (if needed) the retrieval and reinstalment of barriers seasonally; it does not account for any other associated costs that may arise. It should also be noted that additional information surrounding social considerations, such as estimated use, access and public opinion, could lead to a change in the results of any future assessment of site suitability. Careful stakeholder engagement should be adopted before progressing with any site.

Given the heavy weighting of the social amenities criteria in this investigation, a thorough investigation should be made to understand the likely need for increased amenities (i.e., parking) that will arise from increased resource use. Potential social constraints such as, for example, access to amenities, increased the ranking of South Beach, but decreased the ranking of Bathers Beach under scenario w-MCA3. Stantec has commented on currently available access and amenities, as determined to be present and available at the time of the site visit and identified through aerial imagery. However, a greater level of social consultation may be needed at shortlisted sites to ensure the investment will result in a resource that is both accepted locally and accessible to prospective users.

Most significant to this project is the funding available to beach enclosures / barrier systems. Already five such barrier systems installed in WA have received entire or partial funding through this program. In respect to this, funding towards the capital expenditure of a shark barrier system may be applied for and obtained for this project. It is key to note, however, that this funding is only available for the creation and instalment (CAPEX) and not the ongoing maintenance (OPEX).

6. References

Amin, R., Ritter, E. and Kennedy, P. (2012). A geospatial analysis of shark attack rates for the east coast of Florida: 1994-2009. Marine and Freshwater Behaviour and Physiology. 45(3): 185-198.

BoM (2023) Climate Data Online – Swanbourne & Perth, Western Australia, Daily Weather Observations. Available from <http://www.bom.gov.au/climate/dwo/IDCJDW6121.latest.shtml> [Accessed 18/06/2023].

Braizer, W.R., Nel, R., Cliff, G. and Dudley, S. (2012). Impact of protective shark nets on sea turtles in KwaZulu-Natal, South Africa, 1981-2008. *African Journal of Marine Science* 34(2): 249-257.

Cardno (2018) Summary Report – Metocean Data Collection. Prepared for the City of Cockburn. 21 December 2018.

Cardno (2019) *Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Program.* Prepared for the City of Fremantle, Town of Mosman Park and Fremantle Ports. 12 November 2019.

Cardno (2019) Queensland Shark Control Program – A Review of Alternate Approaches.

Cardno (2020) Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Summary Report – May 2019

Cardno (2020) *Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Summary Report – May 2019 to April 2020.* Prepared for the City of Fremantle, Town of Mosman Park and Fremantle Ports. 4 May 2020.

Cardno (2021*) Port Beach Sand Nourishment via Dredging – Coastal Processes Monitoring and Management Plan.* Prepared for the City of Fremantle. 9 December 2021.

Cardno (2021) *Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Summary Report – May 2020 to April 2021.* Prepared for the City of Fremantle, Town of Mosman Park and Fremantle Ports. 4 May 2021.

Cardno (2022) *City of Cockburn: Coastal Monitoring Program.* Prepared for the City Cockburn. 10 March 2023.

Cardno (2022) *Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Program.* Prepared for the City of Fremantle, Town of Mosman Park and Fremantle Ports. 1 June 2022.

Cardno (2022a) Port, Leighton and Mosman Coastal Monitoring Program: Coastal Monitoring Program. Prepared for the City of Fremantle, Town of Mosman Park and Fremantle Ports. 1 June 2022.

Cardno (2022b) City of Cockburn: Coastal Monitoring Program. Prepared for the City Cockburn. 10 March 2023.

DoT (2023) Coastal Data and Charts. Available from < https://www.transport.wa.gov.au/imarine/coastal-data-and-charts.asp> [Accessed 18/06/2023].

DPC (2014) Review of the Dunsborough Beach Enclosure Trial. Available from: < Review of the Dunsborough Beach Enclosure Trial (fish.wa.gov.au)>

DPIRD (2021) Results of the non-lethal SMART drumline trial in south-western Australia between 21 February 2019 and 20 February 2021. Fisheries Occasional Publication No.140, Department of Primary Industries and Regional Development, Western Australia. 48 pp.

DPIRD (2023) Shark Mitigation Strategy. Available from < https://www.sharksmart.com.au/strategy/> [Accessed 12/09/2023].

Dudley, S.F.J. (1997). A comparison of the shark control programs of New South Wales and Queensland (Australia) and KwaZulu-Natal (South Africa). *Ocean and Coastal Management* 34: 1-27.

GHD (2016) South Fremantle Coast - Coastal Adaptation Plan. Prepared for City of Fremantle. June 2016.

GHD (2017) Our Coastal Future - Port, Leighton and Mosman Beaches Coastal Adaptation Plan. 6 September 2017.

Gibbs, L. and Warren, A. (2015). Transforming shark hazard policy: Learning lessons from ocean-users and shark encounter in Western Australia. *Marine Policy* 58: 116-124.

Gribble, N.A., McPherson, G. and Lane, B. (1998). Effect of the Queensland Shark Control Program on non-target species: Whale, dugong, turtle and dolphin: A review. *Marine and Freshwater Research* 49: 646-651.

Guyomard, D., Lee, K.A., Perry, C., Jaquemet, S. and Cliff, G. (2020). SMART drumlines at Réunion Island do not attract bull sharks Carcharhinus leucas into nearshore waters: Evidence from acoustic monitoring. *Fisheries Research* 225

Hart, N.S. and Collin, S.P. (2015). Sharks senses and shark repellents. Integrative Zoology, 10: 38-64. https://doi.org/10.1111/1749-4877.12095.

Krogh, M. and Reid, D. (1996). Bycatch in the protective shark meshing programme off south-eastern New South Wales. *Biological Conservation* 77: 219-226.

M P Rogers & Associates (2020) Port Beach Detailed Investigation on Sand Nourishment via Dredge. Prepared for City of Fremantle. November 2020

Masselink, G., Pattiaratchi, C. (2001) *Seasonal changes in beach morphology along the sheltered coastline of Perth, Western Australia,* Marine Geology, vol. 172, pp. 243-263.

McPhee, D.P. (2014). Unprovoked shark bites: Are they becoming more prevalent? Coastal Management 42(5): 478-492.

Meeuwig, J.J. and Ferreira, L.C. (2014). Moving beyond lethal programs for shark hazard mitigation. *Animal Conservation* 17(4): 297-298.

Neff, C. (2012). Australian beach safety and the politics of shark attacks. Coastal Management, 40(1), 88-106.

O'Connell, C.P. and de Jonge, V.N. (2014). Integrating the findings from this special issue and suggestions for future conservation efforts – A brief synopsis. *Ocean and Coastal Management* 97: 58-60.

Oelofse, G., and Kamp, Y. (2006). Shark spotting as a water safety program in Cape Town. In: *Finding a Balance: White Shark Conservation and Recreational Safety in the Inshore Waters of Cape Town, South Africa*, ed.. D.C. Nel and T.P. Peschak, 121-129.

Paterson, R.A. (1990). Effects of long-term anti-shark measures on target and non-target species in Queensland, Australia. *Biological Conservation* 52: 147-159.

Riley M, Meagher P, Huveneers C, Leto J, Peddemors V, Slip D, West J, Bradshaw C (2022) The Australian Shark-Incident Database for quantifying temporal and spatial patterns of shark-human conflict. Scientific Data. 9:378: 1-9.

Shark Shield (2013). Shark Shield User Manual

Short (2006) Beaches of the Western Australia Coast: Eucla to Roebuck Bay: A guide to their nature, characteristics, surf and safety. Sydney: Sydney University Press.

Simpfendorfer, C.A., Heupel, M.R., White, W.T. and Dulvy, N.K. (2011). The importance of research and public opinion to conservation management of sharks and rays: a synthesis. *Marine and Freshwater Research.*62(6): 518-527.

Sumpton, W.D., Lane, B. and Ham, T. (2010). Gear modifications and alternative baits that reduce bait scavenging and minimize by-catch on baited drum-lines used in the Queensland Shark Control Program *Proceedings of the Royal Society of Queensland* 116: 23-35.

Van Putten, I., McClean, N., Chin, A., Pillans, S., & Sbrocchi, C. (2022). What Happens After a Shark Incident? Behavioral Changes Among Australian Beachgoers. *Human–Wildlife Interactions*, *16*(1), 10.

Weltz, K., Kock, A.A., Winker, H., Attwood, C. and Sikweyiya, M. (2013). The influence of environmental variables on the presence of white sharks, *Carcharodon carcharias* at two popular Cape Town bathing beaches: A generalized additive mixed model. PLoS ONE 8(7): e68554. doi:10.1371/journal.pone.0068554.

Whitmarsh, S.K., Amin, D.B., Costi, J.J., Dennis, J.D., Huveneers, C. (2019). Effectiveness of novel fabrics to resist punctures and lacerations from white shark (*Carcharodon carcharias*): Implications to reduce injuries from shark bites. PLoS ONE 14(11): e0224432. https://doi.org/10.1371/journal.pone.0224432

Woolgar, J.D. and Cliff, G. (2001). Shark attack: Review of 86 consecutive cases. *Journal of Trauma Injury Infection and Critical Care.* 50(5): 887-891.

Zillman, D., Chen, L., Knobloch, S and Callison, C. (2004). Effects of lead framing on selective exposure to internet news reports. *Communication Research* 31(1): 58-81.

Appendices

Appendix A Raw Inputs and Result Tables for MCA's

Table 6-1: Results of the first wMCA (wMCA1)

wMCA1			South Beach		Leighton Beach		Bathers Beach		John Tonkin	
Criteria	**Range**	**Weighting**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**
Depth and Space requirements	(-1 to 1)	1	1	1	1	1	1	1	0	0
Metocean Climate	(-1 to 1)	1	1	1	0	0	1	1	0	0
Sediment and Debris Transport	(-1 to 1)	1	0	0	0	0	0	0	1	1
Sensitive Habitats	(-1 to 1)	3	1	3	1	3	0	0	1	3
Marine Fauna Interactions	(-1 to 1)	1	1	1	1	1	1	1	1	1
Existing Access and Amenities	(-1 to 1)	5	1	5	1	5	0	0	1	5
Compatible / Conflicting Recreational and / or Commercial uses	(-1 to 1)	2	1	2	1	2	1	2	1	2
CAPEX	(0 to 10)	5	5	25	4	20	6	30	10	50
OPEX	(0 to 10)	10	5	50	2.5	25	7.5	75	10	100
Total	27	164	16	88	11.5	57	17.5	110	25	162
Percentage suitability				**53.66%**		**34.76%**		**67.10%**		**98.78%**

Notes: OPEX is the highest weighted criterion, weighted twice as highly as CAPEX and Existing Access and Amenities. The assumption is made that the Bathers Beach barrier will remain in the water year-round and not require seasonal removal and reinstallation, keeping its OPEX costs low.

Table 6-2: Results of the second wMCA (wMCA2)

wMCA2			South Beach		Leighton Beach		Bathers Beach		John Tonkin	
Criteria	**Range**	**Weighting**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**
Depth and Space requirements	(-1 to 1)	1	1	1	1	1	1	1	0	0
Metocean Climate	(-1 to 1)	1	1	1	0	0	1	1	0	0
Sediment and Debris Transport	(-1 to 1)	1	0	0	0	0	0	0	1	1
Sensitive Habitats	(-1 to 1)	3	1	3	1	3	0	0	1	3
Marine Fauna Interactions	(-1 to 1)	1	1	1	1	1	1	1	1	1
Existing Access and Amenities	(-1 to 1)	5	1	5	1	5	0	0	1	5
Compatible / Conflicting Recreational and / or Commercial uses	(-1 to 1)	2	1	2	1	2	1	2	1	2
CAPEX	(0 to 10)	5	5	25	4	20	6	30	10	50
OPEX	(0 to 10)	10	5	50	2.5	25	6	60	10	100
Total	27	164	16	88	11.5	57	16	95	25	162
Percentage suitability				**53.66%**		**34.76%**		**57.93%**		**98.78%**

Notes: OPEX is again the highest weighted criterion, weighted twice as highly as CAPEX and Existing Access and Amenities. The assumption is made that the Bathers Beach barrier will require seasonal removal and reinstallation, which increases its OPEX cost and ultimately lowers its suitability score.

Table 6-3: Results of the third wMCA (wMCA3)

wMCA3			South Beach		Leighton Beach		Bathers Beach		John Tonkin	
Criteria	**Range**	**Weighting**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**	**Unweighted**	**Weighted**
Depth and Space requirements	(-1 to 1)	1	1	1	1	1	1	1	0	0
Metocean Climate	(-1 to 1)	1	1	1	0	0	1	1	0	0
Sediment and Debris Transport	(-1 to 1)	1	0	0	0	0	0	0	1	1
Sensitive Habitats	(-1 to 1)	3	1	3	1	3	0	0	1	3
Marine Fauna Interactions	(-1 to 1)	1	1	1	1	1	1	1	1	1
Existing Access and Amenities	(-1 to 1)	10	10	100	7.5	75	2.5	25	5	50
Compatible / Conflicting Recreational and / or Commercial uses	(-1 to 1)	2	1	2	1	2	1	2	1	2
CAPEX	(0 to 10)	5	5	25	2.5	12.5	7.5	37.5	10	50
OPEX	(0 to 10)	10	5	50	2.5	25	7.5	75	10	100
Total	27	259	25	183	16.5	119.5	21.5	142.5	29	207
Percentage suitability				**70.66%**		**46.14%**		**55.02%**		**79.92%**

Notes: Existing Access and Amenities is weighted equally with OPEX, with both weighted highly at a score of 10x the base weighting. The assumption is made that the Bathers Beach barrier will not require seasonal removal and reinstallation, which reduces its OPEX cost.

Stantec Australia Pty Ltd
Ground Floor,
226 Adelaide Terrace
Perth WA 6000
Tel +61 8 6222 7000