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10 Goodman Court , Invermay
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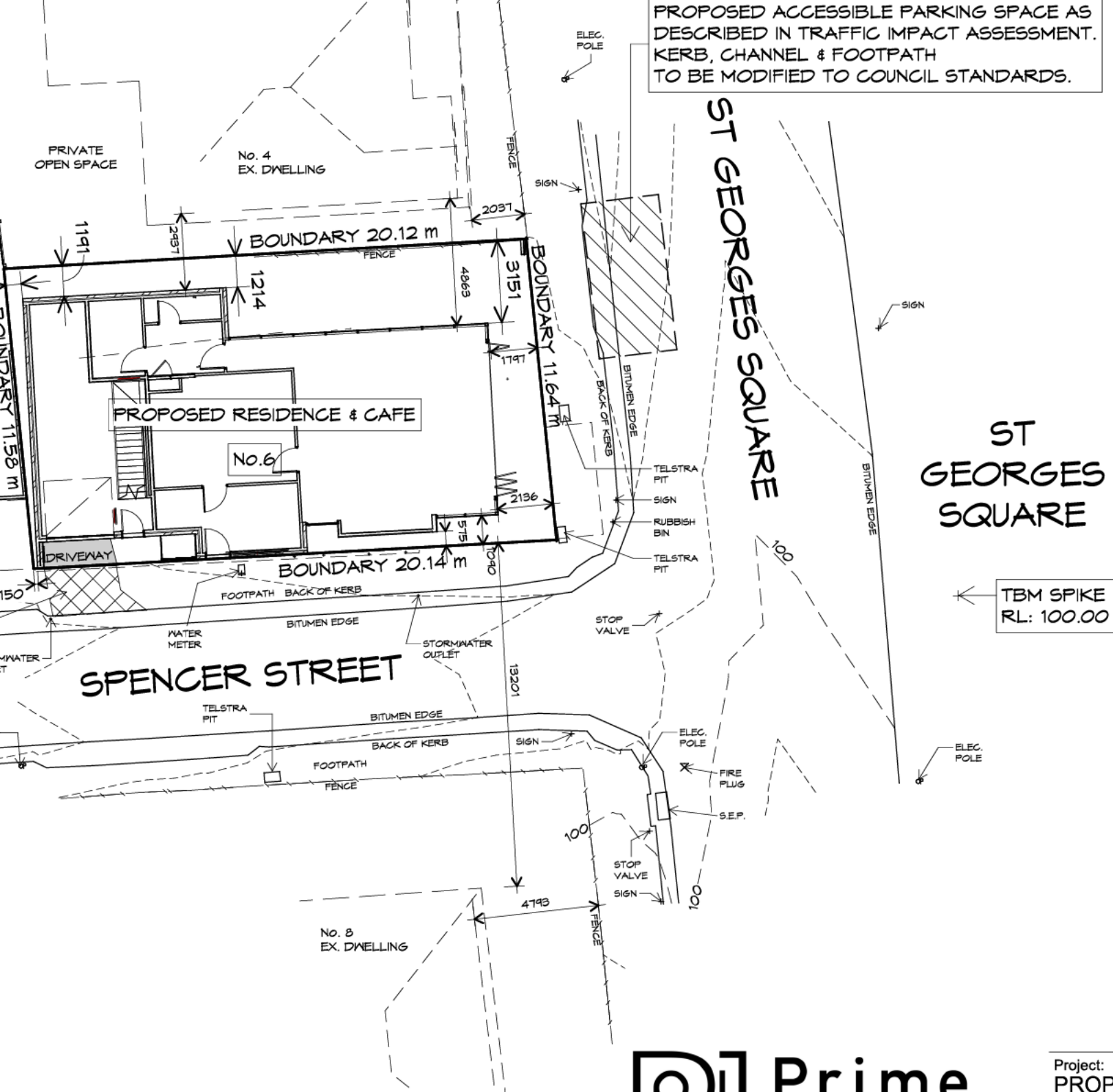

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WARNINGS:
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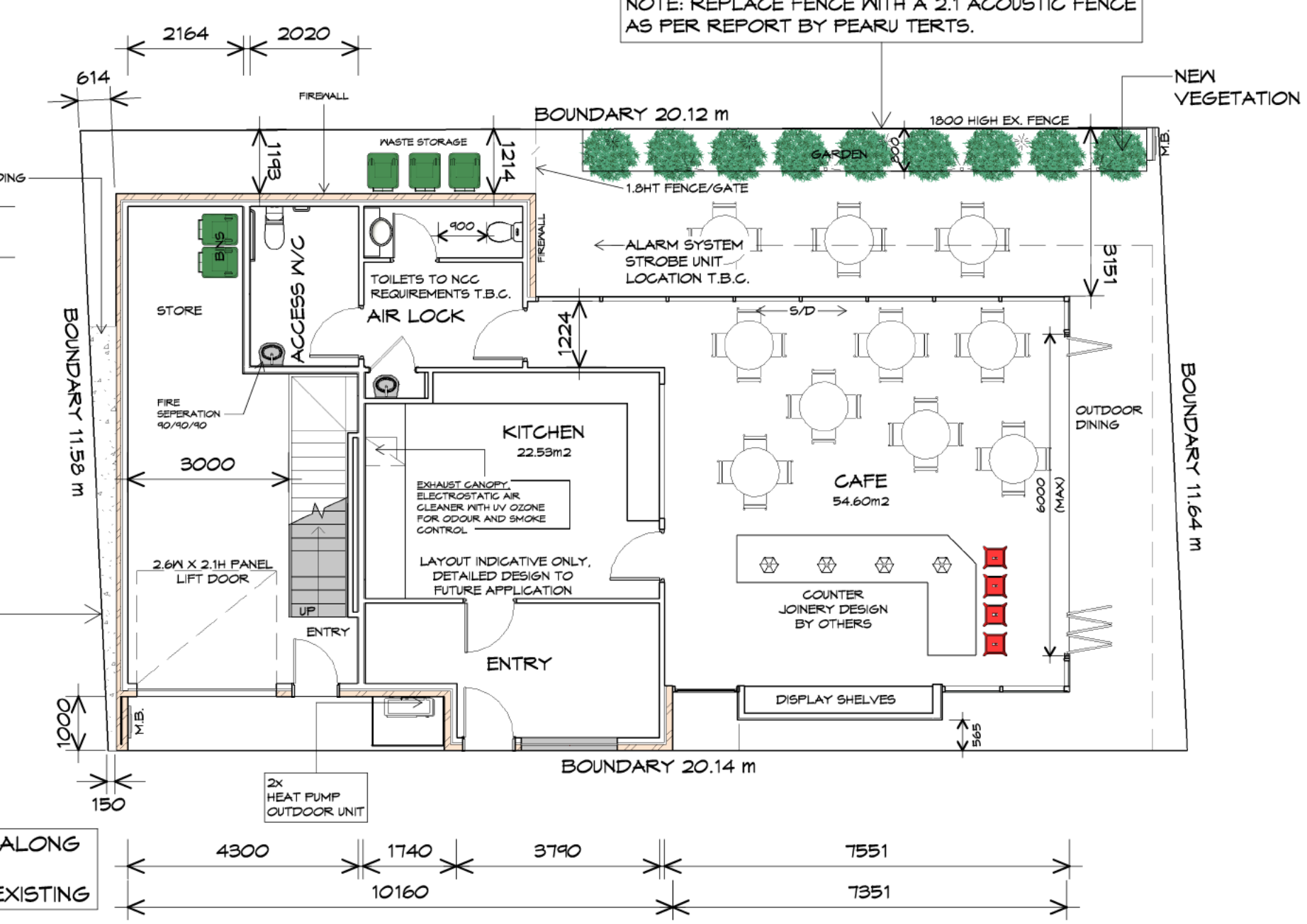

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Client name:
D.B. INVES

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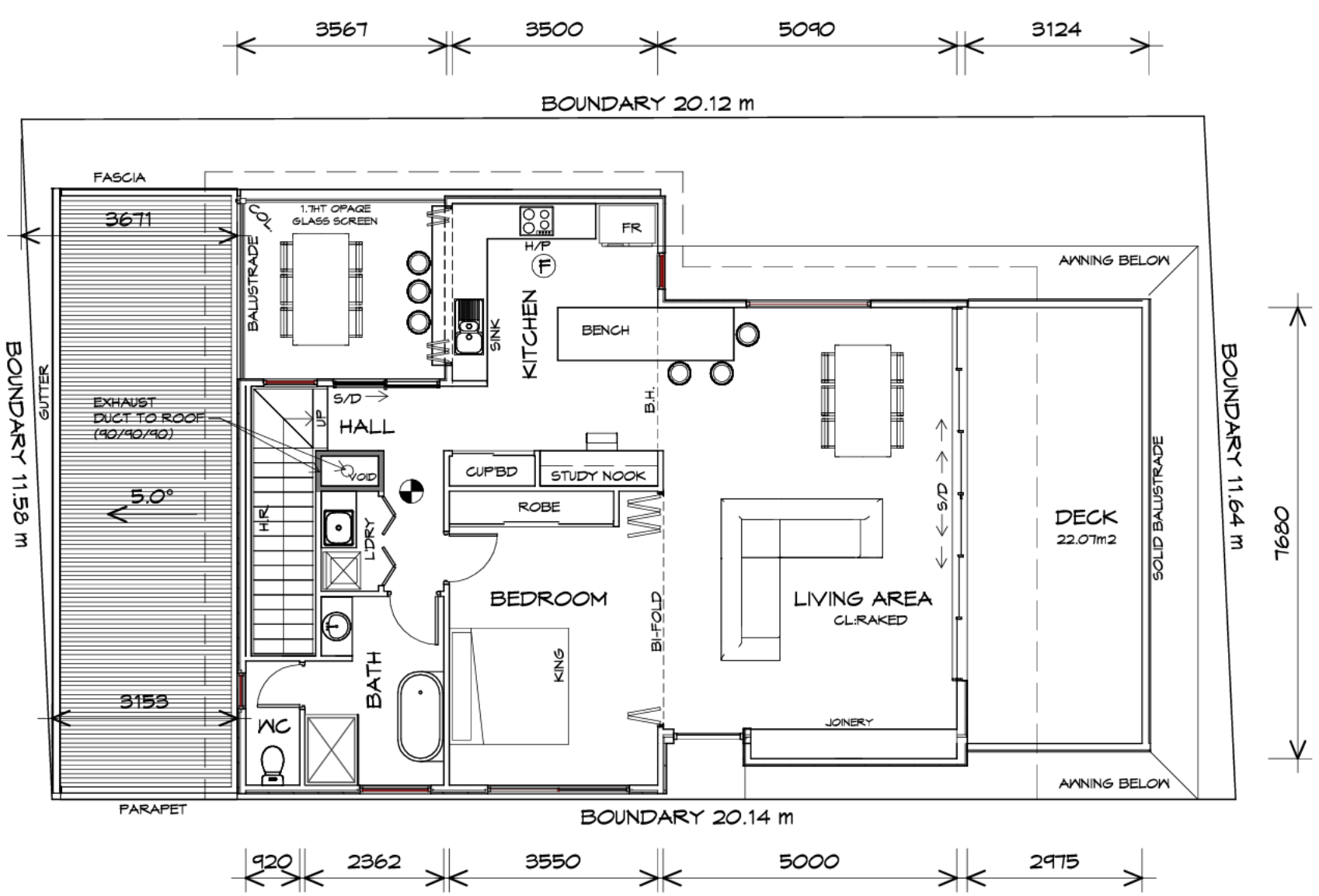

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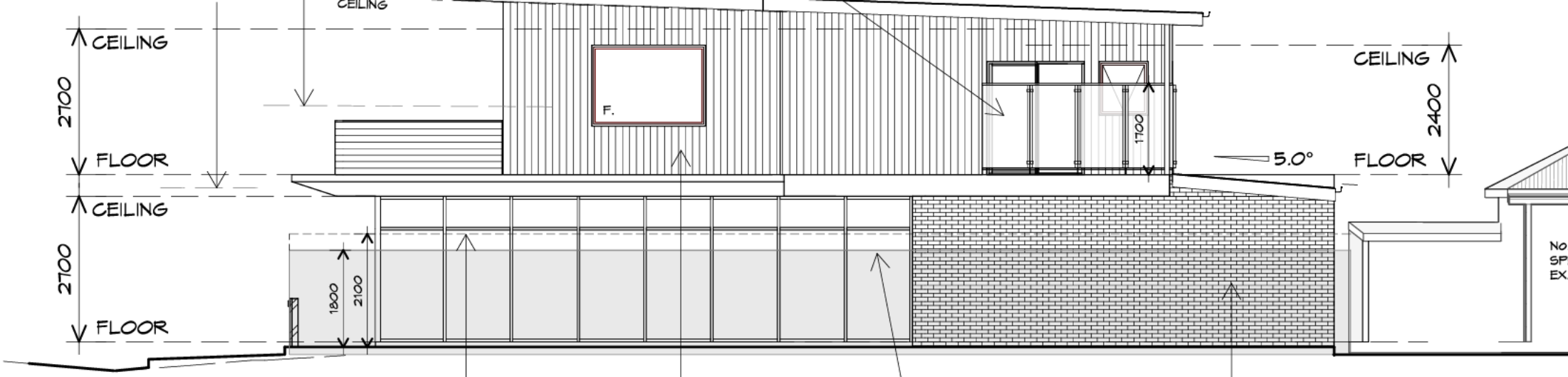

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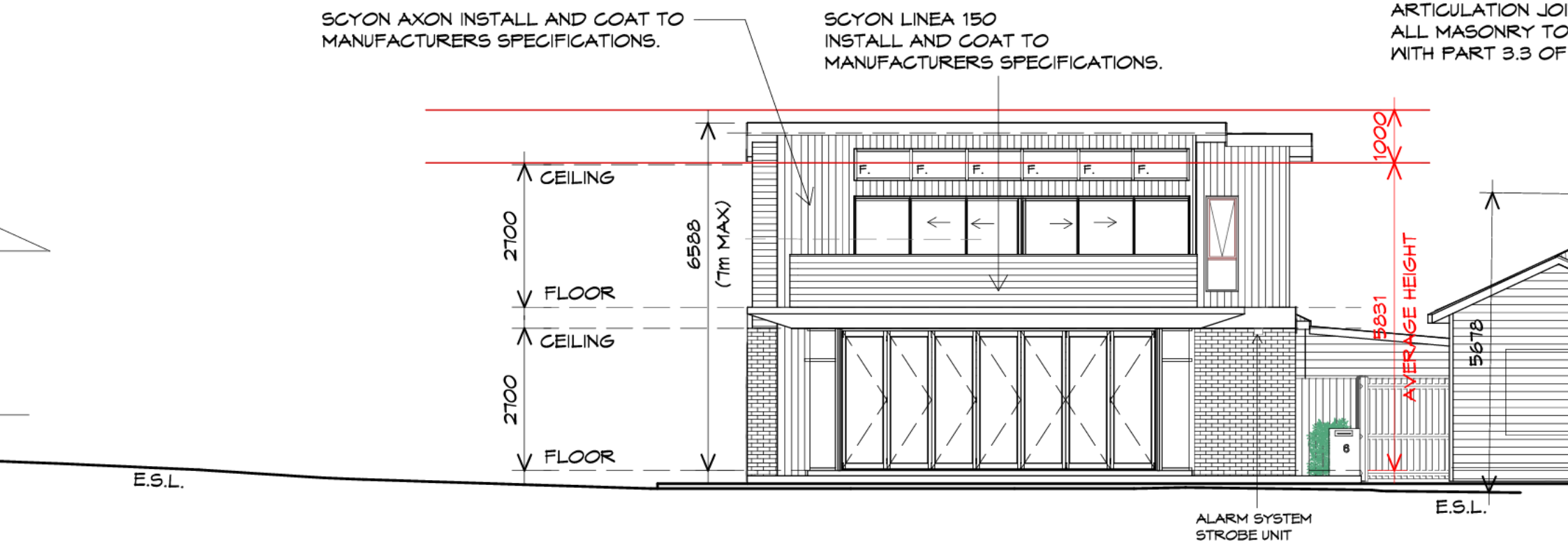

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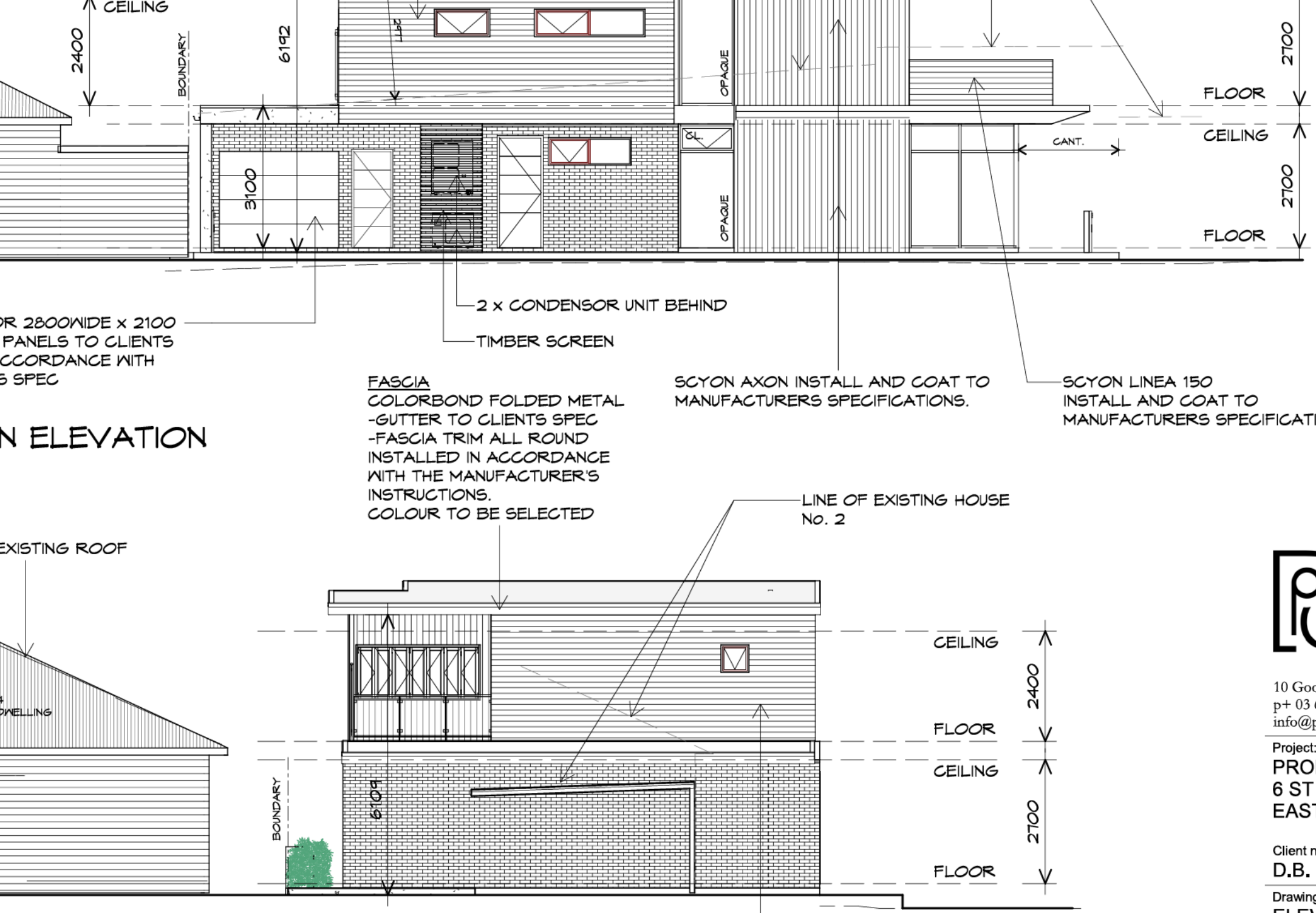

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OF PLAN

1:100 FOR BOX GUTTERS
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UNLESS FIXED TO METAL FASCIA EAVES GUTTER TO BE FIXED @ 1200 CRS MAX.

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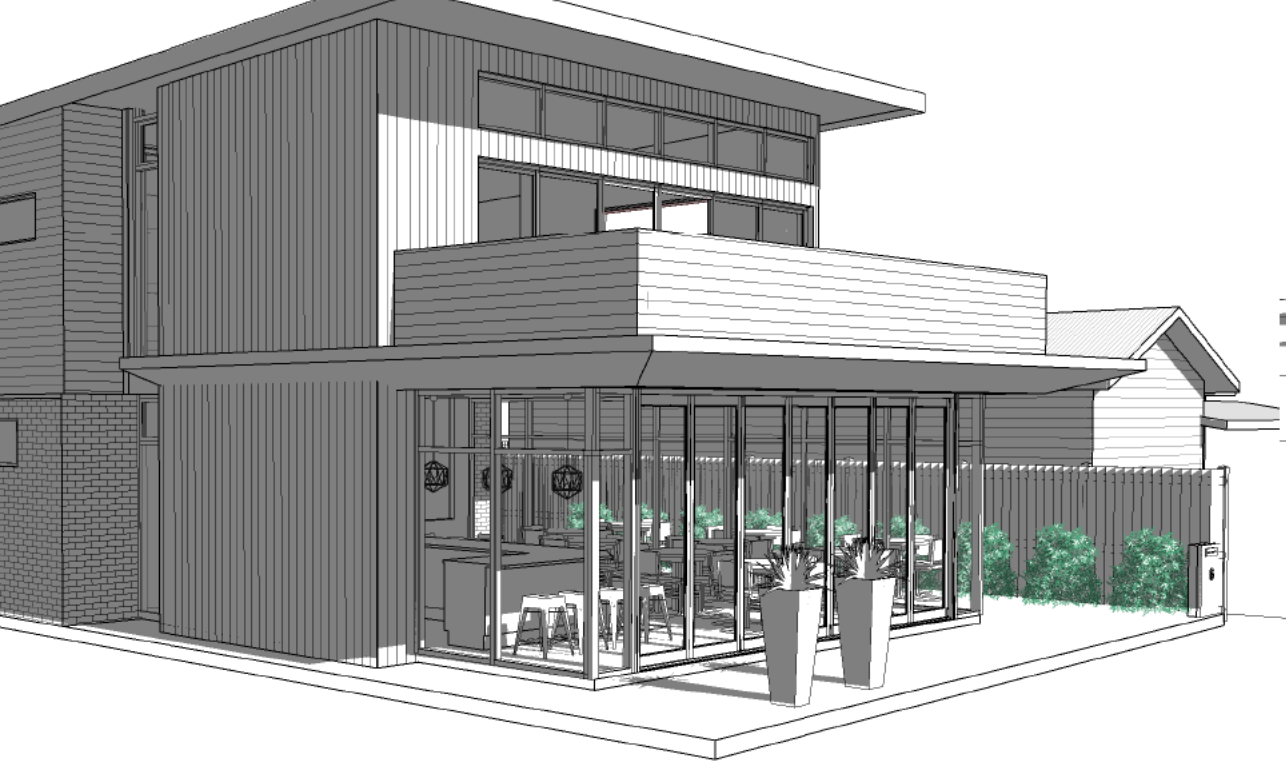

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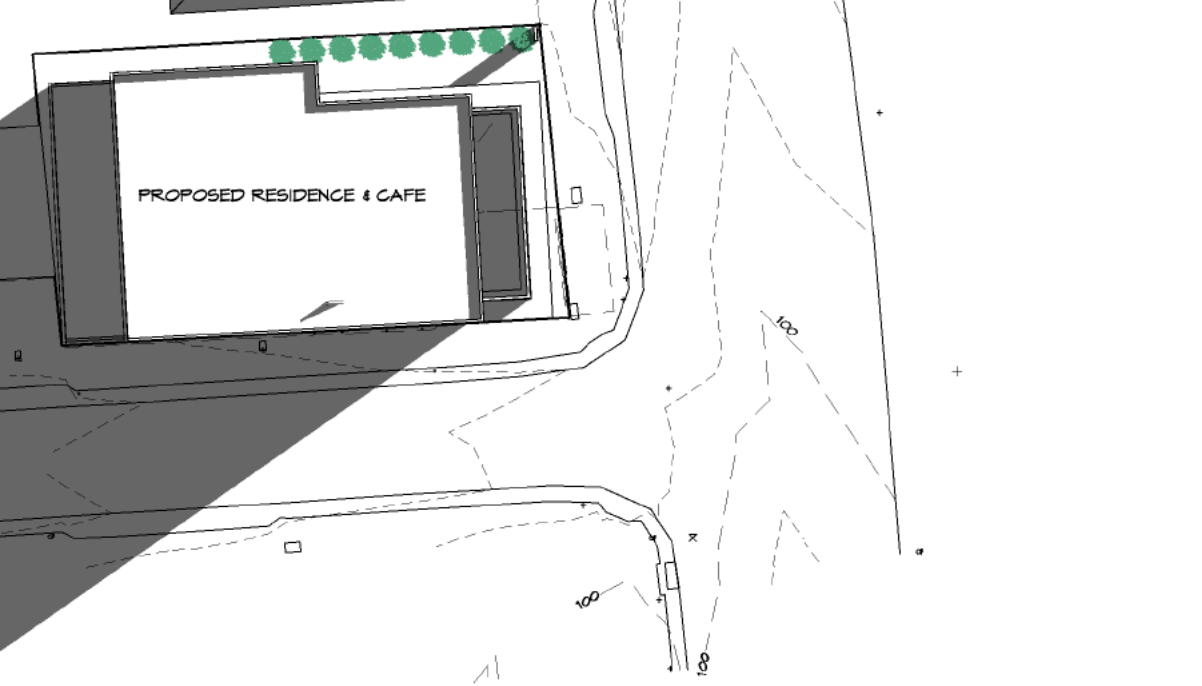

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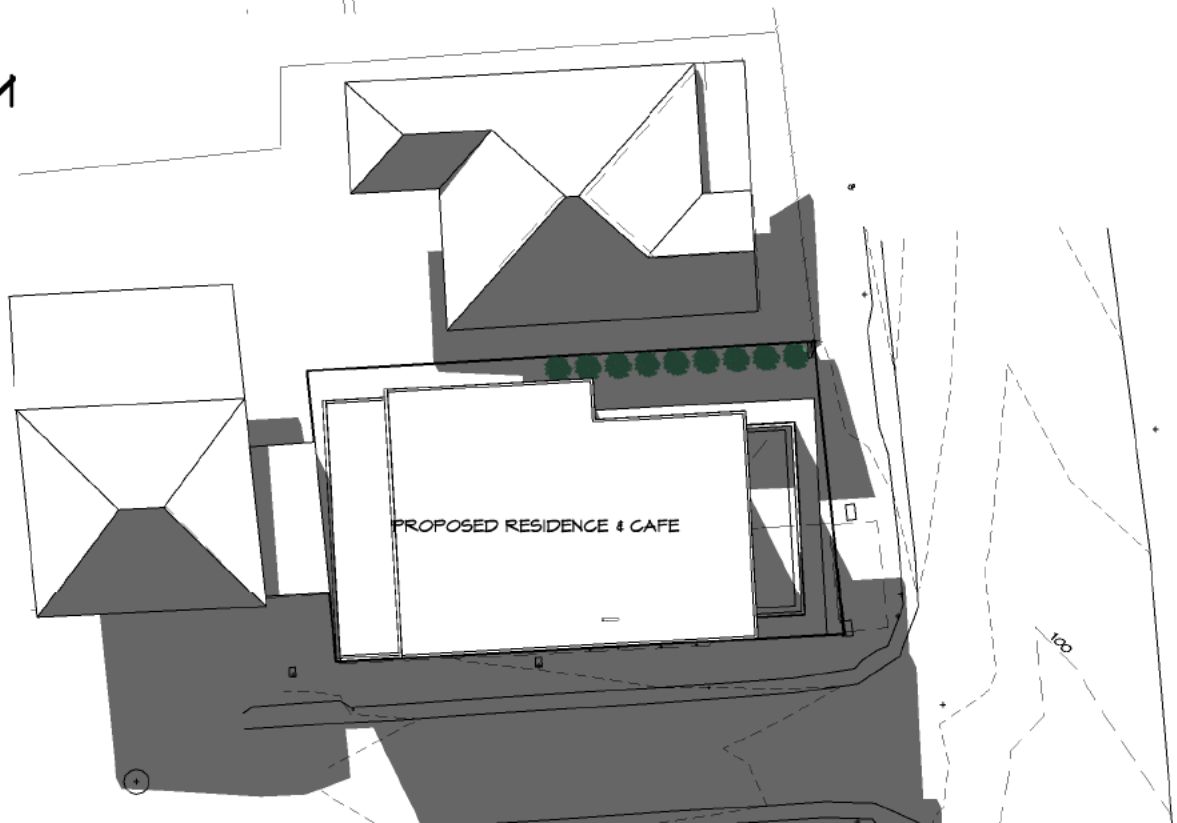

SUN SHADOW -12PM

1 : 300

NOTE: SHADOWS CAST ON THE 21ST OF JUNE.

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Project:
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EAST LAU

Client name:
D.B. INVES

Drawing:
SUN SHAD

Appendix B

Certificate of Title

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
60333	1
EDITION	DATE OF ISSUE
7	07-Aug-2013

SEARCH DATE : 29-Sep-2017
SEARCH TIME : 11.43 AM

DESCRIPTION OF LAND

City of LAUNCESTON
Lot 1 on Diagram 60333 (formerly being 67-39NS)
Derivation : Portion of 10 Perches Sec. C.1 Gtd. to J. Shields
Prior CT 2356/35

SCHEDULE 1

M412949 TRANSFER to DARREN BAKER INVESTMENTS PTY LTD
Registered 16-Apr-2013 at 12.01 PM

SCHEDULE 2

Reserv[redacted]

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

P. B. Grubb
101-194 C.T.

REGISTERED NUMBER
60333

N.S.a 67/39

DIAGRAM FROM SURVEY

COUNTY OF
CITY OF LAUNCESTON
PARISH OF

No. OF APPLICATION

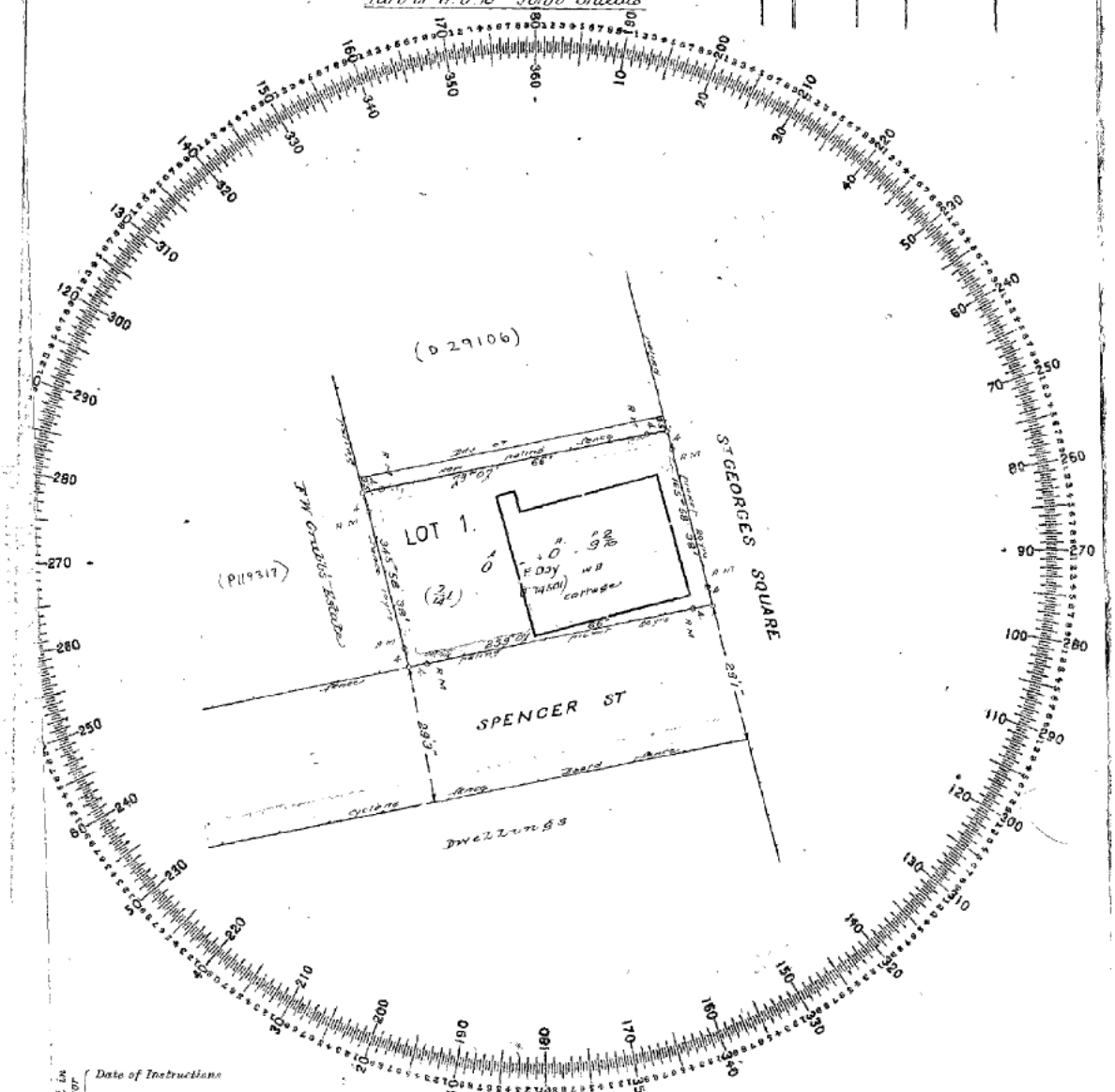
"LOT 1" ADDED 20 I. '93

Scale 20 feet to an inch.

Part of C.T. CL-194 P.B. Grubb Owner
Part of O.S.O. 16 John Shields

REFERENCE TO CORNERS

COR.	BEARING	DISTANCE IN LINKS	FROM



To be filled in by Surveyor

Date of Instructions
Survey commenced 24 10 28
Survey finished 24 10 28
Error of close 1 in Nil

Upon examination

Plotted by
Examined as to boundaries
Mathematically checked
Entered on card by

I Alfred William Martin Brewer of Launceston Authorised Surveyor, do solemnly and sincerely declare that this plan has been made from surveys executed by me or under my own personal supervision, inspection, and field check, and that both plan and survey are correct, and have been made in accordance with the by-laws of the Surveyor's Board, dated 1st May, 1913.

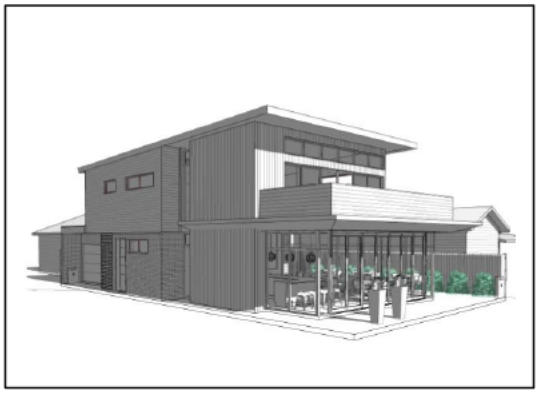
And I make this solemn declaration by virtue of Section 132 of "The Evidence Act, 1910."

A W Brewer
Authorised Surveyor.

Declared at Launceston this 28th day of October 1929, before me,

Justice of the Peace.

TRAFFIC & CIVIL SERVICES



6 ST GEORGES SQUARE CAFÉ AND RESIDENCE DEVELOPMENT, EAST LAUNCESTON

TRAFFIC IMPACT ASSESSMENT

JANUARY 2019

6 St Georges Square Café and Residence Development, East Launceston

TRAFFIC IMPACT ASSESSMENT

- Final
- January 2019

Traffic & Civil Services
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Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
1	26th July 2018	R Burk	R Burk	26th July 2018	Draft 1
2	21st Aug 2018	R Burk	R Burk	21st Aug 2018	Final
3	4th Dec 2018	R Burk	R Burk	4th Dec 2018	Final
4	24th Jan 2019	R Burk	R Burk	24th Jan 2019	Draft
5	30th Jan 2019	R Burk	R Burk	30th Jan 2019	Final

Distribution of copies

Revision	Copy no	Quantity	Issued to
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Final	1	1	Angela Verze, Prime Design
Final	1	1	Ashley Brooke, 6ty and Angela Verze, Prime Design
Draft	1	1	Ashley Brooke, 6ty and Angela Verze, Prime Design
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Printed:	30 January 2019
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Project manager:	Richard Burk
Name of organisation:	TBA
Name of project:	6 St Georges Square Cafe TIA
Name of document:	6 St Georges Square Cafe TIA
Document version:	Final
Project number:	

1. Introduction

1.1 Background

This TIA reviews the proposed ground floor Café and first floor residence at 6 St Georges Square, East Launceston.
The review considers the adjacent road network, road safety, parking requirements and impact of traffic generated by the development.

This Traffic Impact Assessment (TIA)should be submitted with the development application for the proposal and has been prepared based on Department of State Growth guidelines and provides details as follows:

- Anticipated additional traffic and pedestrian movements
- The significance of the impact of these movements on the existing road network
- Any changes required to accommodate the additional traffic

1.2 Objectives

A traffic impact assessment is a means for assisting in the planning and design of sustainable development proposals that consider:

- Safety and capacity
- Equity and social justice
- Economic efficiency and the environment and
- Future development with traffic projections for 10 years

1.3 Scope of Traffic Impact Assessment (TIA)

This TIA considers in detail the impact of the proposal on St Georges Square and the adjacent streets including Spencer Street and Arthur Street which is a collector road linking Launceston with High Street and East Launceston.

1.4 References

- RTA Guide to Traffic Generating Developments – 2002
- Launceston Interim Planning Scheme 2015
- AS/NZS 2890.6:2009 Parking Part 6: Off street parking for people with disabilities
- National Construction Code 2014 – Part D3

2. Site Description

The proposed Café redevelopment site is shown in figure 1. The land is generally level and adjacent to the St Georges Square parkland with established trees and road frontage to St Georges Square. The proposed Café site is zoned Local Business and adjacent lots are zoned Inner Residential.

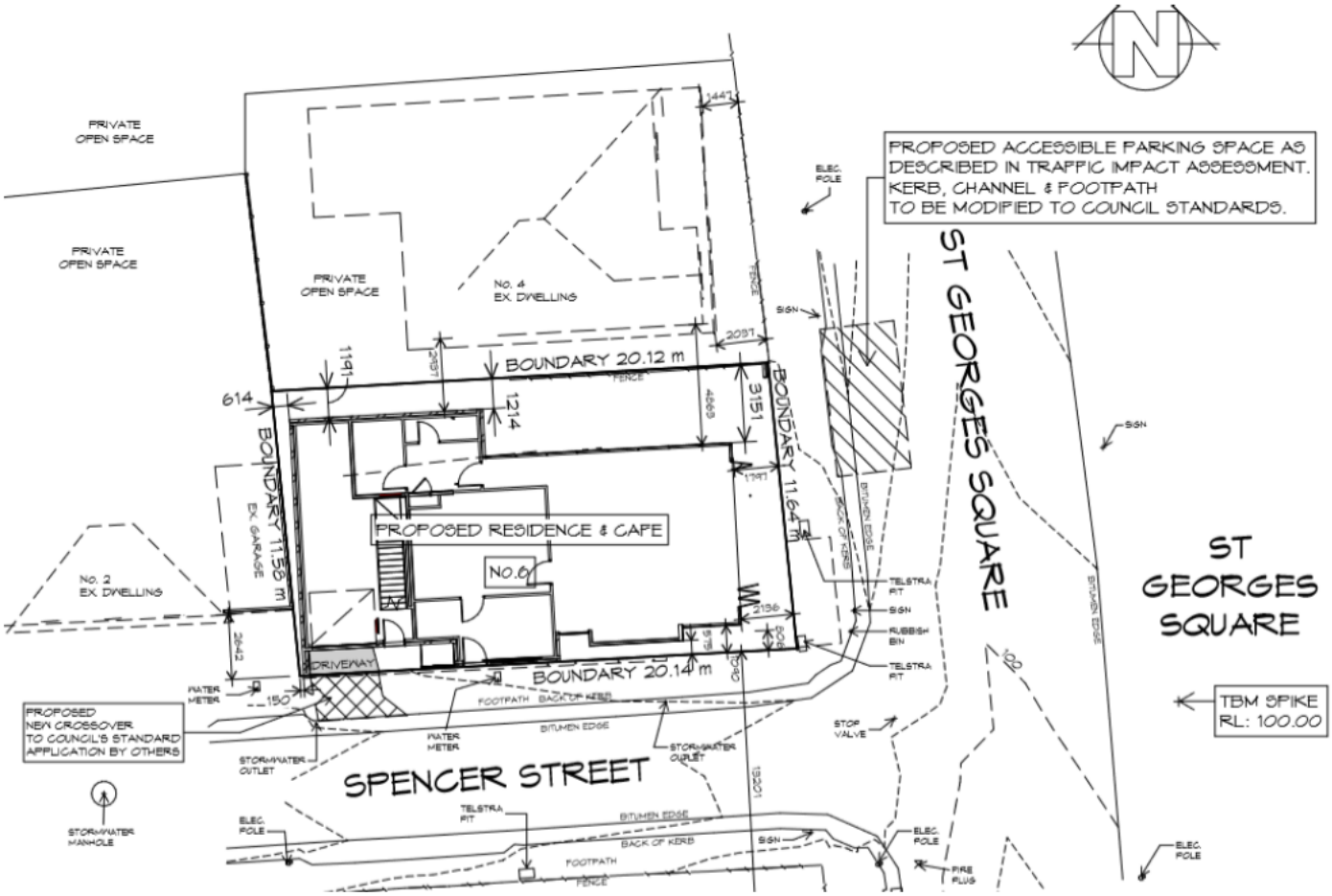
Nearby Arthur Street and High Street provide access to Launceston city centre.

Figure 2 shows the local setting and figure 3 the proposed development layout.

Figure 1 - Location of proposed Café redevelopment

Figure 2 – Local setting

Figure 3 – Proposed development layout showing proposed accessible parking space and



3. Proposed Development, Planning Scheme and Road Owner objectives

3.1 Description of Proposed Development

The proposal is to redevelop the existing ground floor corner shop and residence into a ground floor Café and first floor single bedroom residence. 6 St Georges Square has a lot area of 233m² and is proposed to be developed with the following floor areas:

- Café ground floor 118 m² including the entry area, toilet and Kitchen and excluding the garage
- First Floor dwelling area 108.59 m² including a single bedroom

Appendix B contains the site plans, floor plans and building elevations.

A single undercover off-street parking space is proposed with the renovated residence.

3.2 Council Planning Scheme

The proposed development involves land currently zoned Local Business in accordance with the Launceston Interim Planning Scheme 2015 shown in Figure 4.

3.3 Local Road Network Objectives

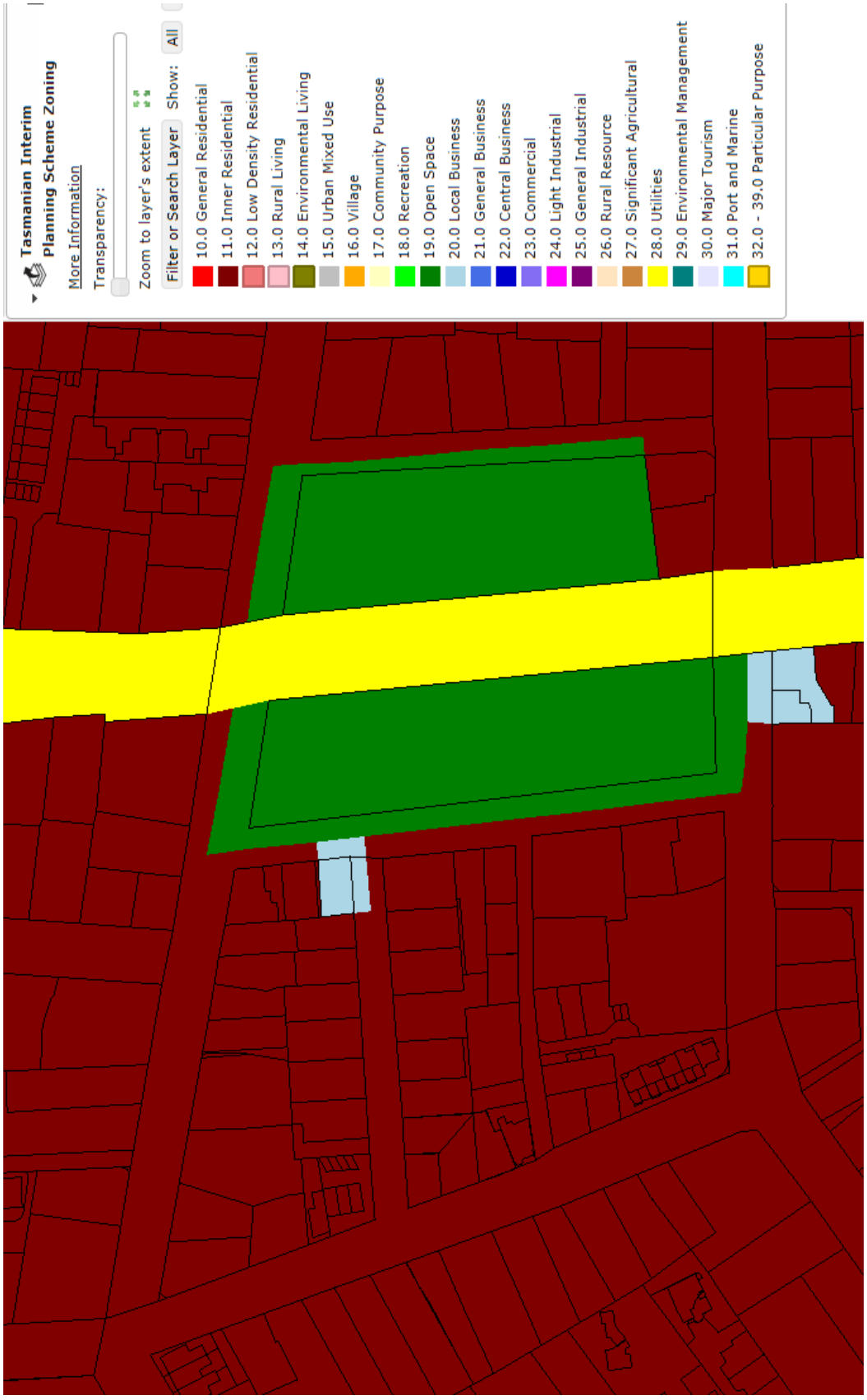
The Launceston's Transport Futures document outlines Launceston City Council's vision for the transport system, see following extract.

Extract from Launceston's Transport Futures adopted by LCC Dec 2012

Launceston's transport system will deliver:

- An efficient, equitable, safe, sustainable and adequately funded system
- Safe, liveable and healthy communities with good access to local jobs, education, services and recreation
- Land uses that emphasise compact and complete communities
- An informed, engaged public, strong partnerships with others and leadership in sustainable investments

Figure 4 – Launceston Interim Planning Scheme 2015 – East Launceston



4. Existing Conditions

4.1 Transport Network

The local road network at East Launceston consists of a residential, collector and arterial roads. High Street is the closest arterial and Arthur Street the closest collector road, the others are residential streets are St Georges Square and Spencer Street. There are no State Roads nearby and the General Urban default speed limit of 50km/hr applies.

The existing shop at 6 St Georges Square appears to attract a mix of local customers who walk or drive to the shop. During inspection times there has always been on street parking available both sides of St Georges Square beside the shop.

4.1.1 High and Arthur Streets, East Launceston

The High / Arthur Street intersection is the closest and busiest intersection near the shop and is managed with a roundabout which appears to operate quite well.

High Street is an arterial road and carries about 10,000 vehicles per day. It supports mobile takeaway parking on the east side and unrestricted all-day parking on the west side, within 50m walking distance of the shop via the footpath through St Georges Square Park. High Street has footpath both sides and one traffic lane in each direction and is a bus route.

Arthur Street is a collector road and carries about 4,000 vehicles per day and supports on street parking and footpath both sides of the road. The Arthur / St Georges Square junction is about 30m from the shop. The parking lanes are 2.0m wide and the traffic lanes are 4.6m and 5.0m wide in the east and west bound direction respectively with 2.7m and 2.0m wide footpaths on each side. On street parking consists of a mix of 3P, unrestricted and 3P Residential Parking Permit Area C parking.

Figure 5 – Looking north along St Georges Square towards Arthur Street

Figure 6 Looking east along Arthur Street from St Georges Square

Figure 7 Looking west along Arthur Street from opposite St Georges Square

4.1.2 St Georges Square and Spencer Street

St Georges Square is a residential street and carries about 300 vehicles per day and supports on street parking both sides of the road. The sealed width varies between 9.0-9.6m as there is no kerb on the east side of the road. With parking both sides the trafficable width of the road is typically 5.5m which supports two-way flow. There is a 2.7m wide footpath on the eastern side of the road only.

South of the shop, parking on the eastern side is unrestricted and on the western side subject to 3P Residential Parking Permit Area C parking.

North of the shop parking on the eastern side is ¼ P and on the western side consists of two 5minute parking spaces with the remainder 3P Residential Parking Permit Area C parking.

Spencer Street is a narrow residential street and carries about 40 vehicles per day and supports on street parking on the north side only. There is kerb & channel with footpath both sides of the road. The footpaths are typically 2.0m wide and the trafficable width of road from face to face of kerb is 5.3m. With No Parking restrictions on the south side of the road and parking on the north side the trafficable width of the road is 3.3m.

Street lighting exists at intersections and the road infrastructure is in good condition.

Figure 8 – Looking south west along St Georges Square towards Spencer Street junction

Figure 9 – Looking south east along St Georges Square towards Spencer Street junction

Figure 10 – Looking west along Spencer Street from St Georges Square

Figure 11 – Looking east along Spencer Street towards St Georges Square

Figure 12 Looking south along St Georges Square from Spencer Street

Figure 13 – Looking north along St Georges Square from Spencer Street

Location of proposed accessible car parking space

4.2 Traffic Activity

Traffic turning count surveys were conducted during the pm peak of Friday 13th July 2018 and am peak of Monday 16th July 2018 to ascertain extent of traffic activity at the St Georges Square junctions with Arthur Street and Spencer Street. Figures 14 and 15 summarise findings from the surveys. See appendix A for traffic survey data.

Figure 14 – St Georges Square / Arthur Street traffic count data

Junction	Occasion			
St Georges Square	Surveyed		Estimated Peak	
and Arthur Street	Tuesday	Friday	AM	PM
	10th July 2018	6th July 2018		
	8:30-9:00	17:10-17:50	8-9AM	5-6PM
Arthur Street				
East Bound	85	149	170	298
West Bound	74	76	148	152
AADT (vehicles per day)			3840	
St George Square				
North Bound	10	12	20	24
South Bound	5	8	10	16
AADT (vehicles per day)			350	

Figure 15 – St Georges Square / Spencer Street traffic count data

Junction	Occasion			
St Georges Square	Surveyed		Estimated Peak	
and Spencer Street	Tuesday	Friday	AM	PM
	10th July 2018	6th July 2018		
Time	8:05-8:25	16:30-17:10	8-9AM	5-6PM
Spencer Street				
East Bound	1	1	3	2
West Bound	1	2	3	3
AADT (vehicles per day)			53	
St George Square				
North Bound	4	6	12	9
South Bound	9	7	27	11
AADT (vehicles per day)			293	

St Georges Square

The estimated average annual daily traffic (AADT) for St Georges Square varies because different intersections are involved. The AADT outside the shop is likely to be between 293 and 350 vehicles per day. An AADT of 300 vehicles per day is normal for a short residential street with development on only one side.

Arthur Street

An AADT of 3,840 vehicles per day is in the normal range for a collector road.

Spencer Street

An AADT of 53 vehicles per day is low for a residential street fully developed both sides with a shop at one end. The narrow width could possibly be a factor.

4.3 Crash History

The Department of State Growth is supplied with reported crashes by Tasmania Police. The Department maintains a crash database from the crash reports which is used to monitor road safety, identify problem areas and develop improvement schemes.

The 5-year reported crash history for St Georges Square and Spencer Street records no crashes.

4.4 Services

There are telecommunication services in the footpath on St Georges Square at the corner of the existing shop as can be seen in figure 13.

4.5 On Street Parking Review

A parking utilisation survey was conducted during July 2018. Figures16 and 17 show parking supply and demand recorded during various weekdays at estimated times of peak utilisation i.e. around lunch time when commuter and local shop customer parking is at a peak.

4.5.1 Parking Supply

Figure 16 – On Street Parking Supply in the vicinity of the shop and the St Georges Square / Spencer Street Junction

Zone	Area	Duration	Supply (spaces)
Within 80m			
	A	5 Minute	2
	B	1/4 P	5
	C	3 P - Area Permit	23
	D	3P	7
	E	Unrestricted	17
	Total		54
Within 80 - 120m			
	C	3 P - Area Permit	12
	D	3P	7
	E	Unrestricted	19
	Total		38
Total within 120m			92

4.5.2 Parking Demand

Figure 17 – On Street Parking Supply - St Georges Square / Spencer Street Junction

Zone	Area	Duration	Supply	Unoccupied Spaces at Mid-day						Mid-day Demand	Mid-day Utilisation %
				16-Jul-18 Mon.	17-Jul-18 Tues.	19-Jul-18 Thur.	23-Jul-18 Mon.	24-Jul-18 Tues.	Average		
Within 80m											
	A	5 Minute	2	2	2	2	0	1	1	1	30
	B	1/4 P	5	5	5	5	2	2	4	1	24
	C	3 P - Area Permit	23	15	14	19	10	19	15	8	33
	D	3P	7	7	5	7	4	3	5	2	26
	E	Unrestricted	17	2	3	5	2	3	3	14	82
	Total		**54**	**31**	**29**	**38**	**18**	**28**	**29**	**25**	**47**
Within 80 - 120m											
	C	3 P - Area Permit	12	7	8	8	10	7	8	4	33
	D	3P	7	1	2	3	1	1	2	5	77
	E	Unrestricted	19	3	6	12	4	9	7	12	64
	Total		**38**	**11**	**16**	**23**	**15**	**17**	**17**	**22**	**57**
Total within 120m			**92**	**42**	**45**	**61**	**33**	**45**	**44**	**47**	**51**

4.6 Road Safety Review

From inspection of St Georges Square, Spencer Street and the junction with Arthur Street there do not appear to be any specific road safety deficiencies for road users. The roads cater for pedestrians with footpaths and on street parking both sides.

The local speed environment appears to be about 40km/hr despite the General Urban Speed Limit of 50km/hr. The low speed environment is appropriate for the level of pedestrian activity observed.

From site observations pedestrian activity on St Georges Square is relatively high. Pedestrians can be regularly observed crossing St George Street and Spencer Street near the shop. Figure 18 summarises observations.

Figure 18 – Pedestrian activity on St Georges Square

Pedestrian Counts	Occasion			
	Surveyed		Estimated	
	Tuesday	Friday	AM	PM
	5th June 2018	1st June 2018		
	Time		8-9AM	5-6PM
Crossing St Georges Square	8:30-9:00	17:10-17:40		
East Bound	2	2	4	4
West Bound	11	3	22	6
Total			**26**	**10**
Crossing Spencer Street	8:05-8:25	16:30-17:10		
North Bound	8	3	24	4.5
South Bound	3	3	9	4.5
Total			**33**	**9**

- The east - west pedestrian activity crossing St Georges Square was observed near the Arthur Street junction.

- The north-south pedestrian activity was observed on the west side of St Georges Square crossing Spencer Street.

Safe System Approach to assessing pedestrian safety

This approach involves application of a Safe System assessment framework for identifying and reducing crash risk for all road users. This framework involves consideration of risk exposure, likelihood and severity to yield a risk framework score. In terms of pedestrian safety St Georges Square scores are as follows:

- Pedestrian exposure is low-moderate (low no. of cars & mod. no. of peds) i.e. 2/4
- Crash likelihood is low-moderate (footpaths but ordinary road crossings) i.e. 2/4
- Crash severity is low-moderate (30- 40 km /hr speed environment) i.e. 2 /4.

This yields a safe system score of 8/64 which is a low risk score so a low-cost treatment such as pedestrian warning signage could be justified.

5. Traffic Generation and Assignment

This section of the report describes how traffic generated by the proposal is distributed within the adjacent road network now and in ten years (2029).

5.1 Traffic Growth

The rate of background traffic growth on St Georges Square and surrounding streets due to other development is assumed to be 0% because of the fully developed nature of roadside development in the area.

5.2 Trip Generation

The applicable traffic generation rates for the proposal are as follows:

- Existing ground floor 1bedroom residence at 4 trips /day and 0.4 trips / peak hour
- Existing 120m² Corner Shop at 56 trips / 100m² GFA/day and peak hour rate of 6.7 trips/hr with 67 trips/day

To be replaced with proposed:

- Upstairs 1bedroom residence at 4 trips /day and 0.4 trips / peak hour
- Ground floor 118 m² Café at 56 trips / 100m² GFA/day and peak hour rate of 6.6 trips /hr with 66 trips / day

Accordingly, the proposal is expected to result in no increase in traffic.

This is consistent with Traffic Generation Rates for Key Land Uses sourced from the RTA Guide to Traffic Generating Developments under section 1.4 References.

In terms of expected deliveries to the shop:

- 2 deliveries daily for fruit/veg and milk/bread. These stops are 2-3minutes in length and occur at around 7am each day.
- Other deliveries are estimated to occur twice weekly on a Monday and Friday around midday and involve small trucks.
- It is anticipated that deliveries will be via short term parking on St Georges Square.

5.3 Trip Assignment

It is estimated that the future traffic movements will have a similar arrival and departure patterns to the current situation as summarised in figures 14 and 15.

6. Impact on Road Network

6.1 Traffic impact

6.1.1 Proposed 6 St Georges Square development

The proposal will contribute no additional trips per day to current traffic flow on St Georges Square once fully developed. The low levels of vehicular traffic involved means that there will be no traffic capacity concerns with the proposal.

The low volume and speed of traffic on St Georges Square and Spencer Street suggests there should be no traffic safety concerns with the proposal. It is noted that there is above average pedestrian activity on St Georges Square for a residential street due to shop customers and commuter parking nearby. Pedestrian Warning signage could be introduced to improve driver awareness and pedestrian safety.

The on-street parking utilisation survey suggests that there is unutilised parking space for short term (5-15 minute), medium term (3 hour) and long term (>3hour) customer parking within 80m and 120m of the development site that can cater for increased customer demand and residential parking if necessary, see figure17.

As an observation, the 5*1/4P parking spaces could have the parking duration adjusted for most of the spaces to 1 hour, at Councils discretion, depending on short term parking demand.

6.2 Launceston Interim Planning Scheme 2015 – Road and Railway Assets Code E4

6.2.1 Code E4.5.1 Existing road accesses and junctions

Acceptable solution A3: *The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.*

The proposal satisfies acceptable solution A3 as AADT is 300 movements per day and the proposal will not generate any additional movements per day i.e. a 0 % increase.

6.2.2 Code E4.6.2 Road accesses and junctions

Acceptable solution A3: *No more than one access providing both entry and exit, or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less.*

The proposal satisfies acceptable solution A3 as one new vehicular access is proposed.

6.2.3 Code E4.6.4 Sight distance at accesses, junctions and level crossings

Acceptable solution A1: *Sight distances at:*

(a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E4.6.4; and

(b)rail level crossings must comply with AS1742.7.

The proposal does not satisfy acceptable solution A1 as the proposed vehicular access is within a very low speed environment estimated at 30km/h within Spencer Street which is a very narrow, short and quite residential access street and Table E4.6.4 does not advise SISD requirements in this situation.

As the road frontage speed is estimated at 30km/hr achievement of Performance Criteria P1 needs to be demonstrated. Reference is made to AS/NZS 2890.1:2004 Parking facilities – Part 1: Off-street car parking. This standard caters for 40km/hr and higher road frontage speeds and domestic property access requirements in Part 3.2.4 of the standard. Sight distance is calculated from where the drivers eye line is 2.5m setback from the edge of the road.

For a frontage road speed of 40km/hr:

- absolute minimum sight distance is 30m
- general minimum sight distance is 35m
- desirable sight distance is 55m

This standard however does not provide advice where road frontage speeds are less than 40km/h. Accordingly, from first principals, for a reaction time of 2.0 secs, stopping sight distance (SSD), which is an absolute minimum sight distance, is 23m in a 30km/h speed environment. The available sight distance is 24m to the left i.e junction with Georges Square. Sight distance to the right varies between 25 and 100m depending on the extent of on street parking. Other existing accesses in the area have similar sight distances due to the proximity of the Spencer Street / Georges Square junction.

Performance criteria P1: *The design, layout and location if an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to:*

(a) The nature and frequency of the traffic generated by the use
(b) The frequency of use of the road or rail network
(c) Any alternative access
(d) The need for the access, junction or level crossing
(e) Any traffic impact assessment
(f) Any measures to improve or maintain sight distance; and
(g) Any written advice received from the road or rail authority

Accordingly, it is considered that Performance Criteria P1 is satisfied.

6.3 Launceston Interim Planning Scheme 2015 – Parking and Sustainable Transport Code E6

6.3.1 Code E6.5.1 Car parking numbers

Acceptable solution A1: *The number of car parking spaces must:*

(a) Not be less than 90% of the requirements of Table E6.1

Residential (any residential use in any other zone)

- *1 car space per bedroom*

The proposed 1bedroom residential dwelling has 1 proposed parking space satisfying Acceptable solution A1.

Food services

- *1 car space/15m² of gross floor area*
- *1 bicycle space/75m² of gross floor area*

The proposed food services do not satisfy Acceptable solution A1 the café has a floor area of 118 m² requiring 8 car parking spaces and no such off-street parking is proposed.

2 bicycle parking spaces are provided satisfying Acceptable solution A1.

Performance Criteria P1.1:
The number of carparking spaces for other than residential uses, must be provided to meet the reasonable needs of the, having regard to:

(a) The availability of off-road public car parking spaces within reasonable walking distance;
(b) The ability of multiple users to share spaces because of:
  (1) Variations in car parking demand over time; or
  (2) Efficiencies gained by consolidation of car parking spaces
(c) The availability and frequency of public transport within reasonable walking distance of the site
(d) Any site constraints such as existing buildings, slope, drainage, vegetation and landscaping
(e) The availability, accessibility and safety of on-road parking, having regard to the nature of the roads, traffic management and other uses in the vicinity
(f) An assessment of the actual car parking demand determined in light of the nature of the use and development
(g) The effect on streetscape
(h) The recommendations of any traffic impact assessment prepared for the proposal

The proposal assumes that because the existing short and medium term on-street parking is enough to cater for the existing food services business (120m²) i.e. the corner store, it will be enough for the proposed food services business (118m²) i.e. the café. There is evidence that this assumption is valid and performance criteria P1.1, 1.2 and 1.3 are satisfied.

P1.1

Carparking spaces for other than residential use is provided in the form of the following on-street parking spaces:

- 2* 30% utilised 5minute duration spaces at the shop front
- 5* 24% utilised 1/4P i.e. 15minute duration spaces opposite the shop
- 23*33% utilised 3P Area Permit spaces within 80m of the shop.
- 7* 26% utilised 3P i.e. 3hour duration spaces within 60m of the shop
- 3* unutilised unrestricted spaces within 80m of the shop

This amounts to 5 short term spaces available within 20m and 24 medium-term and long-term parking spaces available within a reasonable walking distance of 80m i.e a total of 29 available spaces.

The short and long-term parking spaces provide for a range of customer time demands.
Public transport is within reasonable walking distance of the site i.e. 80m.
There are no site constraints due to existing buildings, surface slopes, drainage, vegetation or landscaping.
The on-street spaces are within a safe low speed environment for pedestrians and are easily accessible.
From parking demand survey data there is evidence of unutilised capacity:

- Short term parking spaces- 30% utilised
- 3P spaces 26% utilised within 60m of the shop
- Long term parking spaces – 82 % utilised within 80m of the shop and 64% utilised 80-120m from the shop

There would be minimal effect on the streetscape. The St Georges Square streetscape is dominated by the park immediately adjacent. Within 80m of the shop there are 54 parking spaces and on average 29 are available. This traffic impact assessment report supports the proposed utilisation of existing on street parking on traffic grounds.

Performance Criteria P1.3:

The number of car parking spaces complies with any relevant parking precinct plan.

P1.3 is satisfied as there is no relevant parking precinct plan.

Acceptable solution A2

The number of accessible car parking spaces by persons with a disability for uses that require 6 more parking spaces must be in accordance with Part D3 of the National Construction Code 2014, as amended from time to time.

The proposal can satisfy acceptable solution A2 by retrofitting an accessible space to the on- street parking outside the café shopfront:

- D3.5 Accessible parking for one space can be provided – Class 6 café (1 space for every 50 car parking spaces)
- D3.8 Tactile indicators will be provided.
- D3.11 Ramps (a) Ramp rise limit of 3.6m will not be exceeded.

6.3.2 Code E6.5.2 Bicycle parking numbers

Acceptable solution A1: *The number of bicycle parking spaces must be provided on either the site or within 50m of the site in accordance with the requirements of Table E6.1.*

Food services

- *1 bicycle space/75m² of gross floor area*

The proposed café satisfies Acceptable solution A1 as the floor area of 149m² warrants 2 bicycle parking spaces which are provided.

6.3.3 Code E6.6.2 Design and layout of accessible parking (A1.2-A1.4)

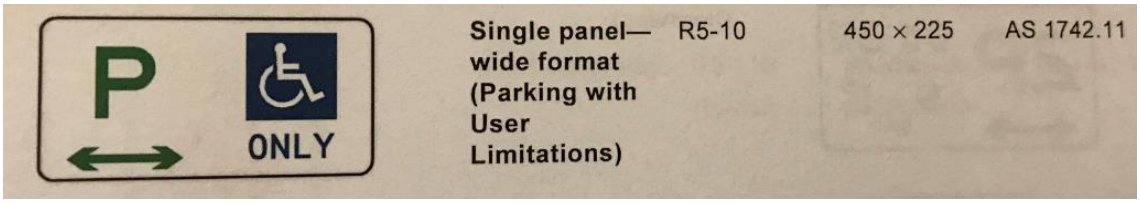
A1.2 - All accessible spaces for use by persons with a disability must be located closest to the main entry point to the building.

Satisfied as shown in figure 3, proposed space is adjacent main entry point to the building.

A1.3 - Accessible spaces for people with a disability must be designated and signed as accessible spaces where there are 6 spaces or more.

Satisfied. Pavement markings will be applied to the sealed surface to designate the bay and signed with parking control signage R5-10 as shown in figure19.

Figure 19 R5-10 Parking Regulation sign to be used for accessible bay



A1.4 Accessible car parking spaces for use by persons with disabilities must be designed and constructed in accordance with AS/NZS 2890.6-2009 Parking facilities -Off-street parking for people with disabilities.

An accessible car parking space and shared area space can be provided as per the standard – section 2.2.1 and figure 2.1 and satisfy the 1:33 (V:H) requirement for a sealed outdoor surface as per the standard - section 2.3 – Pavement Slope and Surface. The parking space and shared area can be fitted so they are all on the same grade of 1:33 (V:H), see figures 20 and 21.

To provide the accessible space the developer will need a permit from Council to modify the kerb and channel and footpath locally to allow the retrofit.

Figure 20 Elevation view of proposed accessible parking space

Figure 21 Cross section view of proposed accessible parking space

6.4 Other impacts

6.4.1 Environmental

No environmental impacts were identified in relation to:

- Noise, Vibration and Visual Impact
- Community Severance and Pedestrian Amenity
- Hazardous Loads
- Air Pollution, Dust and Dirt and Ecological Impacts
- Heritage and Conservation values

6.4.2 Street Lighting and Furniture

St Georges Square has street lighting near junctions and does not justify further road side furniture such a Bus Shelters, Seats, Direction signs, Landscaping, street trees or fencing.

7. Recommendations and Conclusions

This traffic impact assessment has been prepared to support a development application for the proposed ground floor café and first floor 1-bedroom dwelling at 6 St Georges Square, East Launceston. The assessment has reviewed the existing road conditions, crash history, traffic activity, pedestrian activity and parking utilisation.

No traffic safety issues were apparent and the five -year crash history reports no recorded crashes on St Georges Square or Spencer Street.

The traffic on St Georges Square is currently in the order of 300 vehicles per day and not projected to increase with the proposed café and dwelling. There are no traffic capacity issues with the proposal due to the very low levels of traffic involved at less than 3% of capacity.

From review of the on-street parking supply and demand survey it is apparent that there is spare short, medium and long-term parking capacity within 80m and 120m of the proposed site i.e 29 of 54 spaces are available on average within 80m and 17 of 38 spaces available within 80-120m. The replacement of the corner store shop with a café is not expected to result in a lack in available on street parking. Parking provisions required include:

- 2 off street bicycle parking spaces
- An accessible on street car parking space outside the café

Justification is provided to demonstrate that the proposal satisfies Road and Railway Assets Code E4 and Parking and Sustainable Transport Code E6 requirements of the Launceston Interim Planning Scheme 2015.

Recommendations from review of the proposal are as follows:

Recommendation #1- *Installation of 2 off-street bicycle parking spaces*

Recommendation #2 - *Retrofit of a kerb ramp outside the café on St George Street to create an on street accessible bay. One existing 5minute parking space to be converted to an accessible car parking space with R5-10 parking signage.*

Observation - *Installation of pedestrian warning signage on St Georges Square for south and north bound traffic ~ 30m from the proposed café shop front could be considered.*

Overall, it has been concluded that the proposed development will not create any traffic issues and traffic will continue to operate safely and efficiently along St Georges Square and Spencer Street. Based on the findings of this report and subject to the recommendations above, the proposed development is supported on traffic grounds.

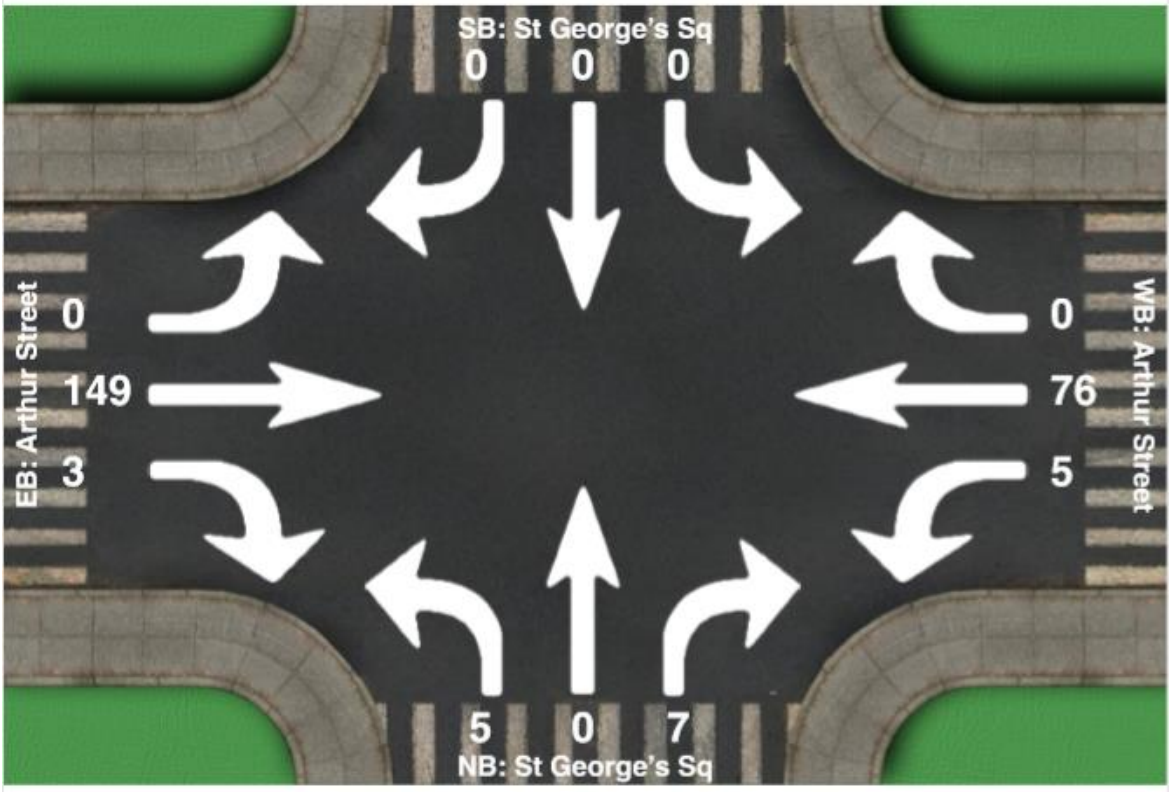
Appendices

Appendix A – Traffic Count Surveys

St George Square / Arthur Street Junction-PM

Intersection Count Summary

Location: St George's Sq at Arthur Street, Launceston
GPS Coordinates: Lat=-41.438613, Lon=147.146646
Date: 2018-07-06
Day of week: Friday
Weather:
Analyst: R Burk



Intersection Count Summary

17:11 - 17:41

Traffic & Civil
1 Cooper Crescent
Launceston, Tas , 7250
0456535746

Turn Count Summary

Location: St George's Sq at Arthur Street, Launceston
GPS Coordinates: Lat=-41.438613, Lon=147.146646
Date: 2018-07-06
Day of week: Friday
Weather:
Analyst: R Burk

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:11	0	0	0	0	10	0	0	0	0	0	20	0	30
17:15	0	0	0	2	15	0	0	0	1	0	17	0	35
17:20	0	0	0	1	11	0	1	0	2	0	25	0	40
17:25	0	0	0	1	10	0	1	0	0	0	31	0	43
17:30	0	0	0	0	16	0	1	0	2	0	36	1	56
17:35	0	0	0	1	11	0	1	0	2	0	15	2	32
17:40	0	0	0	0	3	0	1	0	0	0	5	0	9

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:11	0	0	0	0	9	0	0	0	0	0	20	0	29
17:15	0	0	0	2	14	0	0	0	1	0	17	0	34
17:20	0	0	0	1	11	0	1	0	2	0	25	0	40
17:25	0	0	0	1	10	0	1	0	0	0	31	0	43
17:30	0	0	0	0	16	0	1	0	2	0	36	1	56
17:35	0	0	0	1	11	0	1	0	2	0	15	2	32
17:40	0	0	0	0	3	0	1	0	0	0	5	0	9

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:11	0	0	0	0	1	0	0	0	0	0	0	0	1
17:15	0	0	0	0	1	0	0	0	0	0	0	0	1
17:20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:35	0	0	0	0	0	0	0	0	0	0	0	0	0
17:40	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:11	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:35	0	0	0	0	0	0	0	0	0	0	0	0	0
17:40	0	0	0	0	0	0	0	0	0	0	0	0	0

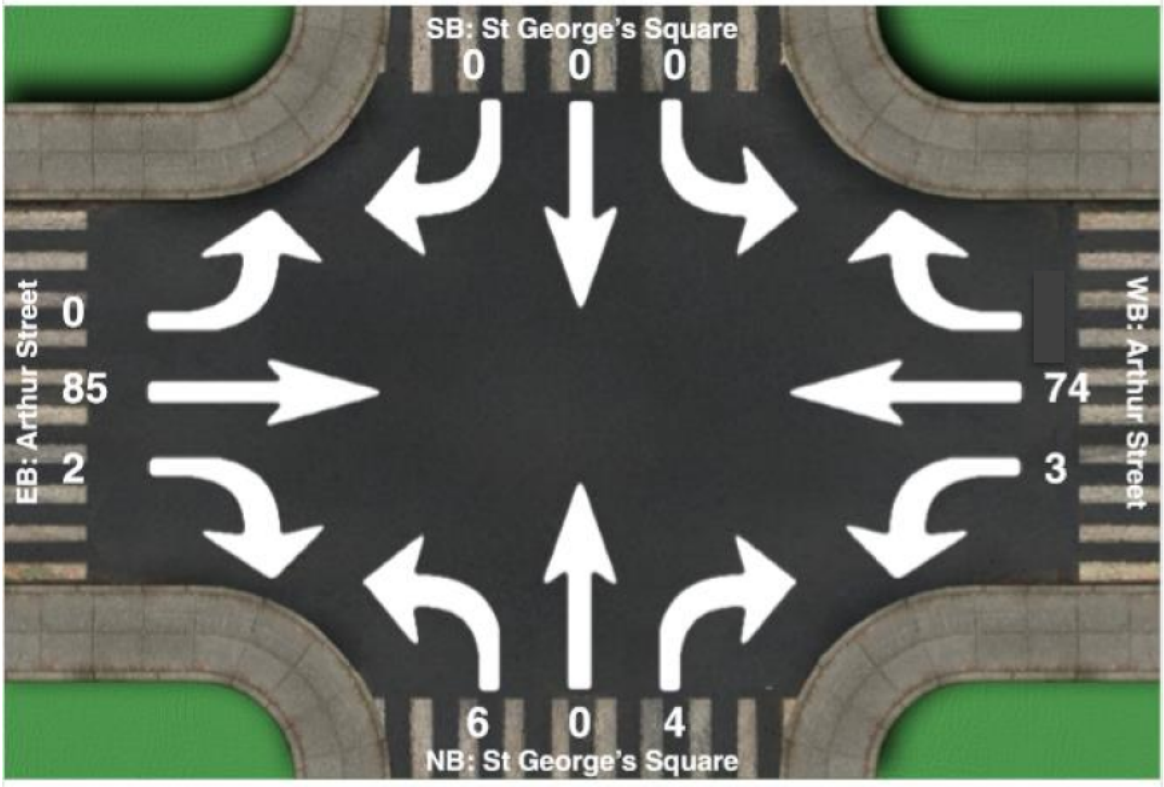
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
17:11	0	0	0	0	0	0	2	0	2	2	0	2	4
17:15	0	0	0	0	1	1	0	2	2	1	0	1	4
17:20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:35	0	0	0	1	0	1	0	1	1	0	0	0	2
17:40	0	0	0	0	0	0	0	0	0	0	0	0	0

St George Square / Arthur Street Junction-AM

Intersection Count Summary

Location: St George's Square at Arthur Street, Launceston
GPS Coordinates: Lat=-41.438609, Lon=147.146793
Date: 2018-07-10
Day of week: Tuesday
Weather:
Analyst: R Burk



Intersection Count Summary

08:27 - 08:57

Traffic & Civil
1 Cooper Crescent
Launceston, Tas , 7250
0456535746

Turn Count Summary

Location: St George's Square at Arthur Street, Launceston
GPS Coordinates: Lat=-41.438609, Lon=147.146793
Date: 2018-07-10
Day of week: Tuesday
Weather:
Analyst: R Burk

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:27	0	0	0	1	3	1	1	0	0	0	5	0	11
08:30	0	0	0	0	15	0	2	0	0	0	18	0	35
08:35	0	0	0	0	16	0	2	0	1	0	13	1	33
08:40	0	0	0	0	8	0	0	0	0	0	12	0	20
08:45	0	0	0	1	10	0	0	0	0	0	18	1	30
08:50	0	0	0	0	13	0	1	0	3	0	10	0	27
08:55	0	0	0	1	9	0	0	0	0	0	9	0	19

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:27	0	0	0	1	3	1	1	0	0	0	5	0	11
08:30	0	0	0	0	15	0	2	0	0	0	18	0	35
08:35	0	0	0	0	16	0	2	0	1	0	13	1	33
08:40	0	0	0	0	8	0	0	0	0	0	12	0	20
08:45	0	0	0	1	10	0	0	0	0	0	18	1	30
08:50	0	0	0	0	13	0	1	0	3	0	10	0	27
08:55	0	0	0	1	9	0	0	0	0	0	9	0	19

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:27	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:35	0	0	0	0	0	0	0	0	0	0	0	0	0
08:40	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	0	0	0	0	0	0	0	0
08:55	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:27	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:35	0	0	0	0	0	0	0	0	0	0	0	0	0
08:40	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	0	0	0	0	0	0	0	0
08:55	0	0	0	0	0	0	0	0	0	0	0	0	0

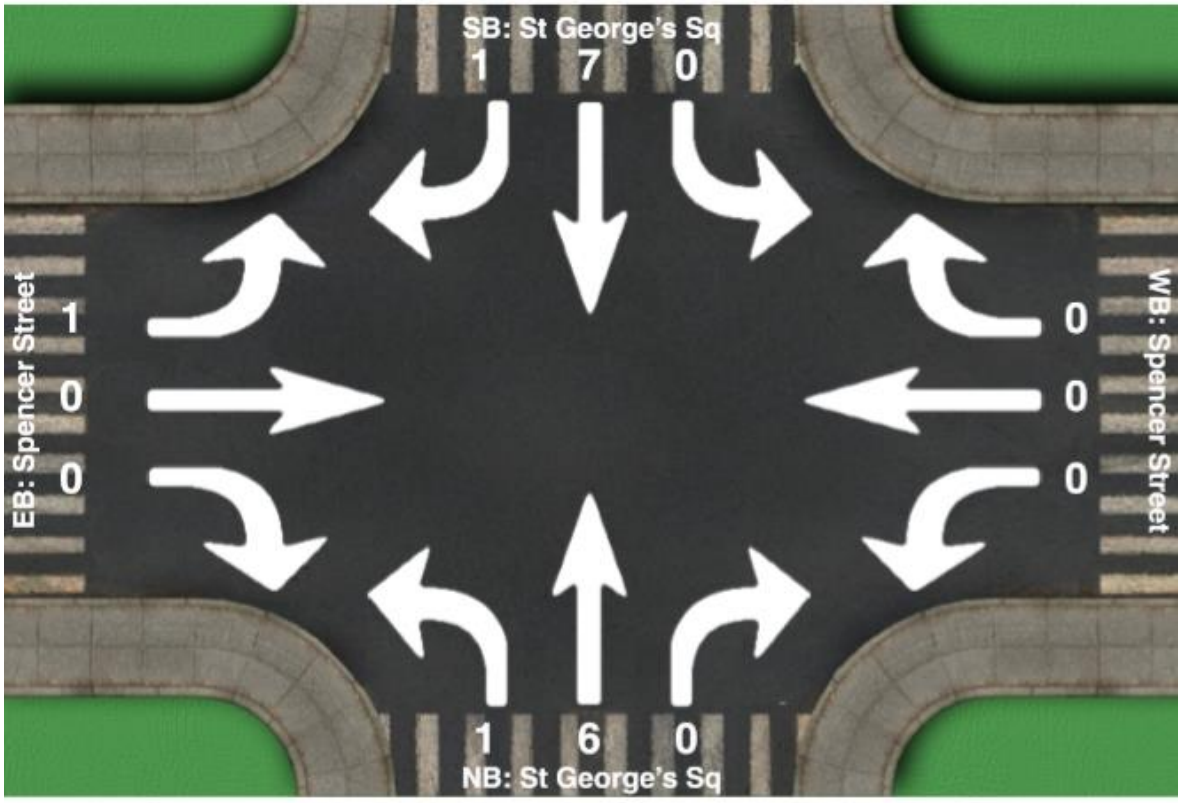
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
08:27	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	1	1	1	0	1	2
08:35	0	1	1	0	0	0	0	0	0	4	0	4	5
08:40	0	0	0	1	0	1	1	0	1	2	0	2	4
08:45	0	3	3	0	0	0	0	1	1	2	0	2	6
08:50	0	1	1	0	0	0	0	0	0	2	0	2	3
08:55	0	0	0	0	0	0	0	0	0	0	0	0	0

St George Square / Spencer Street Junction-PM

Intersection Count Summary

Location: St George's Sq at Spencer Street, Launceston
GPS Coordinates: Lat=-41.438977, Lon=147.146453
Date: 2018-07-06
Day of week: Friday
Weather:
Analyst: R Burk



Intersection Count Summary

16:28 - 17:08

Traffic & Civil
1 Cooper Crescent
Launceston, Tas , 7250
0456535746

Turn Count Summary

Location: St George's Sq at Spencer Street, Launceston
GPS Coordinates: Lat=-41.438977, Lon=147.146453
Date: 2018-07-06
Day of week: Friday
Weather:
Analyst: R Burk

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:28	0	0	0	0	0	0	0	1	0	0	0	0	1
16:30	0	1	0	0	0	0	0	0	0	0	0	0	1
16:35	0	2	0	0	0	0	0	0	0	0	0	0	2
16:40	0	2	0	0	0	0	1	0	0	0	0	0	3
16:45	0	0	1	0	0	0	0	1	0	0	0	0	2
16:50	0	1	0	0	0	0	0	0	0	1	0	0	2
16:55	0	0	0	0	0	0	0	1	0	0	0	0	1
17:00	0	1	0	0	0	0	0	3	0	0	0	0	4
17:05	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:28	0	0	0	0	0	0	0	1	0	0	0	0	1
16:30	0	1	0	0	0	0	0	0	0	0	0	0	1
16:35	0	2	0	0	0	0	0	0	0	0	0	0	2
16:40	0	2	0	0	0	0	1	0	0	0	0	0	3
16:45	0	0	1	0	0	0	0	1	0	0	0	0	2
16:50	0	1	0	0	0	0	0	0	0	1	0	0	2
16:55	0	0	0	0	0	0	0	1	0	0	0	0	1
17:00	0	1	0	0	0	0	0	3	0	0	0	0	4
17:05	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:28	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:05	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:28	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:05	0	0	0	0	0	0	0	0	0	0	0	0	0

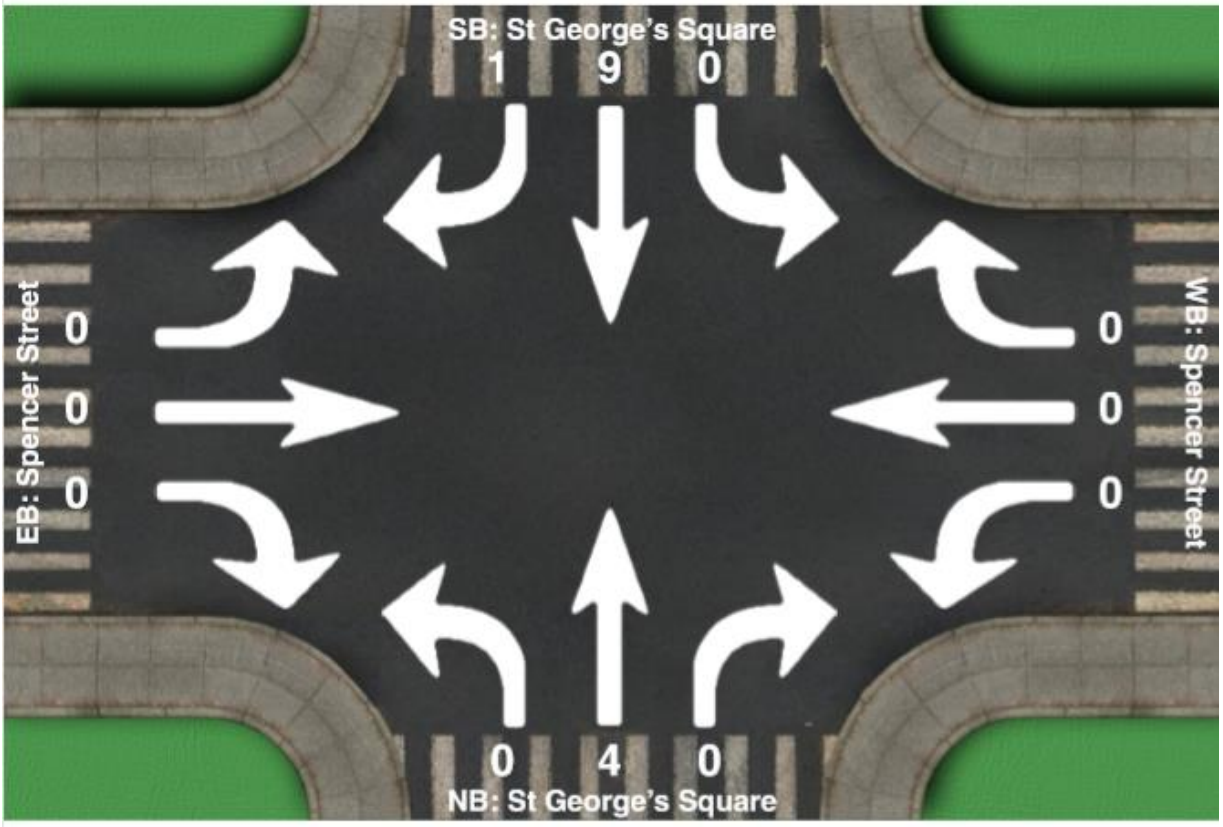
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:28	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	1	1	1	0	1	0	0	0	2
16:40	0	0	0	0	1	1	1	0	1	0	0	0	2
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	1	1	0	0	0	0	0	0	1
17:05	0	0	0	0	0	0	1	0	1	0	0	0	1

St George Square / Spencer Street Junction-AM

Intersection Count Summary

Location: St George's Square at Spencer Street, Launceston
GPS Coordinates: Lat=-41.438904, Lon=147.146620
Date: 2018-07-10
Day of week: Tuesday
Weather:
Analyst: R Burk



Intersection Count Summary

08:06 - 08:25

Traffic & Civil
1 Cooper Crescent
Launceston, Tas , 7250
0456535746

Turn Count Summary

Location: St George's Square at Spencer Street, Launceston
GPS Coordinates: Lat=-41.438904, Lon=147.146620
Date: 2018-07-10
Day of week: Tuesday
Weather:
Analyst: R Burk

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:06	0	1	0	0	0	0	0	1	0	0	0	0	2
08:10	0	1	0	0	0	0	0	2	0	0	0	0	3
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	7	1	0	0	0	0	1	0	0	0	0	9
08:25	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:06	0	0	0	0	0	0	0	1	0	0	0	0	1
08:10	0	1	0	0	0	0	0	2	0	0	0	0	3
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	7	1	0	0	0	0	1	0	0	0	0	9
08:25	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:06	0	1	0	0	0	0	0	0	0	0	0	0	1
08:10	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

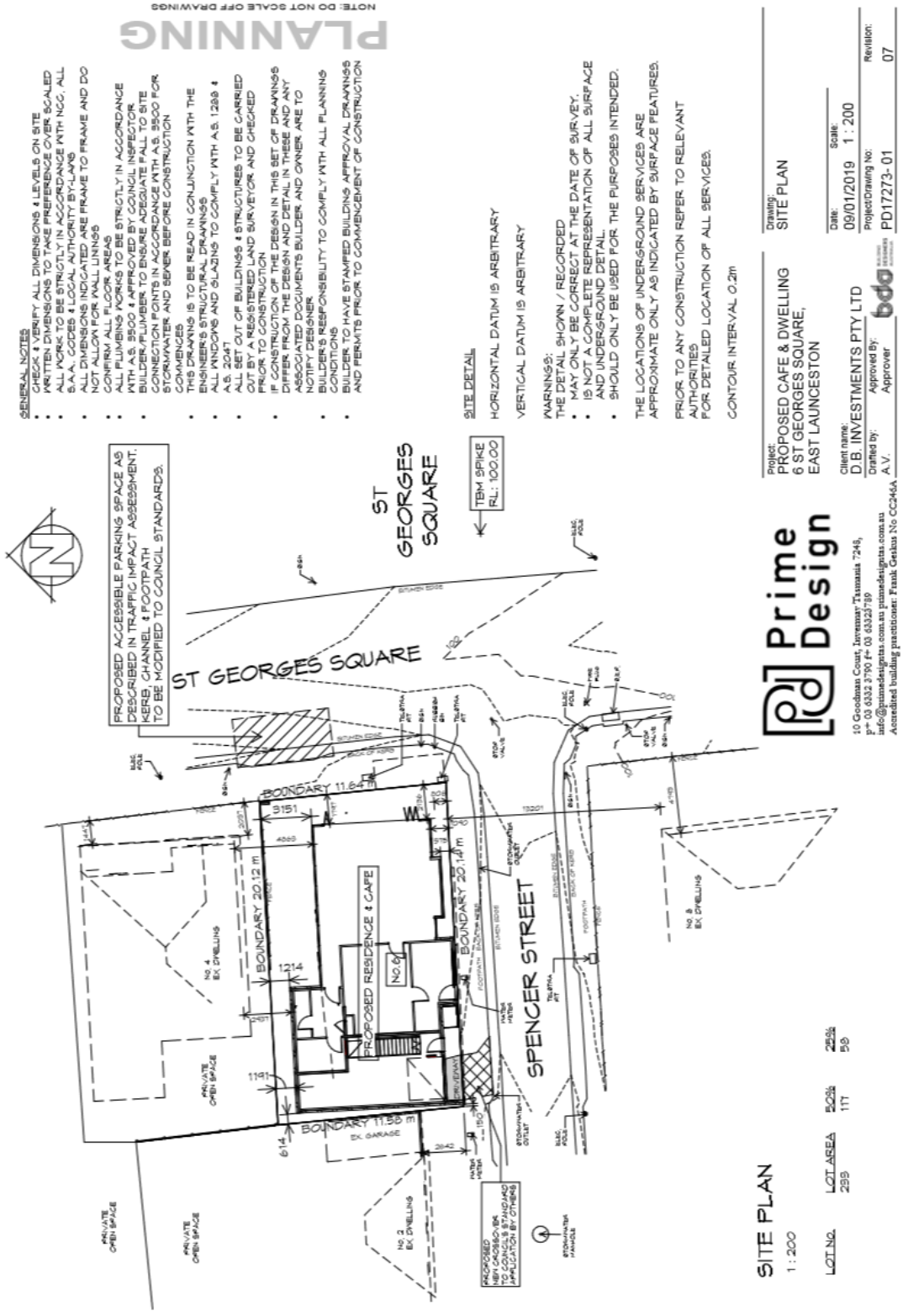
Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:06	0	0	0	0	0	0	0	0	0	0	0	0	0
08:10	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

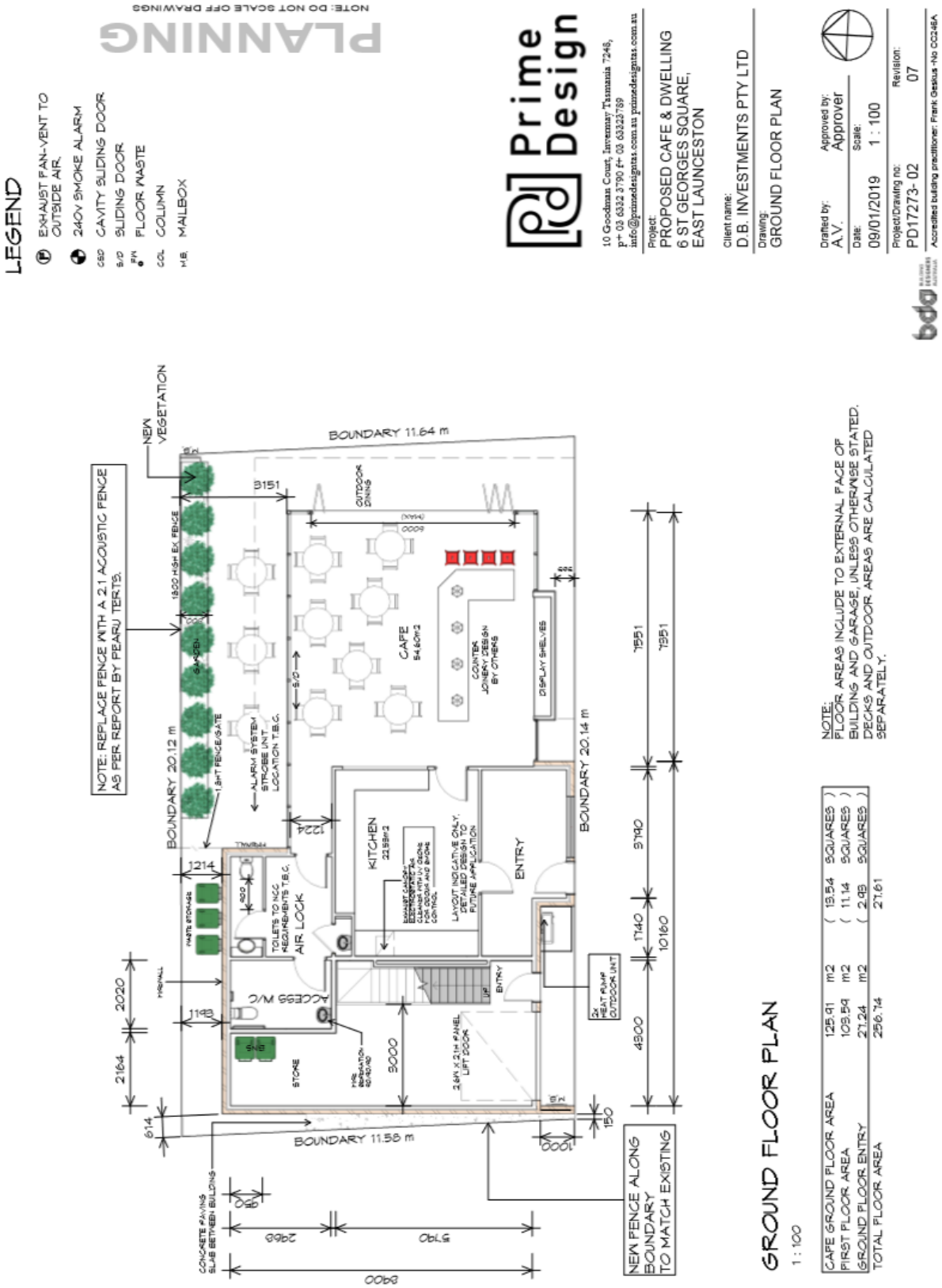
Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
08:06	0	0	0	0	0	0	1	0	1	0	0	0	1
08:10	0	0	0	0	1	1	4	1	5	0	0	0	6
08:15	0	0	0	0	1	1	0	0	0	0	0	0	1
08:20	0	0	0	0	1	1	2	1	3	2	0	2	6
08:25	0	0	0	0	0	0	1	0	1	0	0	0	1

Appendix B – Site and Building Floor Plans

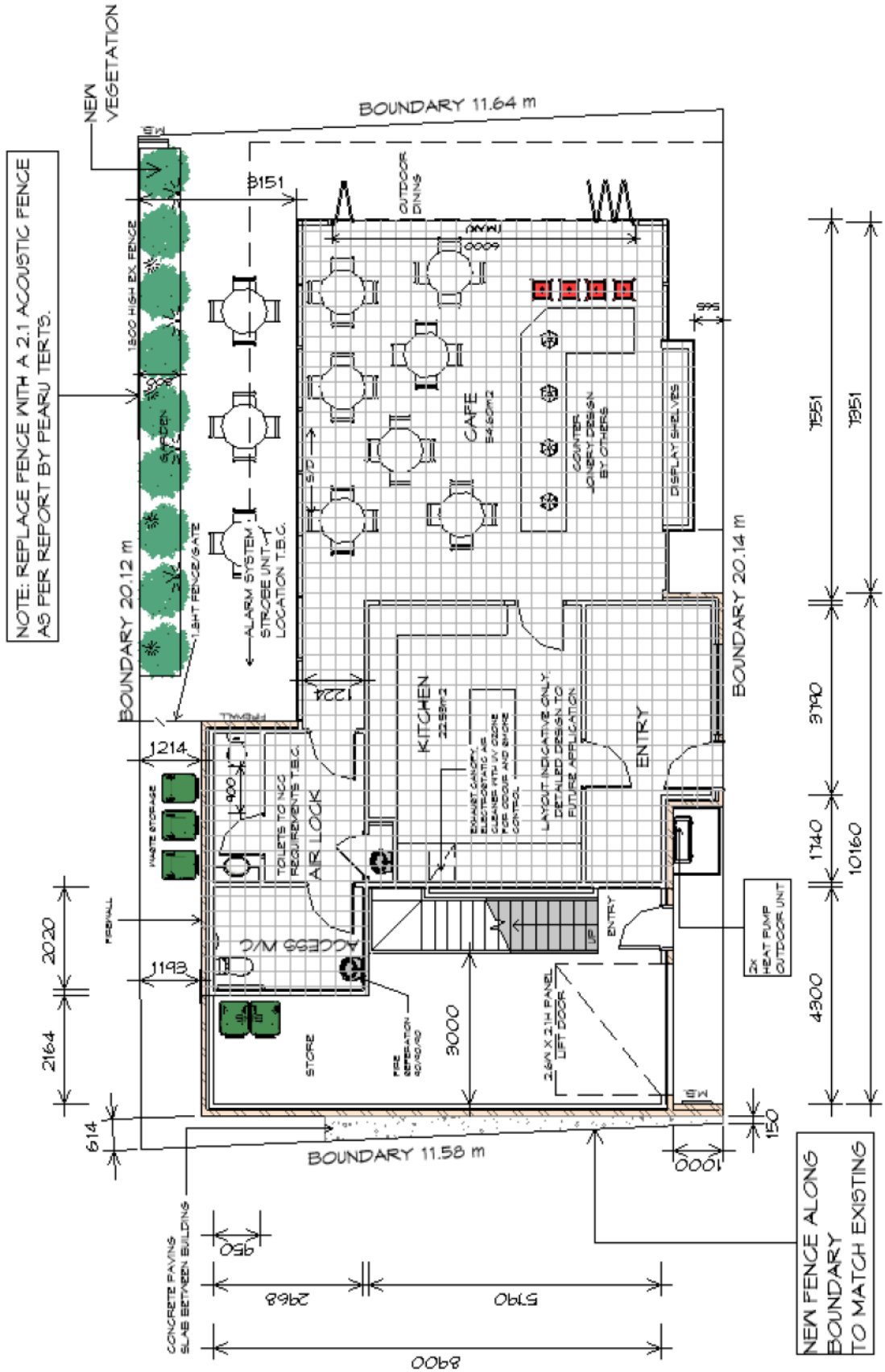
B1-Site Plan



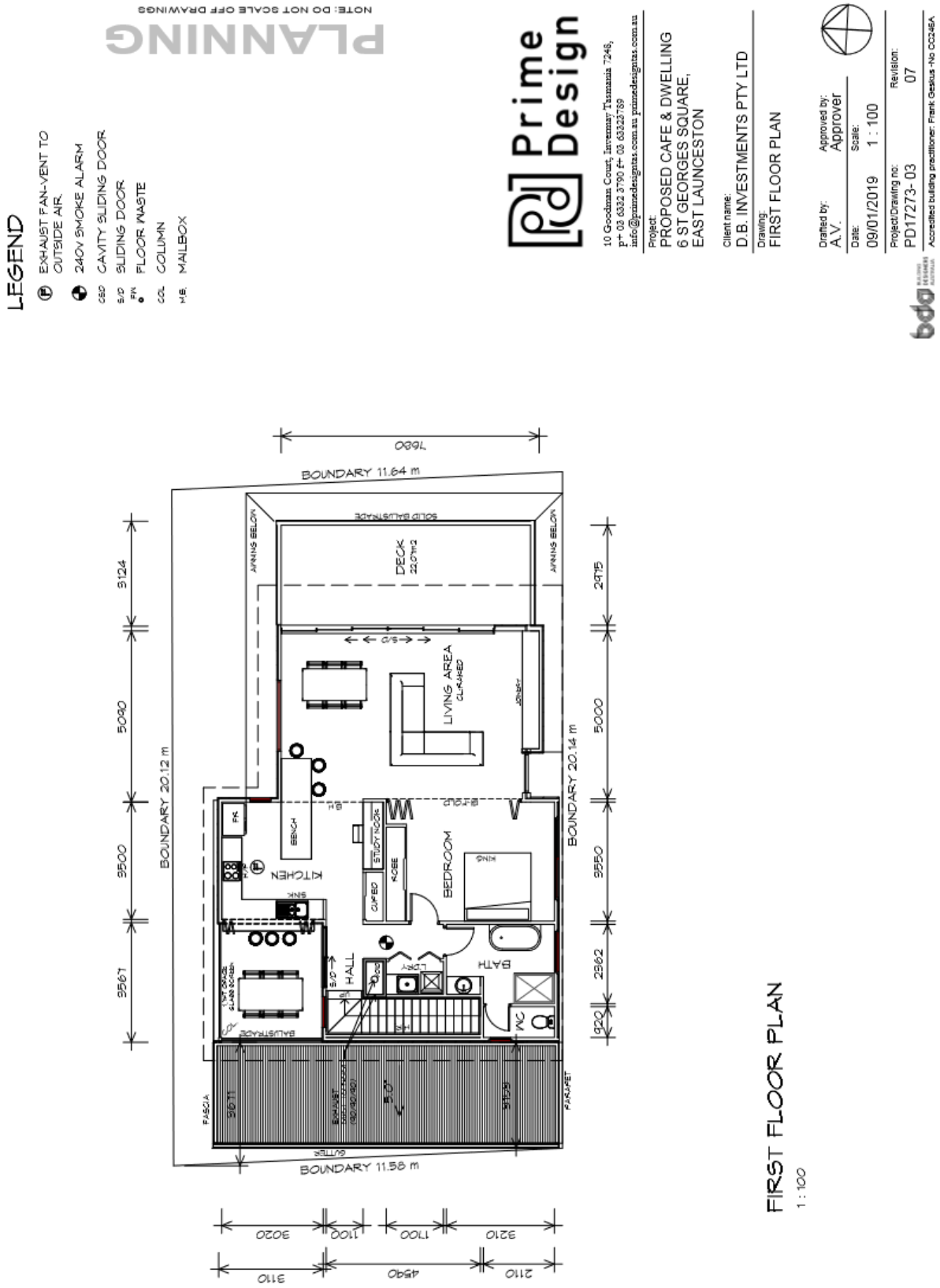
B2-Ground Floor Café



the hatched area below equates to 118m2 floor area for the café.

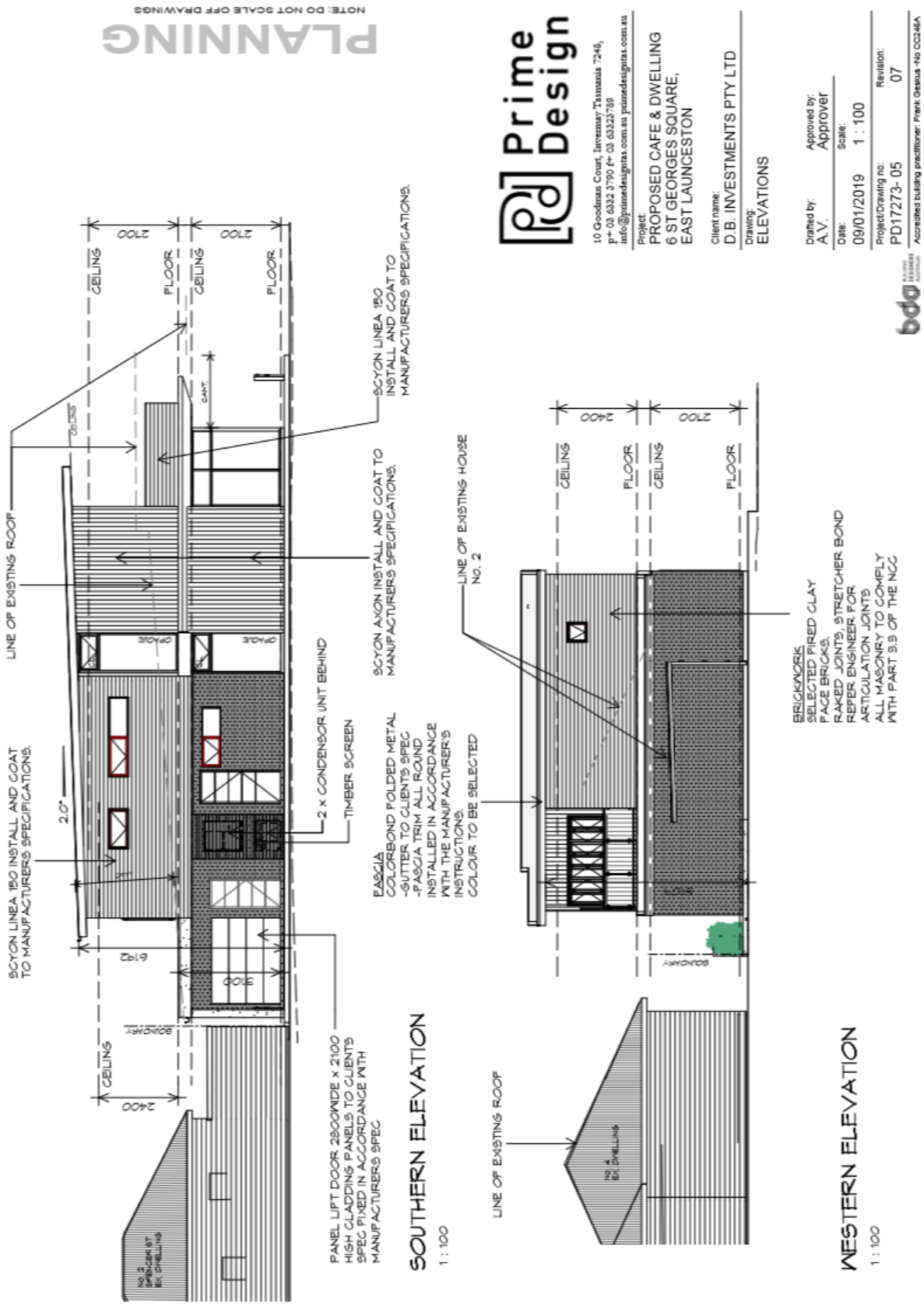


B3-First Floor Dwelling

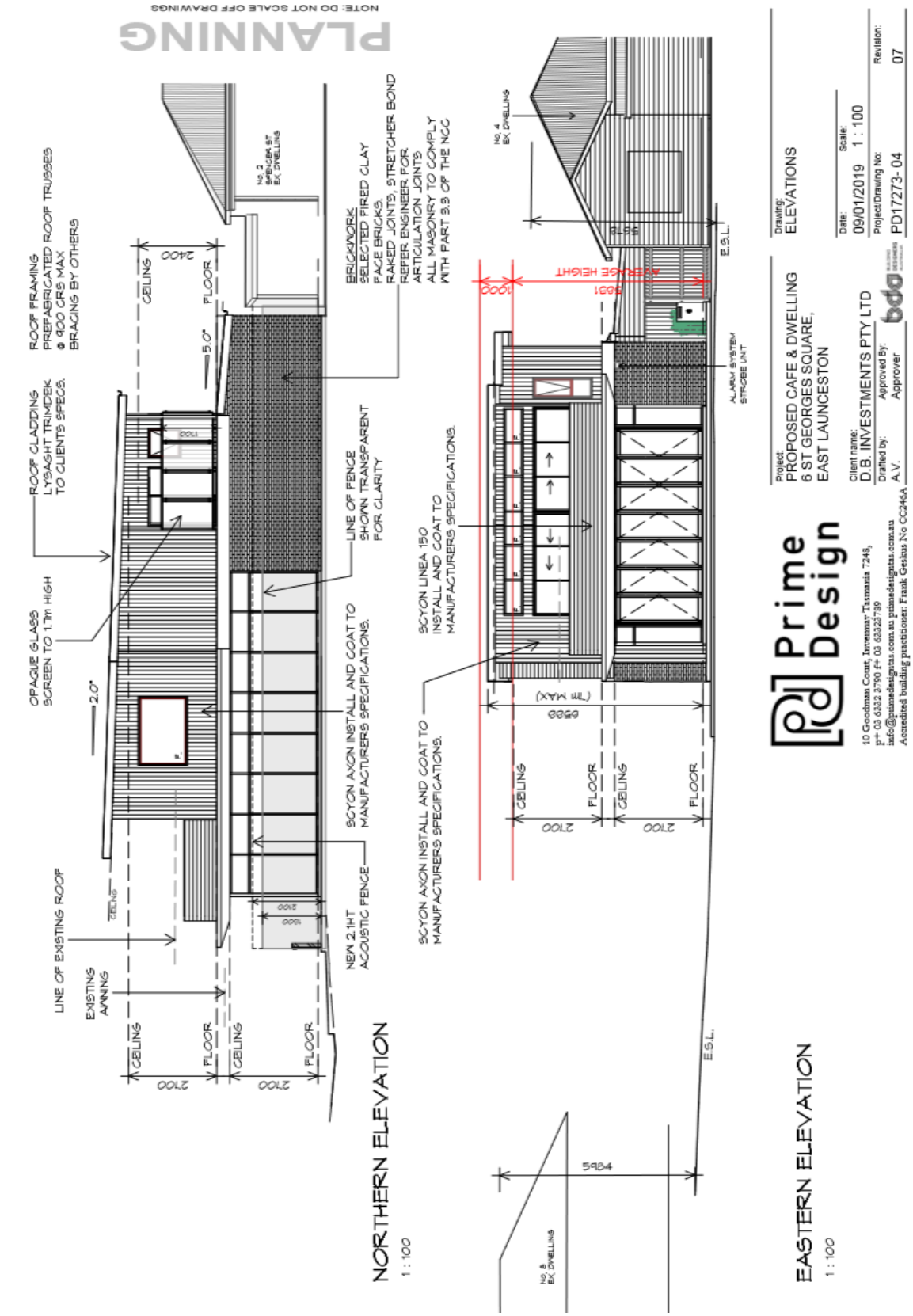


FIRST FLOOR PLAN
1 : 100

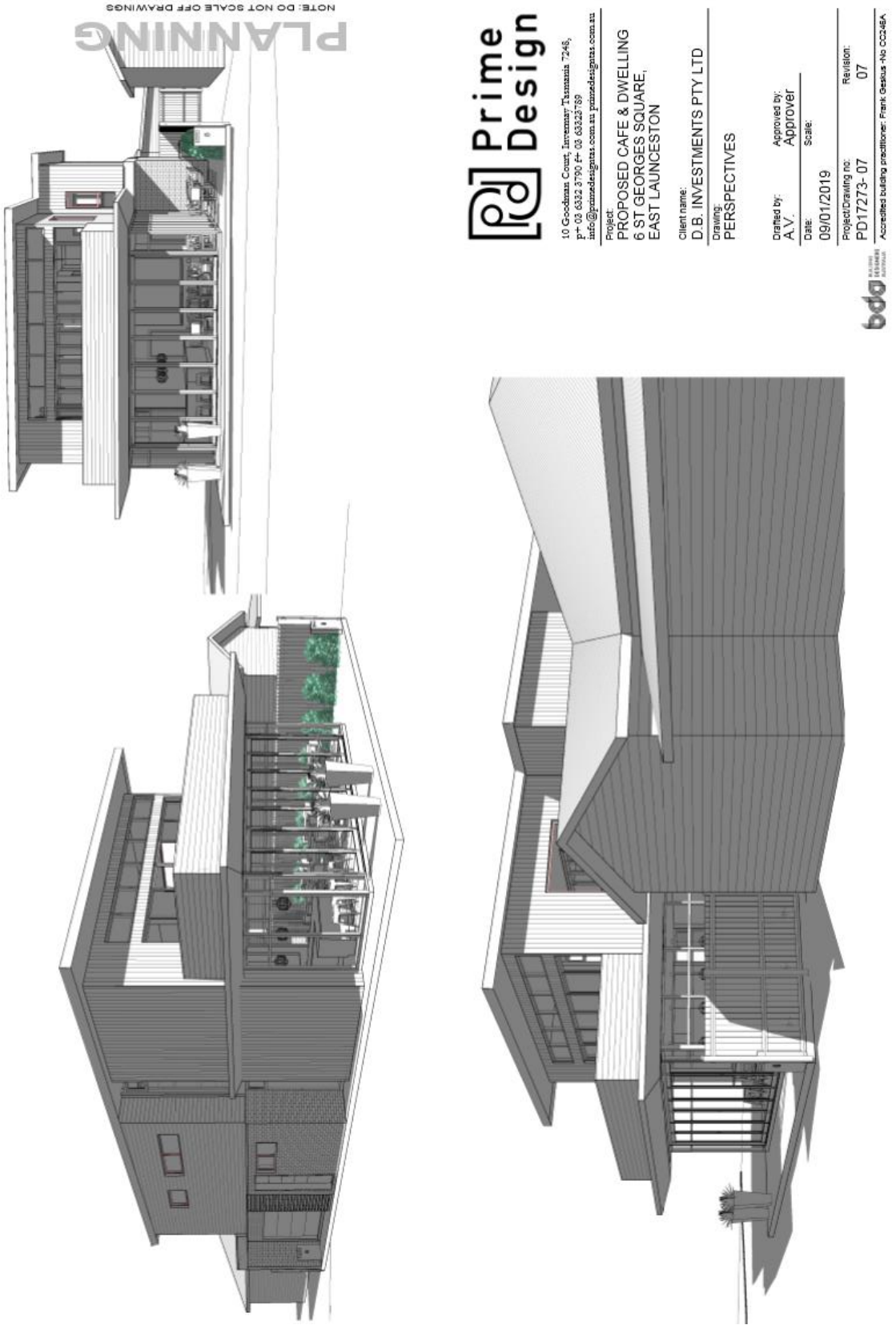
B4-Southern and Western Elevation



B5- Northern and Eastern Elevation



B6- Perspectives



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e-mail: ang@primedesigntas.com.au

MAIN REPORT
Noise Issues
St Georges Square, Launceston

Dear Ms Verze

We conducted noise measurements on 13./8/2017 at 4 locations within the site and the results are contained in appendix A.

This is the main report, supported by data presented in accompanying Appendix A.

Noise annoyance depends on the following factors:

- the ambient noise level
- the new noise level
- whether the noise has tonal components
- whether the noise has impulsive components
- the low frequency content
- the time of the day or night the noise occurs
- how often it occurs and its degree of predictability
- whether the noise is regretfully caused, mindlessly created or inflicted as an act of aggression

Noise measurements were conducted, under suitable weather conditions, that is, no rain and light or no wind.

Community complaints about traffic noise start to increase when L_{10} (18 h) = 63 dB(A). When $L_{10\ (18\ h)}$ = 63 dB(A) then 10 % of the community are highly annoyed.

L_{10} is the noise level exceeded for 10 % of the sampling time. For example (see 2nd column, page A 9 of the appendix) , L_{10} = 58.4 dB(A) means that for 1 minutes out of the 10 minute sample, the noise level was 58.4 dB(A) or higher. L_{10} gives the approximate average of the higher noise levels encountered. It is often used as a metric in traffic noise studies.

$L_{10\,(18h)}$ means that such sampling is conducted for 18 hours between 6 am and midnight and the result averaged over 18 hours.

Leq is the A weighted equivalent noise level. A fluctuating noise having Leq = 56.7 dB(A) has the same acoustic energy as a steady noise of 56.7 dB(A). Leq is usually 2 to 3 dB(A) less than L_{10}.

L90 is the metric used to measure the background or base noise level. For example (see page A 9, the first column), L90 = 47.5 dB(A) This means that for 90 % of the sampling time of 10 minutes, that is, 9 minutes, the noise level was 47.5 dB(A) or more.

RESULTS

The main measurement results are presented in Appendix A. See page A 3 and pages A 7 and A 8 for the measurement locations.

1. At location 2, we measured am Leq = 49.5 dB(A) and a background noise level of L90 = 43.0 dB(A). At other locations the noise levels were higher.

2. Normal speech level at 1 m is 58 dB(A). Assume conversation is carried out at normal speech level at one of the tables located in the outdoor areas.

3. Assume the talker is seated at the table and her/his mouth is 1.1 m from the ground and 1.9 m from the boundary fence. Assume that the existing 1.8 m fence has been replaced by a 2.1 m acoustic fence which is absorptive (due to the 800 mm garden plantings) in the direction of the talker and the court yard. Assume that there is a listener (1.5 m tall) on the neighbours side, 1.6 m from the boundary fence.

4. The average spectral content of male/female speech at normal voice level is below (line 1)

	1/1 octave band centre frequency (Hz)							
	125	250	500	1000	2000	4000	8000	
dB	53	57	59	51	45	45	40	
'A' weighting	-16	-9	-3	0	+1	+1	-1	
Sound press level 1 m	37	48	56	51	46	46	39	= 58.3 dB(A)
S..p.l at (1.9+1.6) m	-11.	-11.	-11.	-11.	-11.	-11	-11.	(20 log 3.5 = 11)
s.p.l at 3.5 m	27	37	45	40	35	35	28	= 47.3 dB(A)
Fresnel number	0.24	0.47	0.95	1.9	3.8	7.6	15.2	(Maekawas barrier design method)
Barrier atten. dB	9.5	11	13	15.6	18.5	22	24	
s.p.l behind barrier	17.5	26	32	24.4	16.5	13	4	= 33.8 dB(A)

barrier attenuation = 47.3 – 33.8 = 13.5 dB(A)

5. Using Maekawas method (based on path differences and Fresnel numbers) we calculate the attenuation provided by the 2.1 m absorptive noise barrier fence. This is included in par. 4, line 9 and 10 above.

6. If instead of one talker we have 3 talkers (one per table) talking simultaneously, then the sound pressure level (s.p.l) would increase by 10 log 3= 4.8 dB(A). The s.p.l at the façade of the neighbours house would be 33.8 + 4.8 = 38.6 dB(A). To this we add +2.5 dB(A), the façade effect

because the sound travels past the microphone near the façade and reflects off the façade back into the microphone increasing the measured sound pressure level by 2.5 dB(A) to give 41.1 dB(A).

7 Raised voice is regarded as being =7 dB(A) louder than normal voice. If the voices were raised then the s.p.l at the façade would be 41.1 + 7 = 48.1 dB(A).

8 The L.C.C. criteria for night time noise from the restaurant is L90 + 5 dB(A) Our measurements indicated L90 = 43 dB (A)
Hence the L.C.C criteria which is not to be exceeded is 43 + 5 = 48 dB(A). The proposed hours of operation of the restaurant extend to 6 pm.

9. We can assume that with 3 tables fully occupied in the outdoor area and with 4 patrons per table, only one or two people per table are likely to be talking at the same time. Hence we assume 2 x 3 = 6 people talking simultaneously, as the worst case. Assuming that they are polite people, we can expect perhaps no more than 6 people talking simultaneously in the outdoor area, possibly even less.

10 The ambient noise level at location 2, the outdoor eating area, was 49.5 dB(A). This is a level close to the calculated level of speech from the outdoor area and is likely to assist in masking the patron's speech noise.

RECOMMENDATIONS:

1. It is recommended that a 2.1 m noise barrier fence be erected at the rear of the outdoor area and continued for the length of the outdoor eating area.. As we are dealing with 'speech frequencies' the fence material need not be thick.

You may wish to consider the "SlimWall Classic by Modular Walls (Tel 02 9540 6666, E-mail: info@modularwalls.com.au). This has a Rw rating of 28 dB and is an easy to erect acoustic fence.

Mr Dexter Bertoldo (63324100) from the JAC group has used the acoustic fence at the Spring Farm subdivision in Kingston.

2. Human voice levels may vary by 20 dB and loud vocal expressions may have to be managed. We have based our calculations on 'normal' to 'raised' voice levels. However, very loud vocalizations are unlikely from the intended clientele

3. I note that you have taken our advice regarding possible noise complaints and have relocated the heat pumps from the outdoor eating area (adjacent to the neighbour) to the Spencer Street side. This has acoustic benefits

CONCLUSIONS:

With the relocation of the heat pumps and the erection of a 2.1 m acoustic fence, noise complaints are unlikely. The area is not tranquil and may not meet the acoustic environment indicator levels (Table 1) of the Tasmanian 'Environment Protection Policy (Noise) 2009 even when the restaurant is closed. The document it says that moderate annoyance can occur when the outdoor living area is

exposed to noise level of Leq = 50 dB(A).We measured a noise level of Leq = 49.5 dB(A)at about 3 pm.

Yours sincerely

Pearu Terts