



M^CLAREN TRAFFIC ENGINEERING

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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

16 November 2016

Reference: 15367.04FA

Bluestone Capital
Level 8,
71 Macquarie Street,
Sydney NSW 2000
Attention: Tony Cusick

SUPPLEMENTARY TRAFFIC AND PARKING IMPACT ASSESSMENT OF WOOLOOWARE BAY TOWN CENTRE AT 561 CAPTAIN COOK DRIVE, WOOLOOWARE

Dear Tony,

Reference is made to your request to provide a supplementary traffic and parking impact assessment for the approved concept plan for the Woollooware Bay Town Centre Development on Captain Cook Drive, Woollooware, to accompany a Section 75W amendment application. This supplementary assessment should be read in conjunction with the previously submitted Traffic and Parking Impact Assessment by *M^CLaren Traffic Engineering* (MOD3 TPIA) dated 15th February 2016 as part of the approved Major Projects 10_0230 MOD 3 Section 75W Modification. The proposed amendments to the site, as shown on the proposed floor area plan reproduced in **Annexure A** for reference, are summarised in **Table 1**.

TABLE 1: PROPOSED MODIFICATIONS

Land Use	Approved MOD 3 Scale	Proposed Modified Scale	Change
Supermarket	8 548 m ²	8426 m ²	-122
Specialty Shops	4 146 m ²	4 617 m ²	+471
Medical Centre	633 m ²	796 m ²	+163
Club (including new deck)	4 640 m ²	4 064 m ²	-576
Restaurant	1 065 m ²	1 341 m ²	+276
Childcare Centre	75 Places	75 Places	0
Parking (spaces)	770	770	0
Community Use	518 m ²	354 m ²	-164
Leisure	908 m ²	1002 m ²	+94

1 Parking Assessment

The peak parking demand associated with each land use within the development is summarised in **Table 2**. Reference should be made to the MOD3 TPIA for further details regarding the source of each parking demand.

TABLE 2: PEAK PARKING DEMAND PER LAND USE

Land Use	Peak parking Rate	Derived From
Supermarket	4.2 spaces per 100m ²	Existing Town Centre Approval
Secondary Retail	4.5 spaces per 100m ²	Existing Town Centre Approval
Medical	0.9 spaces per 100m ²	Existing Town Centre Approval
Leisure	nil	Existing Town Centre Approval
Club	180 spaces per 8500 m ²	Site patronage Surveys
Restaurant / Cafe	3.3 spaces per 100m ²	DCP
Childcare Centre	1 space per 4 places	DCP
Community Facility	0.9 spaces per 100 m ²	RMS Guide to traffic generating Developments
Dual Use of Parking	10% retail discount	Existing Town Centre Approval

Three major parking periods are identified and analysed below regarding parking accumulation, being Friday before 5:30pm, Friday after 6:30pm and Saturday midday. These scenarios each have the greatest anticipated overlaps of Town Centre parking. An operating factor has been applied as a comparison to the peak parking accumulation to recognise the changing parking demand of each land use with time. A simple example is the club which has low parking demand during 9am to 5pm with progressively higher parking demand in the PM and a peak at approximately 9pm. The estimated parking demand for each of the three periods is shown in **Table 3**, **Table 4**, & **Table 5**.

TABLE 3: PARKING DEMAND - FRIDAY PRIOR TO 5:30PM

Land Use	Peak Parking Demand (spaces)	Operating Factor	Friday Prior to 5:30PM (spaces)
Supermarket	354	100%	354
Secondary Retail	208	100%	208
Medical Centre	8	100%	8
Club	87	30%	26
Restaurant	45	50%	23
Childcare Centre	19	100%	19
Leisure	0	100%	0
Community Facility	4	100%	4
Sub-Total			642 spaces
Dual Use	354 + 208 = 562	-10%	-56
Total Demand			570
Total Supplied			770

TABLE 4: PARKING DEMAND – FRIDAY AFTER 6:30PM

Land Use	Peak Parking Demand (spaces)	Operating Factor	Friday After 6:30PM (spaces)
Supermarket	354	100%	354
Secondary Retail	208	25%	52
Medical Centre	8	50%	4
Club	87	100%	87
Restaurant	45	100%	45
Childcare Centre	19	0%	0
Leisure	0	100%	0
Community Facility	4	50%	2
Sub-Total			544 spaces
Dual Use	354 + 52 = 406	-10%	-41
Total Demand	507		
Total Supplied	770		

TABLE 5: PARKING DEMAND – SATURDAY MIDDAY

Land Use	Peak Parking Demand (spaces)	Operating Factor	Saturday Midday (spaces)
Supermarket	354	100%	354
Secondary Retail	208	100%	208
Medical Centre	8	50%	4
Club	87	75%	65
Restaurant	45	75%	34
Childcare Centre	19	0%	0
Leisure	0	100%	0
Community Facility	4	100%	4
Sub-Total			669 spaces
Dual Use	354 + 208 = 562	-10%	-56
Total Demand	601		
Total Supplied	770		

Based on the proposed scale, the peak parking demand is estimated as a total 601 car parking spaces during the Saturday midday period. This parking demand is consistent with that identified in the MOD3 TPIA and it is considered that the provision of 770 car parking spaces is acceptable to meet the demands of the development.

2 Traffic Assessment

The traffic generation of the site has been assessed using the rates provided in the *Roads and Maritime Services* (RMS) Guide to Traffic Generating Developments and recent supplements, with the following assumptions as per the MOD3 TPIA:

- 2.5% loading applied to RMS rates;
- 10% dual-use trips assumed to apply to the retail component of the development;
- Saturday peak traffic assumed as 105% of the Friday peak traffic.

The assumed rates of traffic generation are summarised in **Table 6**, with the resulting traffic generation in **Table 7**.

TABLE 6: TRAFFIC GENERATION RATES PER LAND USE

Land Use	Traffic Generation Friday 5-6PM (per hour)	Traffic Generation Saturday Midday (per hour)	Derived From
Supermarket(or similar)	14.1 trips per 100m ²	14.8 trips per 100m ²	Approved Project Application
Secondary Retail	5.7 trips per 100m ²	6.0 trips per 100m ²	Approved Project Application
Office	0.5 trips per 100m ²	0.5 trips per 100m ²	Approved Project Application
Medical	0.5 trips per 100m ²	0.5 trips per 100m ²	Approved Project Application
Community Use	0.5 trips per 100m ²	0.5 trips per 100m ²	Office as in RMS Guide to Traffic Generating Developments
Club	168 trips per 8500m ²	100 trips per 8500m ²	Approved Project Application
Leisure	nil	nil	Approved Project Application
Restaurant	5.0 trips per 100m ²	5.0 trips per 100m ²	RMS Guide to Traffic Generating Developments
Child Care Centre	0.7 trips per place	Nil	RMS Guide to Traffic Generating Developments
Car ownership rates in Sutherland Shire	Included in above rates	Included in above rates	Approved Project Application
Dual Use	10% of Retail	10% of Retail	Approved Project Application

TABLE 7: TRAFFIC GENERATION TRIPS PER LAND USE

Land Use	Traffic Generation Friday 5-6PM (Trips per hour)	Traffic Generation Saturday Midday (Trips per hour)
Supermarket(or similar)	1189	1248
Secondary Retail	264	278
Office	1	1
Medical	4	2
Community Use	2	2
Club	25	36
Leisure	0	0
Restaurant	34	51
Child Care Centre	53	0
10% Retail Dual-Use	-145	-153
TOTAL (THIS APPLICATION)	1427	1465
TOTAL (APPROVED MOD3)	1500	1464
CHANGE	-73	+1

As shown, the proposed scale will reduce the peak traffic generation of the site from 1500 peak hour trips (as per the previous MOD3 TPIA) to 1427 peak hour trips in the Friday peak hour period. The Saturday peak hour generation is estimated to increase by a single trip, which is considered to be within the margin of error and represents a negligible increase on the approved MOD3 traffic volumes.

It is considered that the proposed scale is not a significant departure from the approved MOD3 volumes and that no change to the performance of the surrounding intersections, as modelled in the MOD3 TPIA, will occur.

Please contact the undersigned should you require further information or assistance.

Yours faithfully
M^cLaren Traffic Engineering

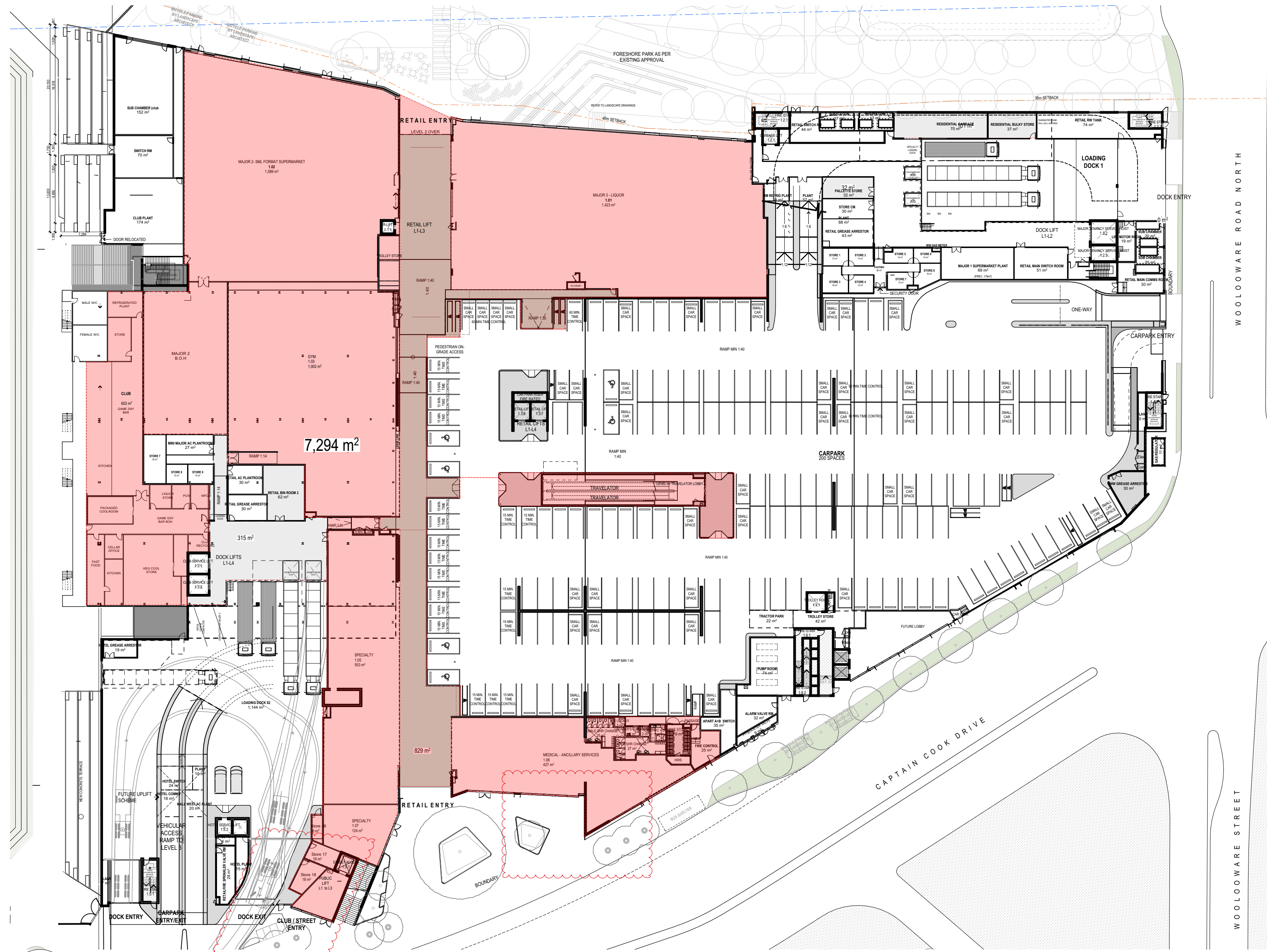


Craig M^cLaren
Director

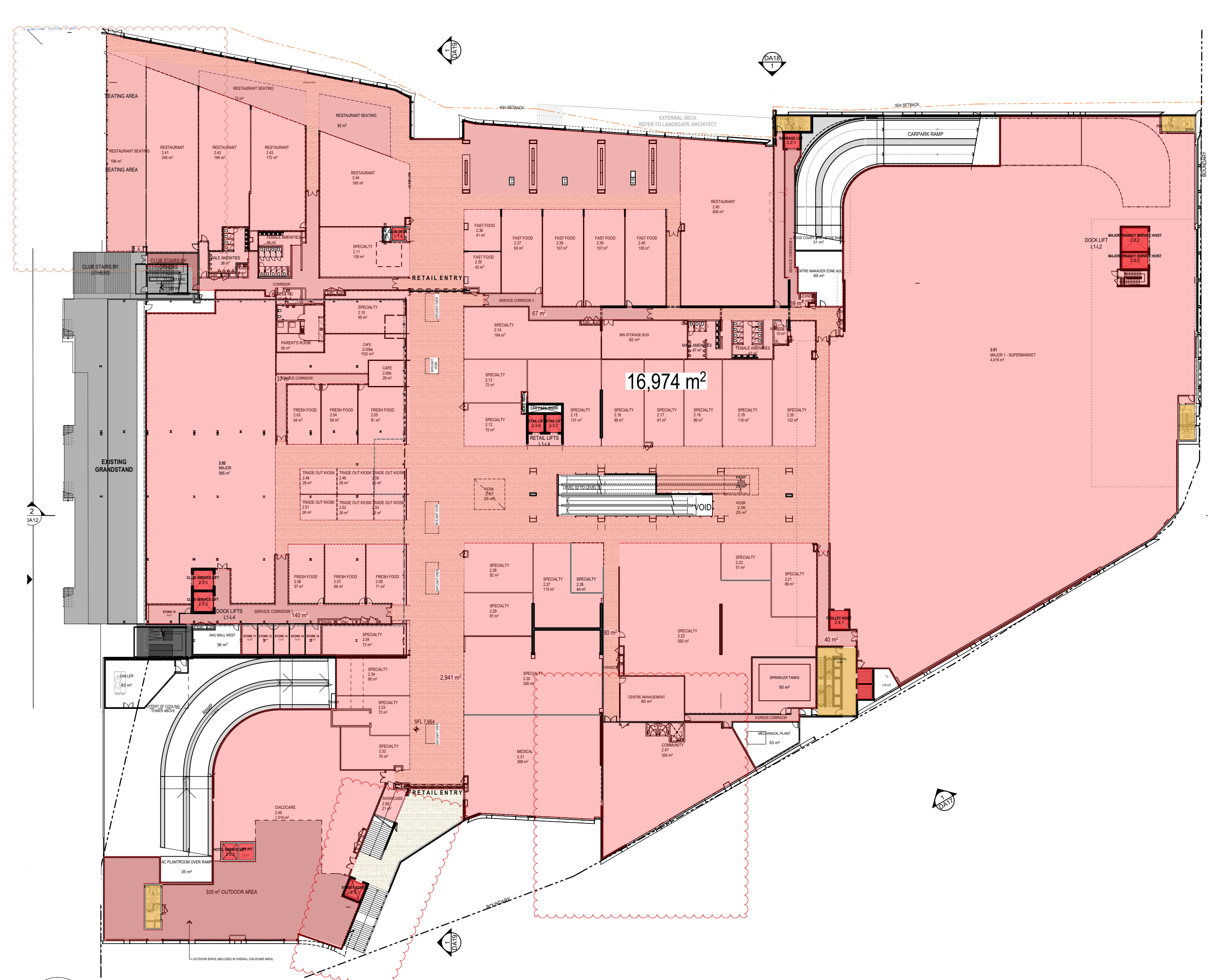
BE Civil. Graduate Diploma (Transport Eng) MAITPM MITE [1985]
 RMS Accredited Level 3 Road Safety Auditor
 RMS Accredited Traffic Control Planner, Auditor & Certifier (Orange Card)



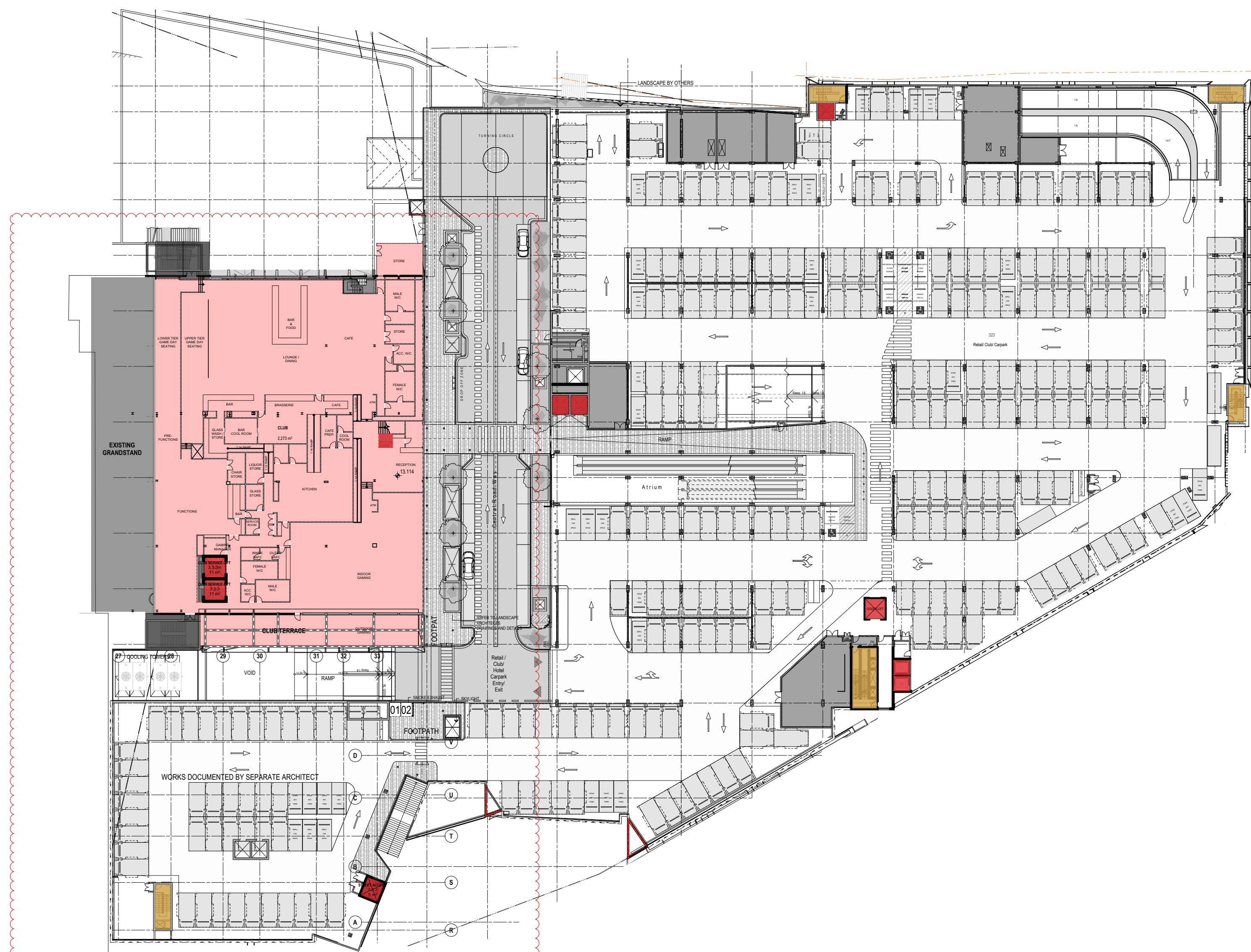
ANNEXURE A: PROPOSED GROSS FLOOR AREA PLAN



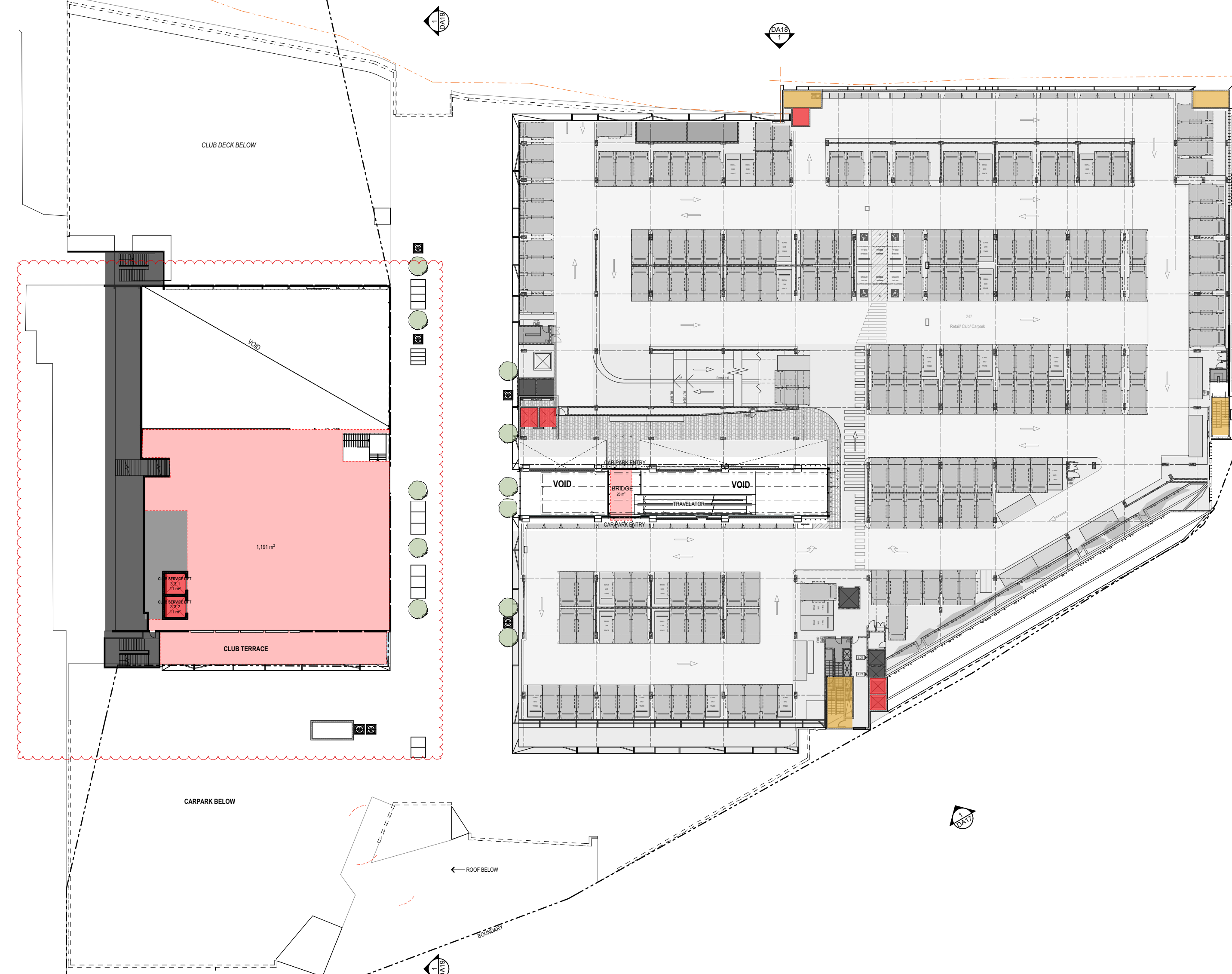
1 PLAN
GFA LEVEL 1
1:500



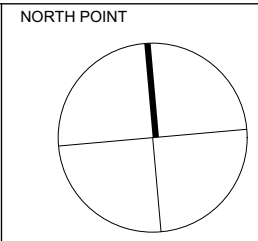
2 PLAN
GFA LEVEL 2
1:500



3 PLAN
GFA LEVEL 3
1:500



4 PLAN
GFA LEVEL 4
1:500



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KEY PLAN

REV	DESCRIPTION OF CHANGE	DRAWN	CHECK	DATE
A	RETAIL 75W	EC	KS	12.02.16
B	FOR INFORMATION	AM	SS	22.06.16
C	75W UPDATES	OR	SS	19.09.16
D	75W UPDATES	CR	SS	31.10.16

GFA - Level 1 19.09.2016 REVISION C

Zone	Area
Major	3,012m²
End Of Trip	87m²
Gym	1,002m²
Specialty	1104m²
Circulation	1,646m²
Club	433m²
Total	7,294m²

GFA - Level 2 19.09.2016 REVISION C

Zone	Area
Major	5,414m²
Community	354m²
Childcare	1014m²
Specialty	3,270m²
Fresh Food	544m²
Fast Food	495m²
Cafe/Restaurant	1,341m²
Kiosk	75m²
Gallery/Showcase	21m²
Amenities	256m²
Back of House	293m²
Circulation	3,897m²
Total	16,974m²

GFA - Level 3

Zone	Area
Club	2,273m²
Club Terrace	167m²
Circulation	77m²
Total	2,517m²

GFA - Level 4

Zone	Area
Club	1,024m²
Club Terrace	167m²
Circulation	26m²
Total	1,217m²

TOTAL GFA 28,002 m²

CLIENT

ARCHITECTS
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PROJECT

BAY CENTRAL
CAPTAIN COOK DRIVE,
WOOLLOOWARE, NSW, 2230,

DRAWING TITLE

RETAIL 75W APPLICATION
GROSS FLOOR AREA PLAN /
SCHEDULE

SCALE:	CHECKED
AS SHOWN	SS
PROJECT NUMBER:	DRAWING NUMBER:
15R Wool	DA16
	D