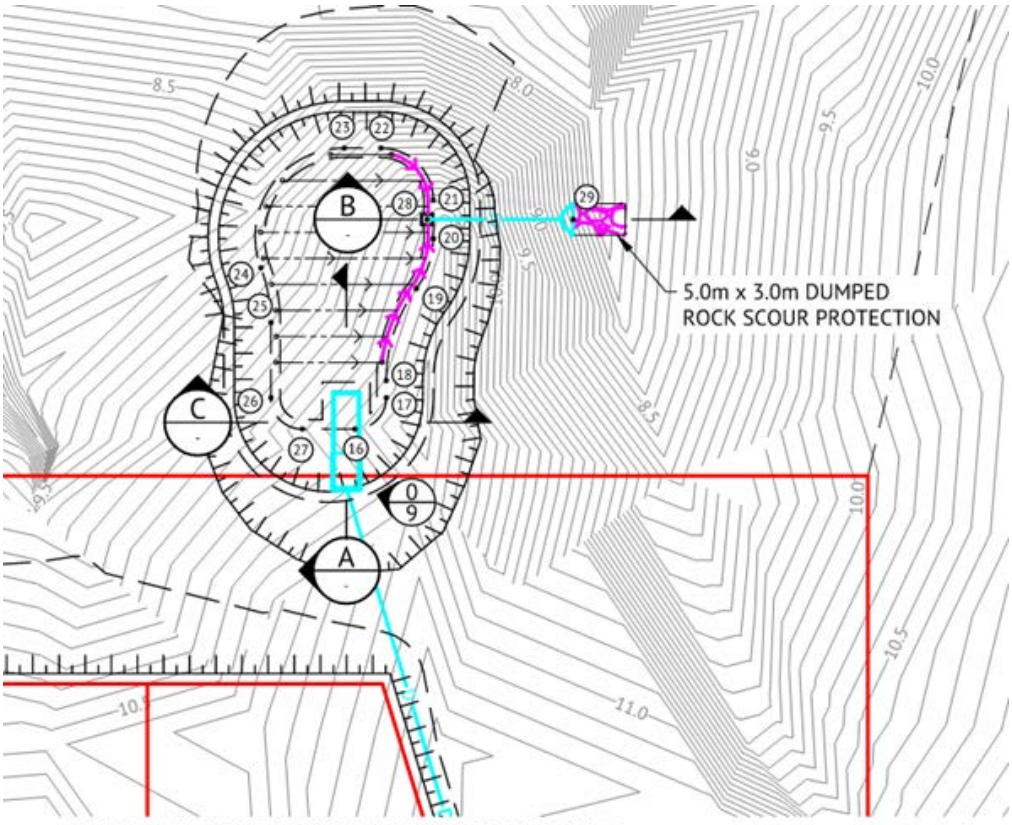
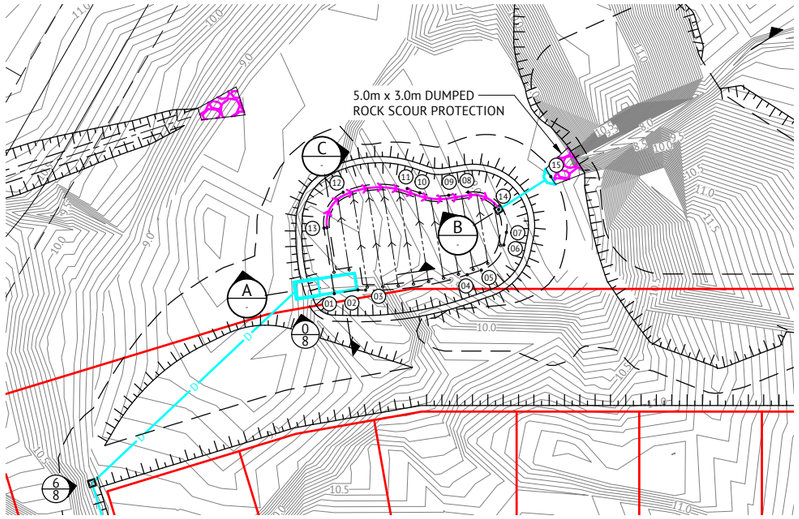
BASIN B - BASE 360m2					
GREATER ASCOT STAGES 805 806 PAR0081					
Item	**Description**	**Unit**	**Quantity**	**Rate**	**Amount**
3	**Revegetation including establishment**				
(a)	Hydromulching -	m^2	330	$ 7.60	$ 2,508.00
4	**Bio-Retention drainage works including subsoil drainage, filter media and temporary turfing**				
(c)	Bio-Retention B - including excavate 300mm below filter media profile, place geofabric and installation of floculation unit and floculant	m^2	360	$ 62.00	$ 22,320.00
(d)	Bio-Retention B - preparation of subgrade, installation of all drainage pipes and filter media, geofabric, topsoil and turf	m^2	360	$ 127.00	$ 45,720.00
4	**Field inlets complete including excavation and disposal of spoil**				
(b)	Flush grate field inlet - 900mm x 900mm - Basin A & B	Each	1	$ 6,585.00	$ 6,585.00
6	**Supply and construct cast in situ concrete headwall, wingwall and apron to match the following RCP sizes**				
(b)	Bio-retention headwall including wingwalls and course sediment forebay - Basin - B	Each	1	$ 32,000.00	$ 32,000.00
6	**Scour Protection**				
(a)	Dumped Rock - 400mm thick (DN 200mm) on geotextile fabric (200g/m2)	m^2	15	$ 60.00	$ 900.00
					$ 110,033.00

taken from Claim 6



BIO-RETENTION BASIN B LAYOUT

SCALE: 1:500



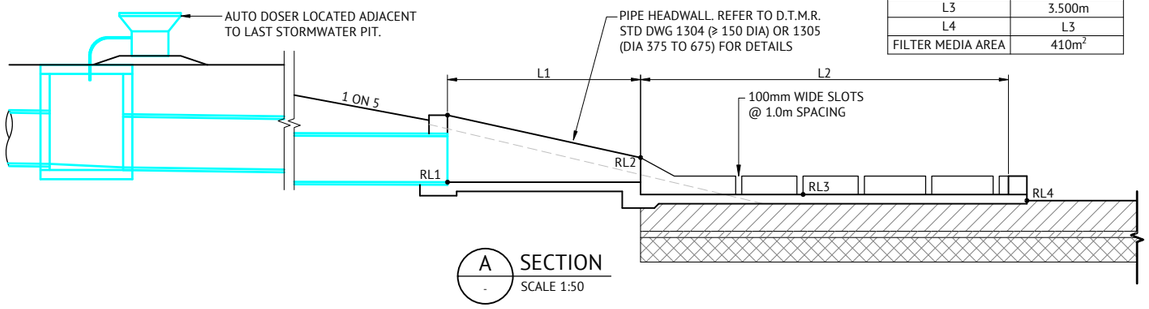
BIO-RETENTION BASIN A LAYOUT
SCALE: 1:500

SETOUT POINT DETAILS

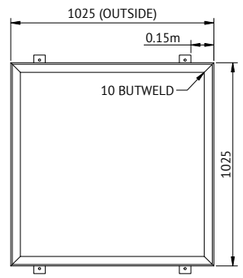
POINT	EASTING	NORTHING
01	68981.483	89603.945
02	68985.340	89604.550
03	68986.588	89604.527
04	69003.159	89607.023
05	69005.465	89607.782
06	69009.130	89611.884
07	69009.556	89613.928
08	69003.319	89620.484
09	69000.147	89619.986
10	68995.437	89620.377
11	68993.367	89621.067
12	68982.925	89620.478
13	68979.805	89614.636
14	69008.285	89617.653
15	69016.789	89623.036

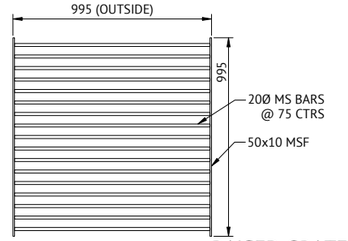
BIO-BASIN A DETAILS

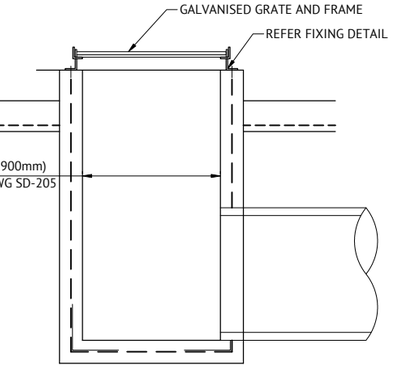
NOTATION	DETAILS
RL1	9.110
RL2	RL1 + 0.300m
RL3	RL1 - 0.200m
RL4	RL1 - 0.300m
RL5	RL1 + 0.100m
RL6	RL1 + 0.400m
RL7	7.910
RL8	7.825
OUTLET PIPE	750(2)
W1	2.500m
L1	3.700m
L2	6.000m
L3	3.500m
L4	L3
FILTER MEDIA AREA	410m²

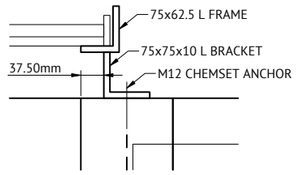


A SECTION
SCALE 1:50









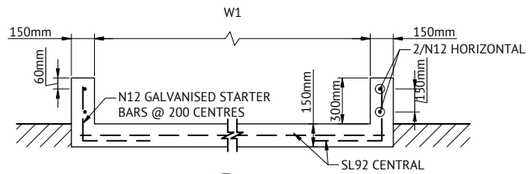
RAISED GRATE FIELD INLET
SCALE: 1:20

LEGEND

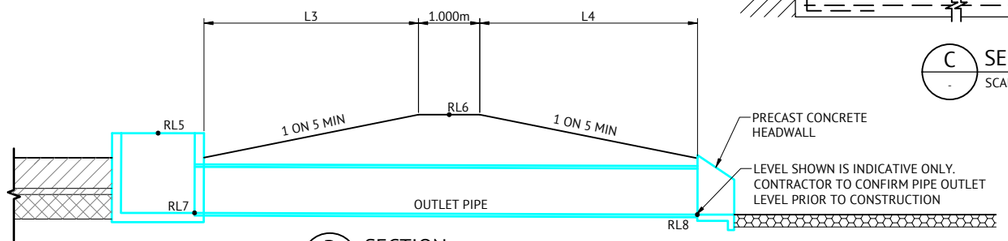
- EXISTING SURFACE CONTOURS (5.90)
- EARTHWORKS LEVEL (RL.31.75)
- TOP OF BATTER
- BOTTOM OF BATTER
- 225Ø uPVC PIPE
- 100Ø FLEXIBLE PERFORATED CORRUGATED PIPE WITH CAPPED CLEAN OUT POINT, REFER THIS SHEET FOR DETAILS
- DUMPED ROCK SCOUR PROTECTION ON GEOTEXTILE FABRIC (200g/m²) ROCK GRADING - 400mm THICK 75mm-325mm, AVERAGE SIZE 200mm

NOTES:

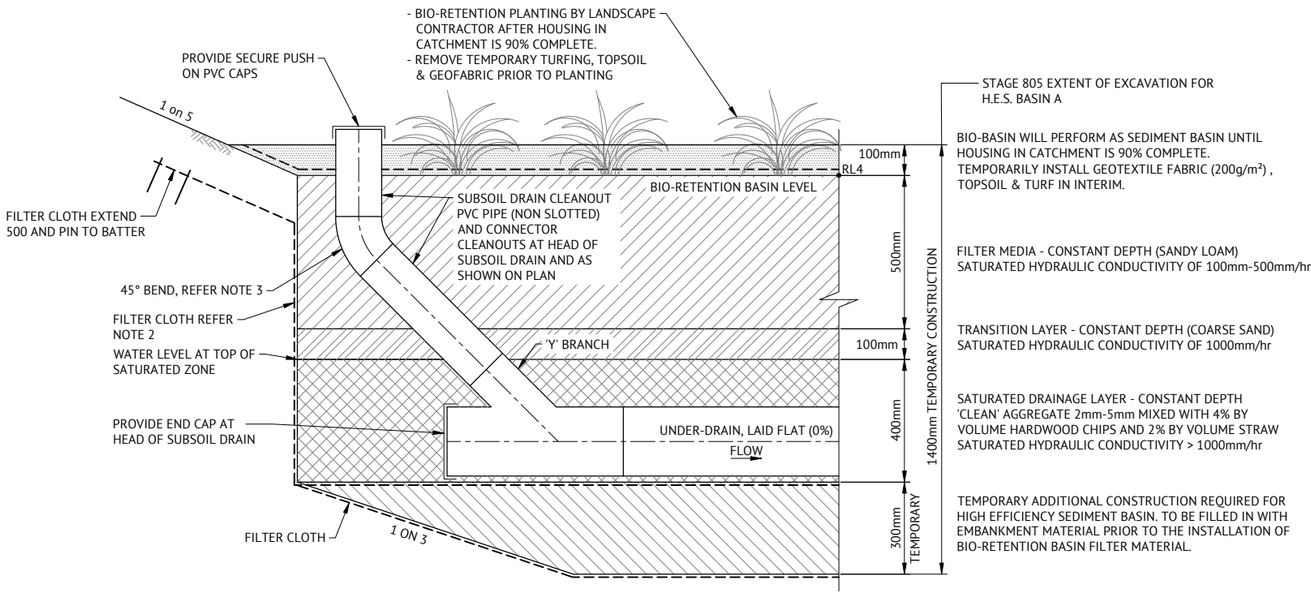
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH IPWEA STANDARD DRAWING DS-078.
2. FILTER CLOTH - PROPRIETARY PRODUCT, BIDIM A24 OR EQUIVALENT NON-WOVEN GEOTEXTILE.
   FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS.
3. UNDER-DRAIN: 100Ø FLEXIBLE PERFORATED CORRUGATED PIPE. PIPES SHOULD NOT BE INSTALLED WITH A FILTER SOCK SURROUNDING PIPE.
   UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUT OR OTHER APPROVED WATERTIGHT SEAL.
4. FOR COARSE SEDIMENT FOREBAY CONCRETE AND REINFORCEMENT DETAILS, REFER TO DTMR STANDARD DRAWING 1304 (DRAWINGS 1 AND 2).



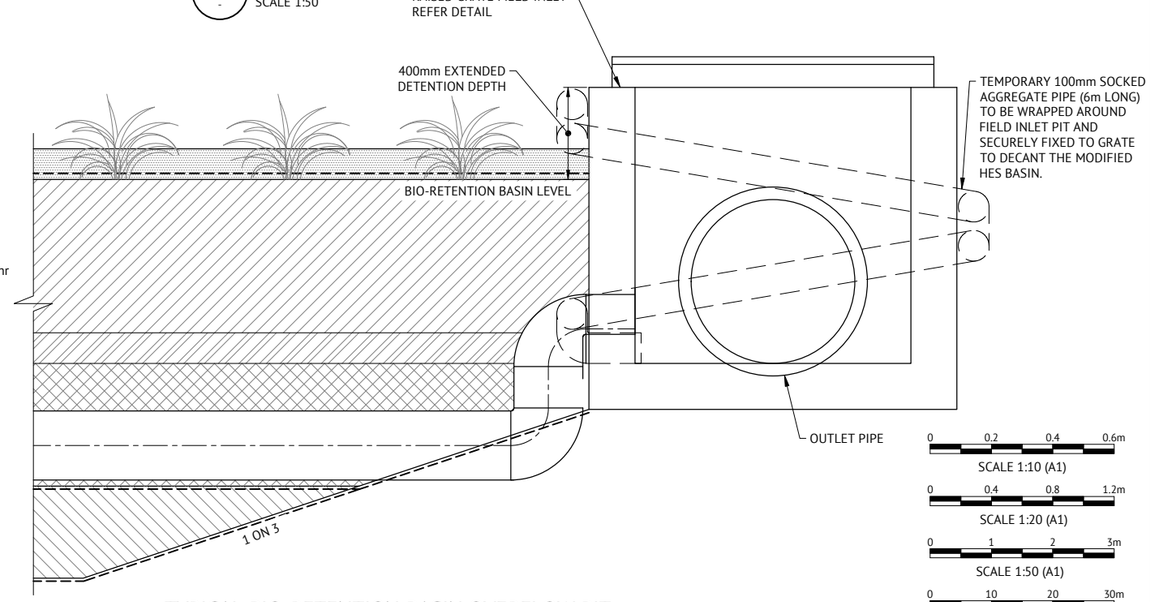
C SECTION
SCALE 1:20



B SECTION
SCALE 1:50



BIO-RETENTION BASIN SUBSOIL CLEANOUT AND FILTER MEDIA
SCALE: 1:10



TYPICAL BIO-RETENTION BASIN OVERFLOW PIT
SCALE: 1:10

0 0.2 0.4 0.6m — SCALE 1:10 (A1)
0 0.4 0.8 1.2m — SCALE 1:20 (A1)
0 1 2 3m — SCALE 1:50 (A1)
0 10 20 30m — SCALE 1:500 (A1)

FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
04/08/23	A	ISSUED FOR CONSTRUCTION	JJ	P.P
02/06/23	2	MINOR AMENDMENTS	JJ	P.P
24/03/23	2	PRELIMINARY - NOT FOR CONSTRUCTION	JJ	P.P

REVISIONS

Premise
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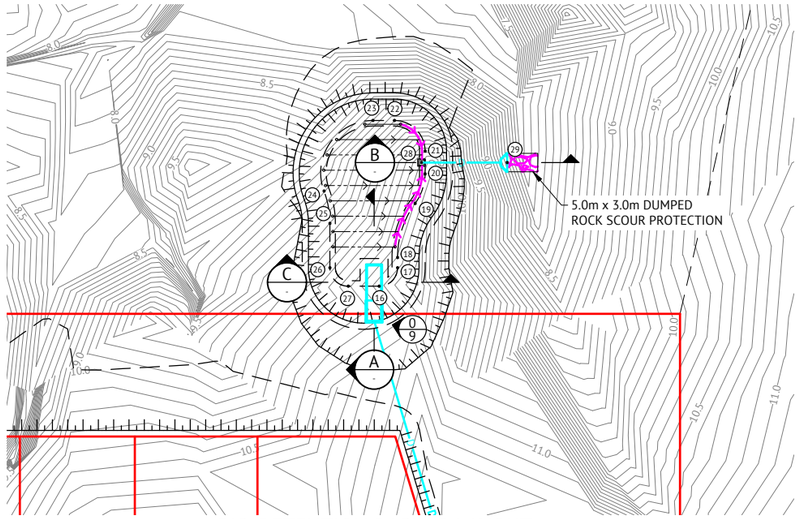
PO BOX 1110
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

DESIGNED J.JONES
CHECKED G.FYSH
PROJECT MANAGER P.PETERSEN
ENGINEERING CERTIFICATION
P.PETERSEN 13231
SCALE
ORIGINAL SHEET SIZE A1

CLIENT: PARKSIDE DEVELOPMENT PTY LTD
PROJECT: GREATER ASCOT - STAGE 804, 805 & 805
LOCATION: GREATER ASCOT AVENUE, SHAW
SHEET TITLE: BIO-RETENTION DETAILS PLAN SHEET 1 OF 2

JOB CODE: PAR-0081
SHEET NUMBER: C029
REV: A



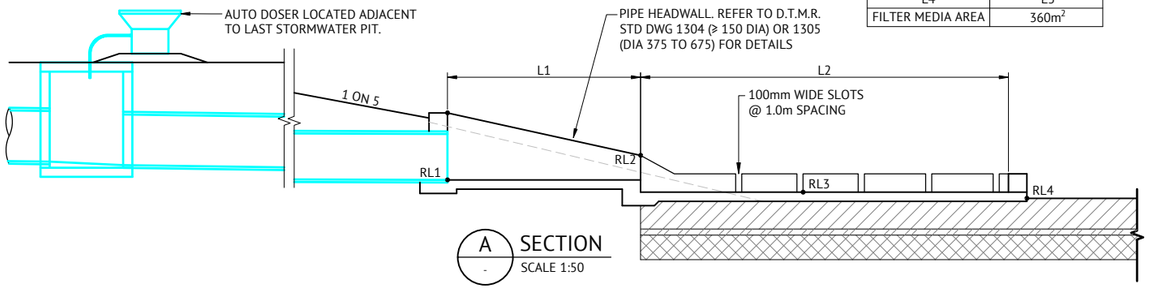
BIO-RETENTION BASIN B LAYOUT
SCALE: 1:500

SETOUT POINT DETAILS

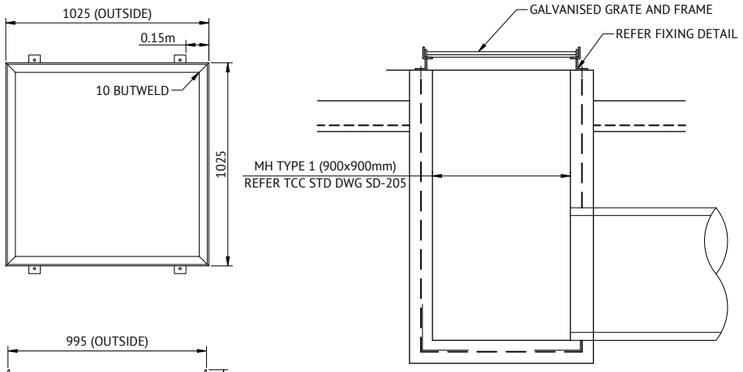
POINT	EASTING	NORTHING
16	69132.337	89609.226
17	69135.337	89612.226
18	69135.337	89613.891
19	69138.207	89622.715
20	69139.835	89627.522
21	69139.835	89631.243
22	69134.835	89636.243
23	69131.320	89636.243
24	69123.346	89624.733
25	69124.303	89619.461
26	69124.303	89612.226
27	69127.303	89609.226
28	69139.235	89629.383
29	69153.215	89629.383

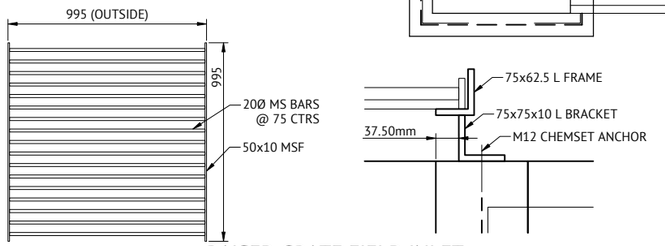
BIO-BASIN B DETAILS

NOTATION	DETAILS
RL1	8.830
RL2	RL1 + 0.300m
RL3	RL1 - 0.200m
RL4	RL1 - 0.300m
RL5	RL1 + 0.100m
RL6	RL1 + 0.400m
RL7	7.630
RL8	7.605
OUTLET PIPE	675(2)
W1	2.300m
L1	3.300m
L2	5.700m
L3	3.500m
L4	L3
FILTER MEDIA AREA	360m^2



A SECTION
SCALE 1:50





RAISED GRATE FIELD INLET
SCALE: 1:20

LEGEND

- EXISTING SURFACE CONTOURS (5.90)
- EARTHWORKS LEVEL (RL.31.75)
- TOP OF BATTER
- BOTTOM OF BATTER
- 225Ø uPVC PIPE
- 100Ø FLEXIBLE PERFORATED CORRUGATED PIPE WITH CAPPED CLEAN OUT POINT, REFER THIS SHEET FOR DETAILS
- DUMPED ROCK SCOUR PROTECTION ON GEOTEXTILE FABRIC (200g/m^2) ROCK GRADING - 400mm THICK 75mm-325mm, AVERAGE SIZE 200mm

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH IPWEA STANDARD DRAWING DS-078.
2. FILTER CLOTH - PROPRIETARY PRODUCT, BIDIM A24 OR EQUIVALENT NON-WOVEN GEOTEXTILE.
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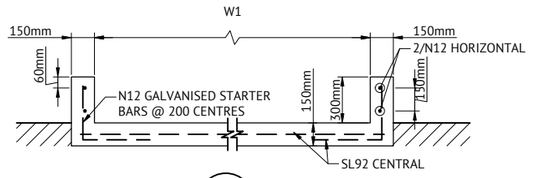
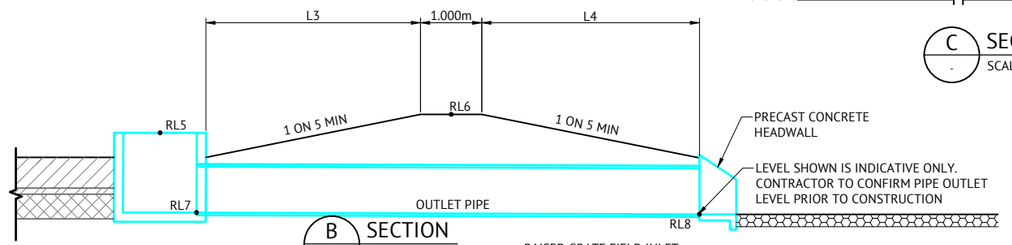
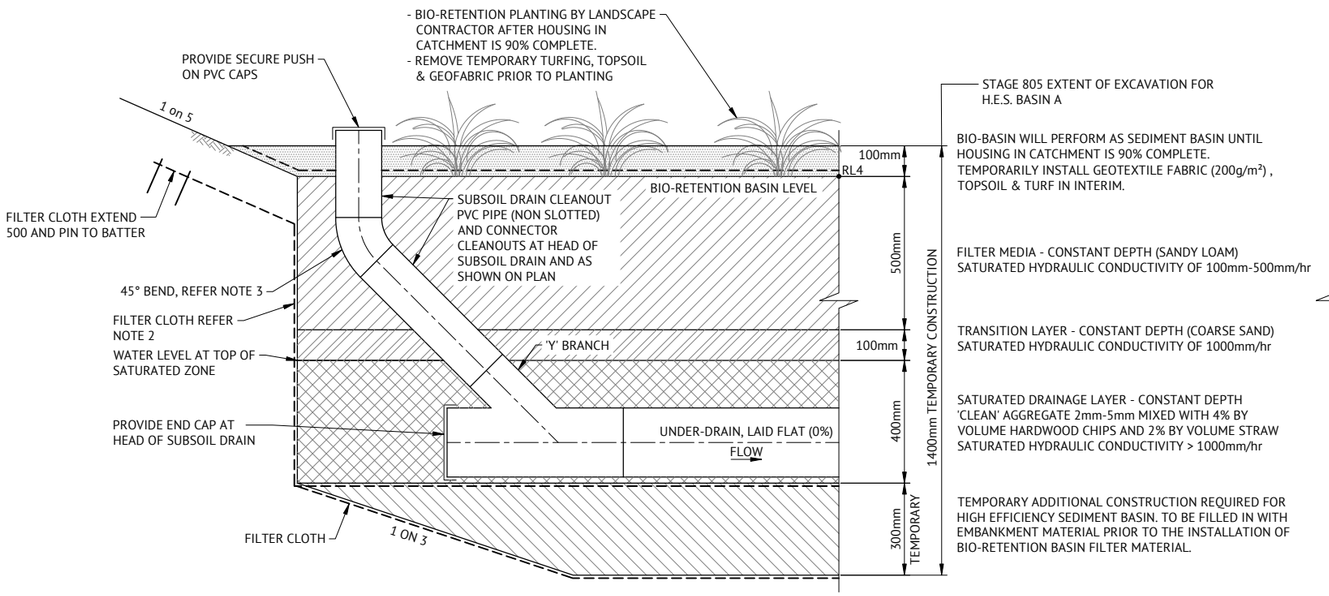
   UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUT OR OTHER APPROVED WATERTIGHT SEAL.
4. FOR COARSE SEDIMENT FOREBAY CONCRETE AND REINFORCEMENT DETAILS, REFER TO DTMR STANDARD DRAWING 1304 (DRAWINGS 1 AND 2).



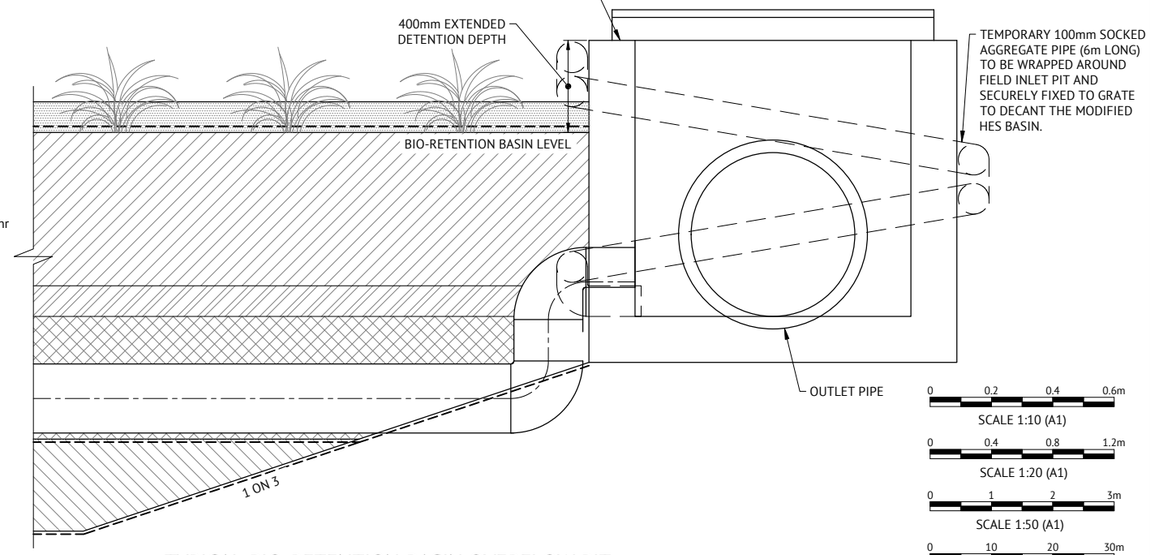
C SECTION
SCALE 1:20



B SECTION
SCALE 1:50



BIO-RETENTION BASIN SUBSOIL CLEANOUT AND FILTER MEDIA
SCALE: 1:10



TYPICAL BIO-RETENTION BASIN OVERFLOW PIT
SCALE: 1:10

0 0.2 0.4 0.6m
SCALE 1:10 (A1)

0 0.4 0.8 1.2m
SCALE 1:20 (A1)

0 1 2 3m
SCALE 1:50 (A1)

0 10 20 30m
SCALE 1:500 (A1)

FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
04/08/23	A	ISSUED FOR CONSTRUCTION	JJ	P.P
02/06/23	2	MINOR AMENDMENTS	JJ	P.P
24/03/23	2	PRELIMINARY - NOT FOR CONSTRUCTION	JJ	P.P

REVISIONS

Premise
TOWNSVILLE OFFICE
84 DENHAM STREET
PO BOX 1110
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

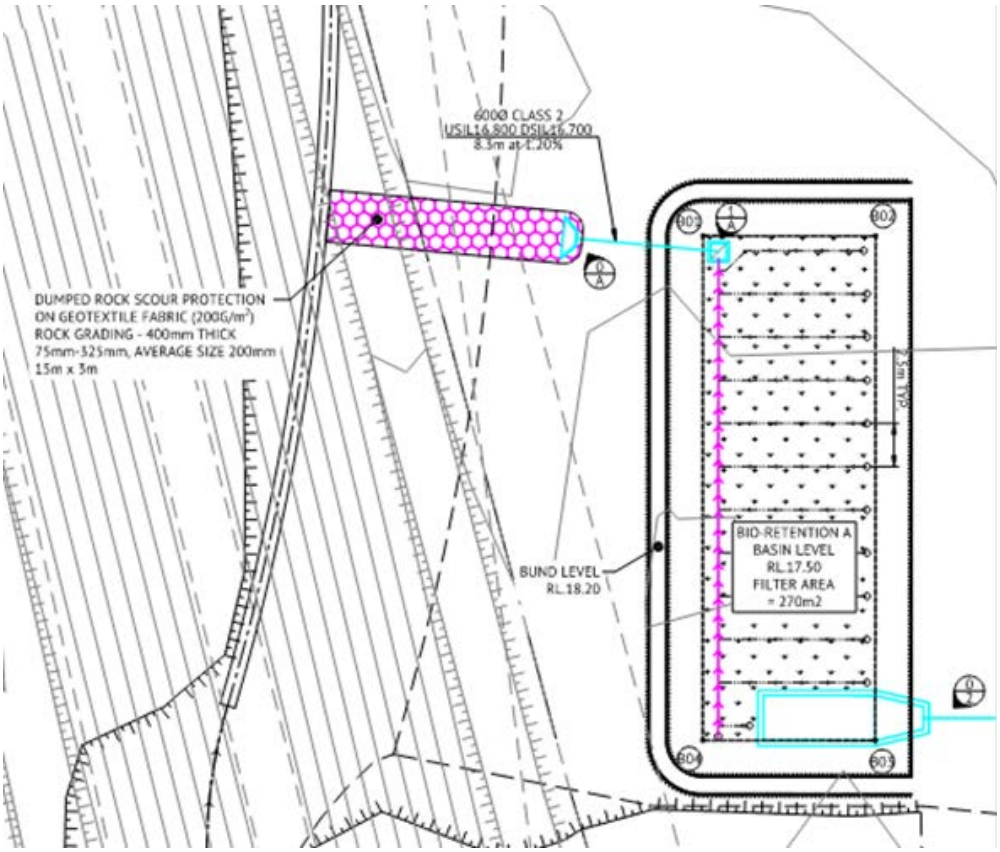
DESIGNED JJONES
CHECKED G.FYSH
PROJECT MANAGER P.PETERSEN
ENGINEERING CERTIFICATION
P.PETERSEN 13231
SCALE
ORIGINAL SHEET SIZE A1

CLIENT: PARKSIDE DEVELOPMENT PTY LTD
PROJECT: GREATER ASCOT - STAGE 804, 805 & 805
LOCATION: GREATER ASCOT AVENUE, SHAW
SHEET TITLE: BIO-RETENTION DETAILS PLAN SHEET 2 OF 2

JOB CODE: PAR-0081
SHEET NUMBER: C030
REV: A

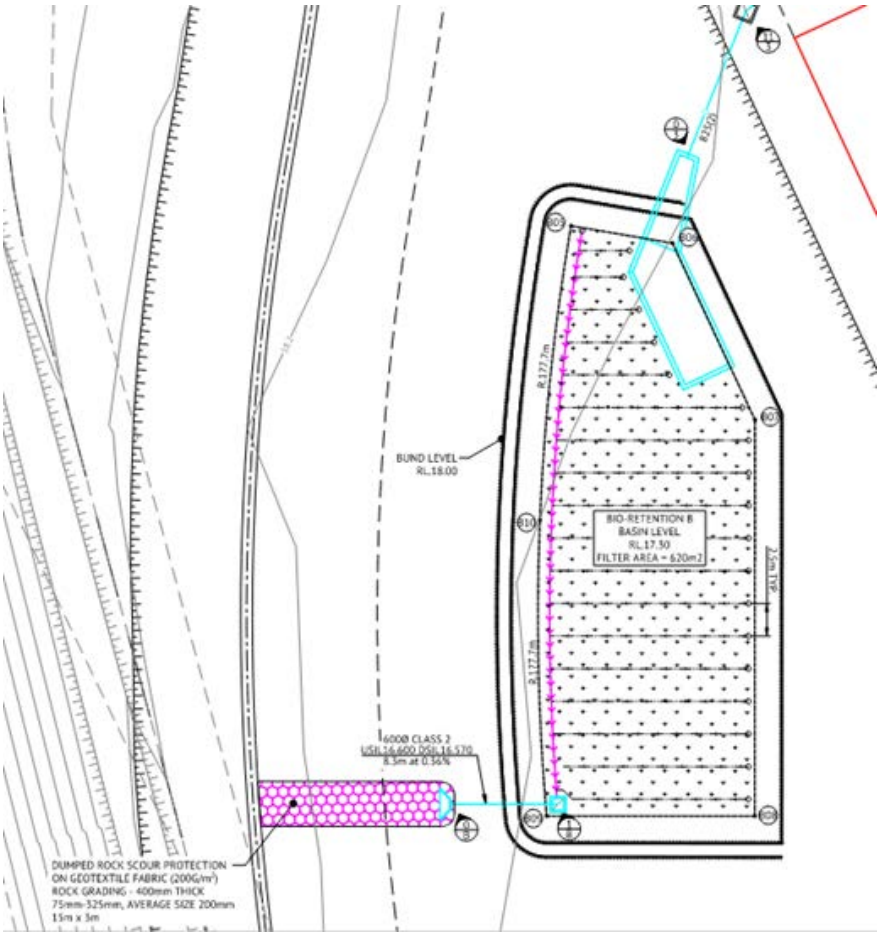
BASIN A - BASE 290 m2 (FILTER AREA 270m2)					
RIVERSTONE ELE0101					
Item	**Description**	**Unit**	**Quantity**	**Rate**	**Amount**
3	**Revegetation including establishment**				
(a)	Hydromulching (Standard hydromulch with temporary irrigation)	m^2	182	$ 5.40	$ 982.80
4	**Scour Protection**				
(a)	Dumped rock - 400mm thick (D_{50} 200mm) on geotextile fabric (200g/m2)	m^2	45	$ 55.00	$ 2,475.00
5a	**Temporary modified high efficiency sediment basin including geofabric lining and auto rainfall doser**				
(a)	Basin - A	Lump Sum	1	$ 12,500.00	$ 12,500.00
5b	**Convert temporary basin constructed to Bio-Retention drainage works including subsoil drainage, filter media and temporary turfing.**				
(a)	Bio-Retention - A	Lump Sum	1	$ 30,000.00	$ 30,000.00
6	**Supply and construct cast in situ concrete headwall, wingwall and apron to match the following RCP sizes**				
(a)	Bio-retention headwall including wingwalls and course sediment forebay - A	Each	1	$ 28,500.00	$ 28,500.00
					$ 74,457.80

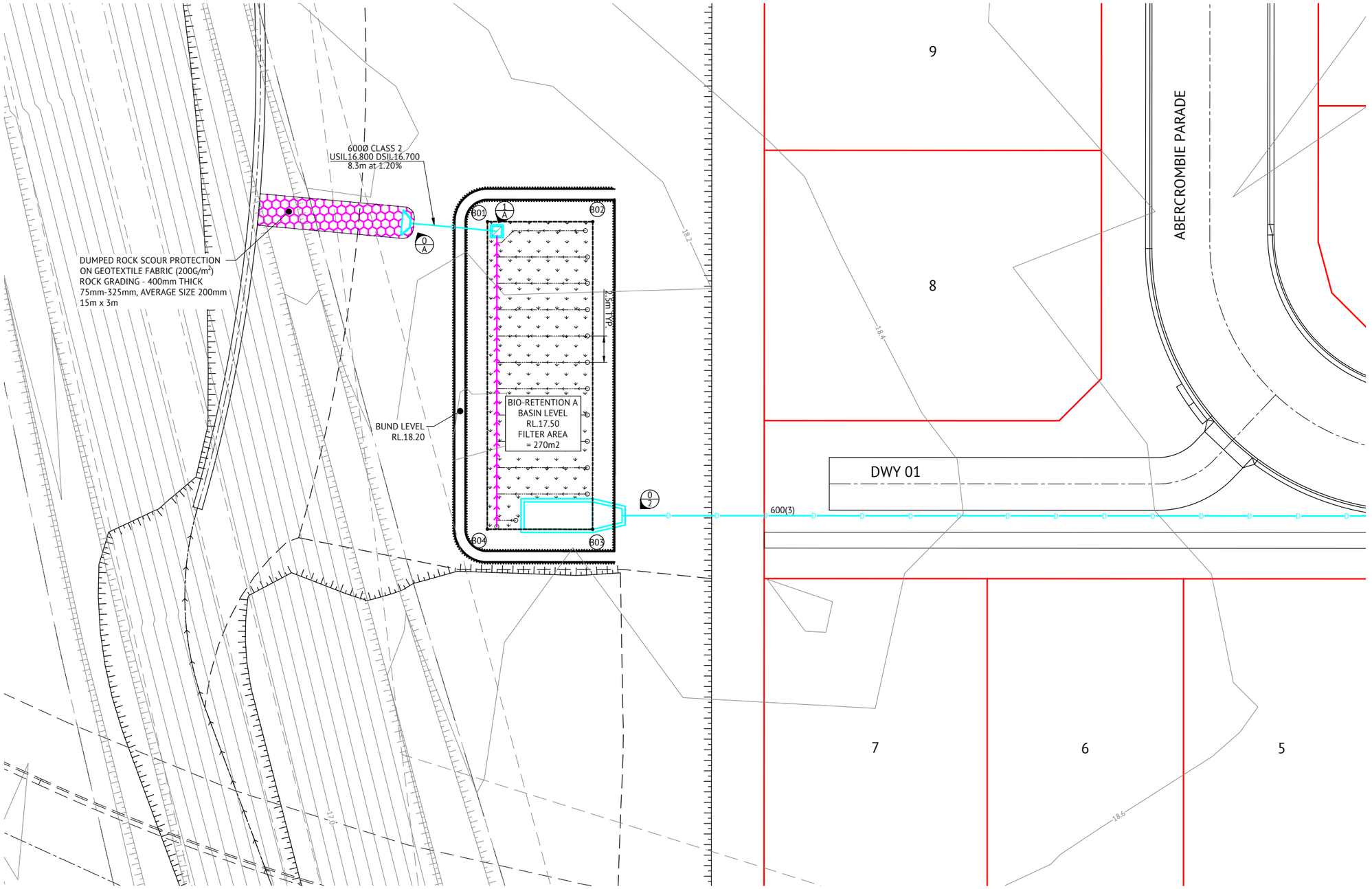
taken from Payment Claim 14



BASIN B - BASE 665 m2 (FILTER AREA 620m2)					
RIVERSTONE ELE0101					
Item	**Description**	**Unit**	**Quantity**	**Rate**	**Amount**
3	**Revegetation including establishment**				
(a)	Hydromulching (Standard hydromulch with temporary irrigation)	m^2	256	$ 5.40	$ 1,382.40
4	**Scour Protection**				
(a)	Dumped rock - 400mm thick (D_{50} 200mm) on geotextile fabric (200g/m2)	m^2	45	$ 55.00	$ 2,475.00
5a	**Temporary modified high efficiency sediment basin including geofabric lining and auto rainfall doser**				
(b)	Basin - B	Lump Sum	1	$ 18,000.00	$ 18,000.00
5b	**Convert temporary basin constructed to Bio-Retention drainage works including subsoil drainage, filter media and temporary turfing.**				
(b)	Bio-Retention - B	Lump Sum	1	$ 65,000.00	$ 65,000.00
6	**Supply and construct cast in situ concrete headwall, wingwall and apron to match the following RCP sizes**				
(b)	Bio-retention headwall including wingwalls and course sediment forebay - B	Each	1	$ 41,000.00	$ 41,000.00
					$ 127,857.40

taken from Payment Claim 14





LEGEND

- 5.90 — EXISTING SURFACE CONTOURS
- RL.31.75 — EARTHWORKS LEVEL
- TOP OF BATTER
- BOTTOM OF BATTER
- 225Ø uPVC PIPE
- 100Ø FLEXIBLE PERFORATED CORRUGATED PIPE WITH CAPPED CLEAN OUT POINT, REFER THIS SHEET FOR DETAILS

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH IPWEA STANDARD DRAWING DS-078.
2. FILTER CLOTH - PROPRIETARY PRODUCT, BIDIM A24 OR EQUIVALENT NON-WOVEN GEOTEXTILE.
   FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS.
3. UNDER-DRAIN: 100Ø FLEXIBLE PERFORATED CORRUGATED PIPE.
   PIPES SHOULD NOT BE INSTALLED WITH A FILTER SOCK SURROUNDING PIPE.
   UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUT OR OTHER APPROVED WATERTIGHT SEAL.
4. FOR COARSE SEDIMENT FOREBAY CONCRETE AND REINFORCEMENT DETAILS, REFER TO DTMR STANDARD DRAWING 1304 (DRAWINGS 1 AND 2).

BIO-RETENTION BASIN LAYOUT - A

SCALE: 1:200

BIO RETENTION SETOUT

POINT	EASTING	NORTHING
B01	70396.176	59892.434
B02	70405.908	59894.732
B03	70412.617	59866.313
B04	70402.885	59864.016

STORMWATER PIT DETAILS

PIT	TYPE	LEVEL	EASTING	NORTHING
1/A	900x900 FIELD INLET	TM.17.900	70397.258	59891.765
0/A	PRECAST CONCRETE HEADWALL	-	70389.041	59890.595

FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
13/10/2021	A	ISSUED FOR CONSTRUCTION	GF	PP
17/06/2021	1	PRELIMINARY - NOT FOR CONSTRUCTION	JS	PP

REVISIONS

Premise
TOWNSVILLE OFFICE
84 DENHAM STREET
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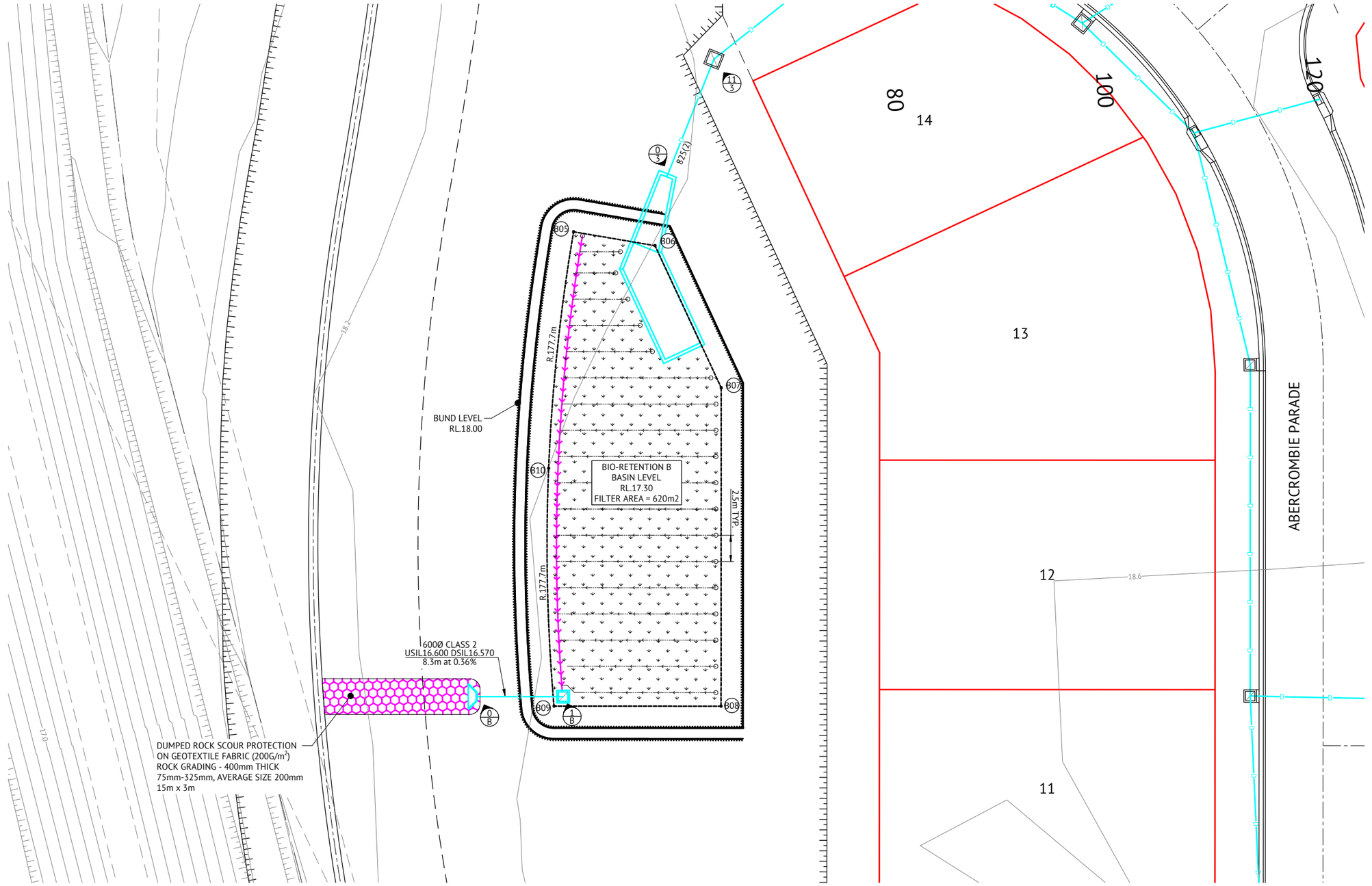
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

DESIGNED J.STROGUSZ
CHECKED P.PETERSEN
PROJECT MANAGER P.PETERSEN
ENGINEERING CERTIFICATION
P.PETERSEN RPEQ 13231

SCALE
0 4 8 12m
SCALE 1:200 (A1)
ORIGINAL SHEET SIZE A1

CLIENT ELEMENTS NQ (RASMUSSEN) PTY LTD
PROJECT RIVERSTONE - PRECINCT 1 - STAGE 1A
LOCATION SOUTH BECK DRIVE, RASMUSSEN
SHEET TITLE BIO-RETENTION DETAILS PLAN - SHEET 1 OF 2

JOB CODE ELE-0101
SHEET NUMBER C040
REV A



BIO-RETENTION BASIN LAYOUT - B

SCALE: 1:200

BIO RETENTION SETOUT

POINT	EASTING	NORTHING
B05	70368.121	59998.713
B06	70375.986	59999.212
B07	70385.243	59987.488
B08	70392.218	59957.945
B09	70376.714	59954.285
B10	70370.998	59976.224

STORMWATER PIT DETAILS

PIT	TYPE	LEVEL	EASTING	NORTHING
1/B	900x900 FIELD INLET	TM.17.70	70377.357	59955.363
0/B	PRECAST CONCRETE HEADWALL	-	70369.279	59953.456

FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
13/10/2021	A	ISSUED FOR CONSTRUCTION	GF	PP
17/06/2021	1	PRELIMINARY - NOT FOR CONSTRUCTION	JS	PP

REVISIONS

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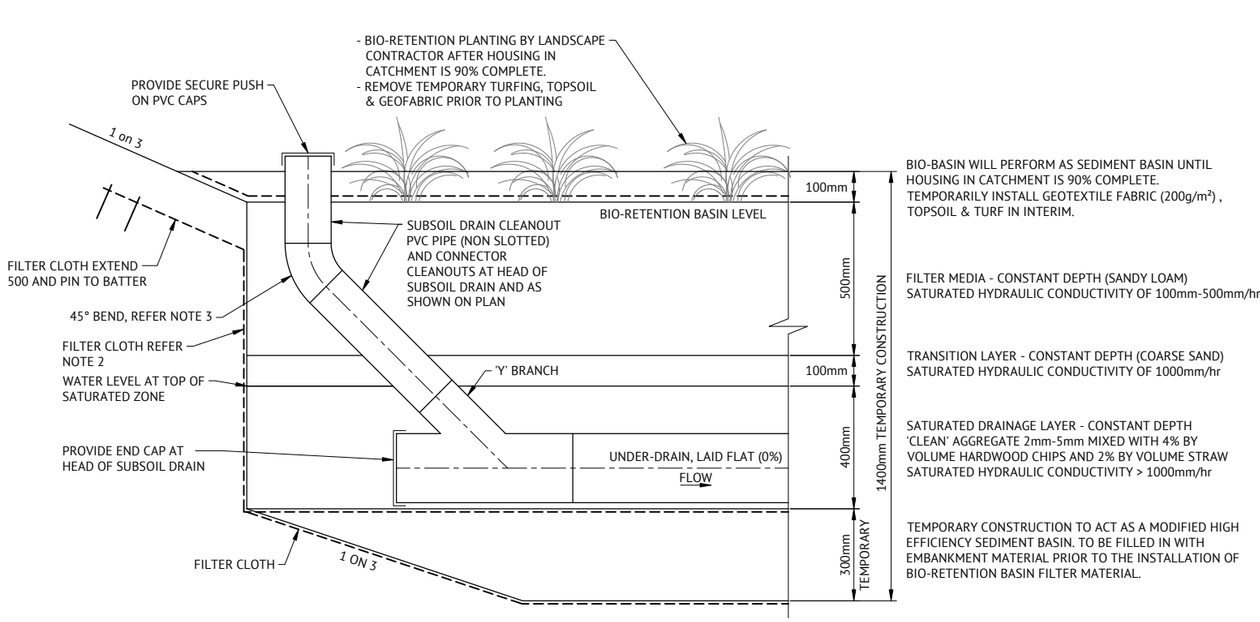
WEB: www.premise.com.au

DESIGNED J.STROGUSZ
CHECKED P.PETERSEN
PROJECT MANAGER P.PETERSEN
ENGINEERING CERTIFICATION
P.PETERSEN RPEQ 13231

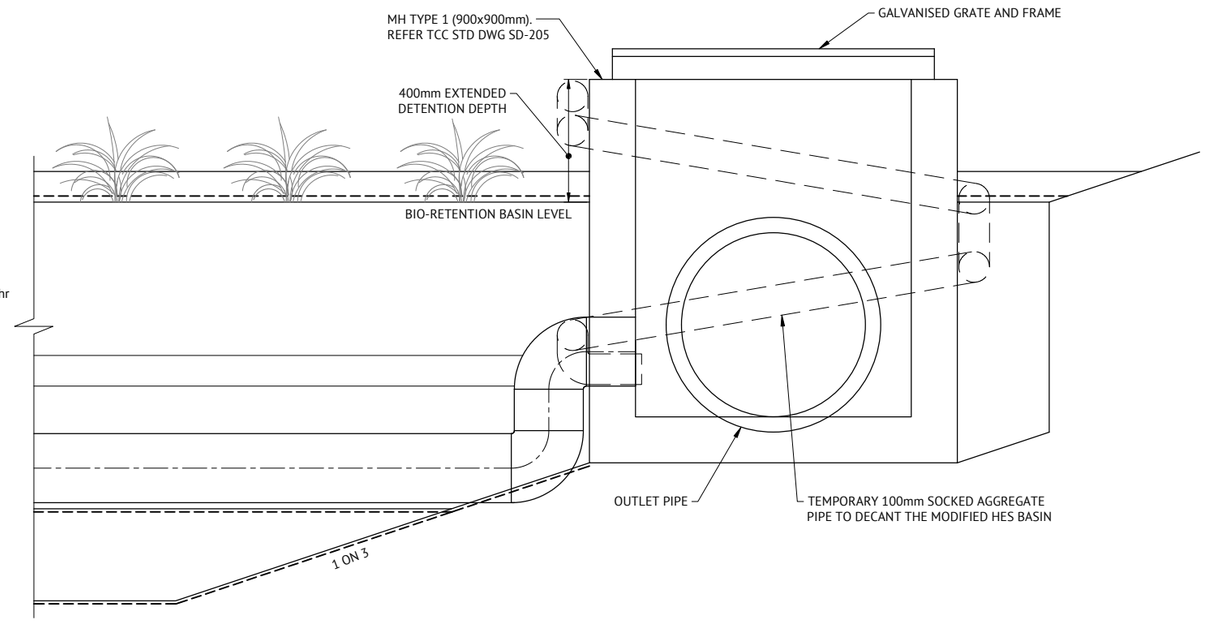
SCALE
0 4 8 12m
SCALE 1:200 (A1)
ORIGINAL SHEET SIZE A1

CLIENT ELEMENTS NQ (RASMUSSEN) PTY LTD
PROJECT RIVERSTONE - PRECINCT 1 - STAGE 1A
LOCATION SOUTH BECK DRIVE, RASMUSSEN
SHEET TITLE BIO-RETENTION DETAILS PLAN - SHEET 2 OF 2

JOB CODE ELE-0101
SHEET NUMBER C041
REV A



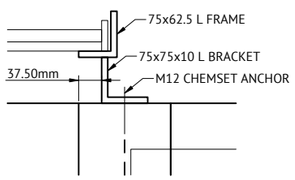
BIO-RETENTION BASIN SUBSOIL CLEANOUT AND FILTER MEDIA
SCALE: 1:10



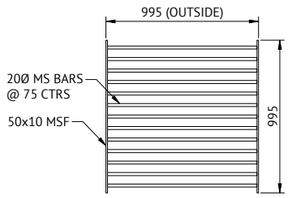
TYPICAL BIO-RETENTION BASIN OVERFLOW PIT
SCALE: 1:10

TYPICAL SECTION - BIO-RETENTION BASIN
SCALE 1:50

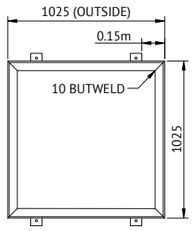
NOTES:
1. FRAME, ANGLES AND GRATE SHALL BE HOT DIPPED GALVANISED.
2. ALL BARS TO BE MILD STEEL. ALL WELDS TO BE 6mm FILLET WELDS.



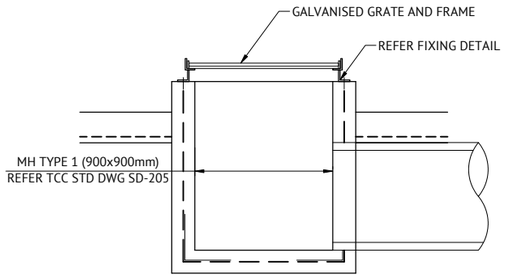
FIXING DETAIL



GRATE

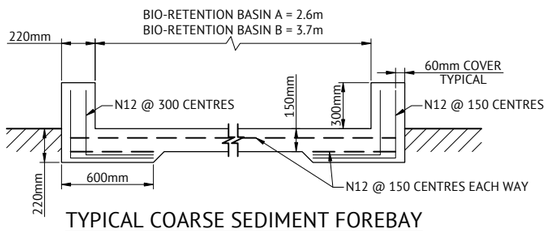


FRAME



FIELD INLET

RAISED GRATE FIELD INLET
1:20



TYPICAL COARSE SEDIMENT FOREBAY RE-INFORCEMENT DETAIL
SCALE 1:20

0 0.2 0.4 0.6m
SCALE 1:10 (A1)

0 0.4 0.8 1.2m
SCALE 1:20 (A1)

0 1 2 3m
SCALE 1:50 (A1)

0 2 4 6m
SCALE 1:100 (A1)

FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
13/10/2021	A	ISSUED FOR CONSTRUCTION	GF	PP
17/06/2021	1	PRELIMINARY - NOT FOR CONSTRUCTION	JS	PP

REVISIONS

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PO BOX 1110
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PH: (07) 4772 0666
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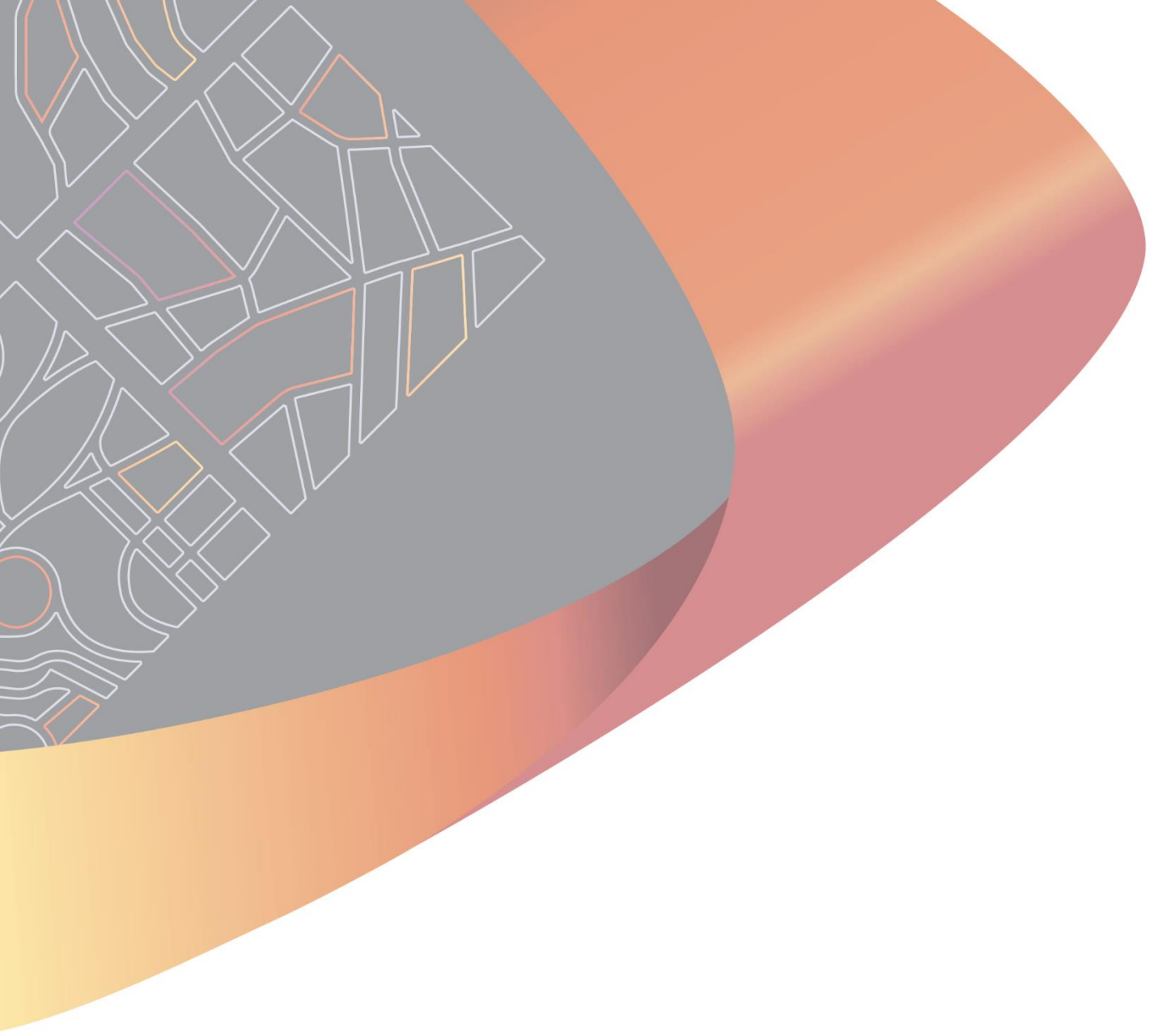
DESIGNED J.STROGUSZ
CHECKED P.PETERSEN
PROJECT MANAGER P.PETERSEN
ENGINEERING CERTIFICATION
P.PETERSEN RPEQ 13231
SCALE: AS SHOWN
ORIGINAL SHEET SIZE A1

CLIENT: ELEMENTS NQ (RASMUSSEN) PTY LTD
PROJECT: RIVERSTONE - PRECINCT 1 - STAGE 1A
LOCATION: SOUTH BECK DRIVE, RASMUSSEN
SHEET TITLE: BIO-RETENTION DETAILS

JOB CODE: ELE-0101
SHEET NUMBER: C042
REV: A

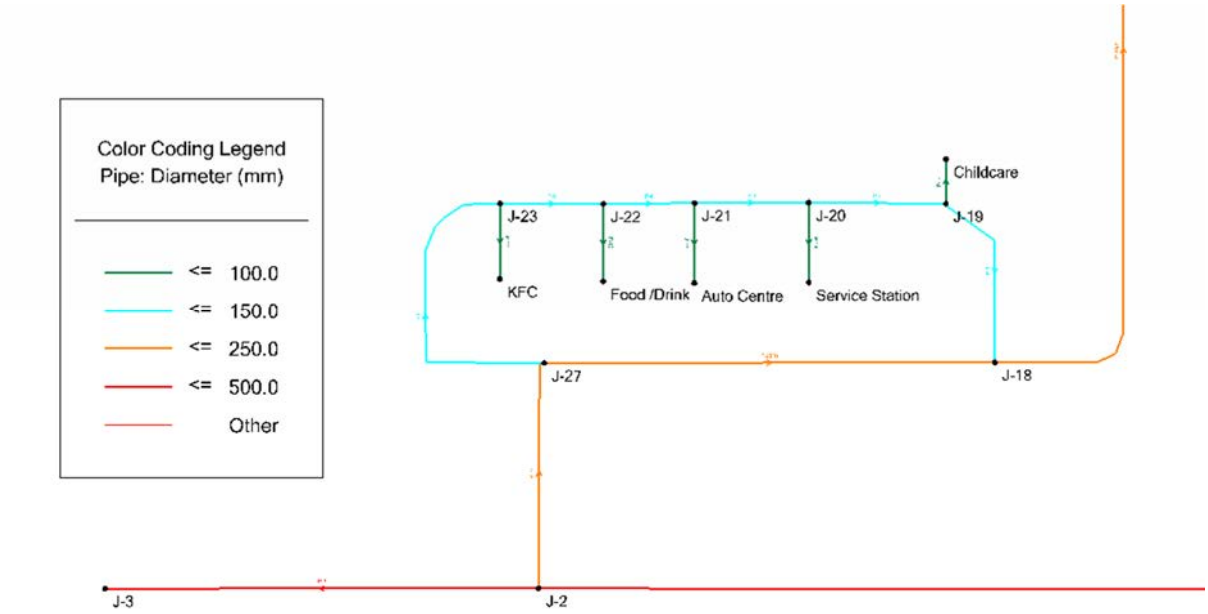


Premise

APPENDIX G

WATERCAD OUTPUT RESULTS

WaterCAD Layout



Scenario: Base
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (m H2O)	Pressure (Maximum) (m H2O)	Pressure (Minimum) (m H2O)
89	J-27	11.80	<None>	<Collection: 0 items>	0	53.09	41	41	41
985	J-23	11.80	<None>	<Collection: 0 items>	0	53.00	41	41	41
969	KFC	11.80	<None>	<Collection: 1 item>	0	53.00	41	41	41
996	J-22	11.80	<None>	<Collection: 0 items>	0	52.98	41	41	41
999	Food /Drink	11.80	<None>	<Collection: 1 item>	0	52.98	41	41	41
1001	J-21	11.80	<None>	<Collection: 0 items>	0	52.96	41	41	41
1004	Auto Centre	11.80	<None>	<Collection: 1 item>	0	52.96	41	41	41
988	J-20	11.80	<None>	<Collection: 0 items>	0	52.94	41	41	41
972	Service Station	11.80	<None>	<Collection: 1 item>	1	52.94	41	41	41
992	J-19	11.80	<None>	<Collection: 0 items>	0	52.93	41	41	41
975	Childcare	11.80	<None>	<Collection: 1 item>	0	52.92	41	41	41
981	J-18	11.80	<None>	<Collection: 0 items>	0	52.91	41	41	41

Scenario: Fire Fighting Scenario
Current Time Step: 0.000 h
FlexTable: Junction Table

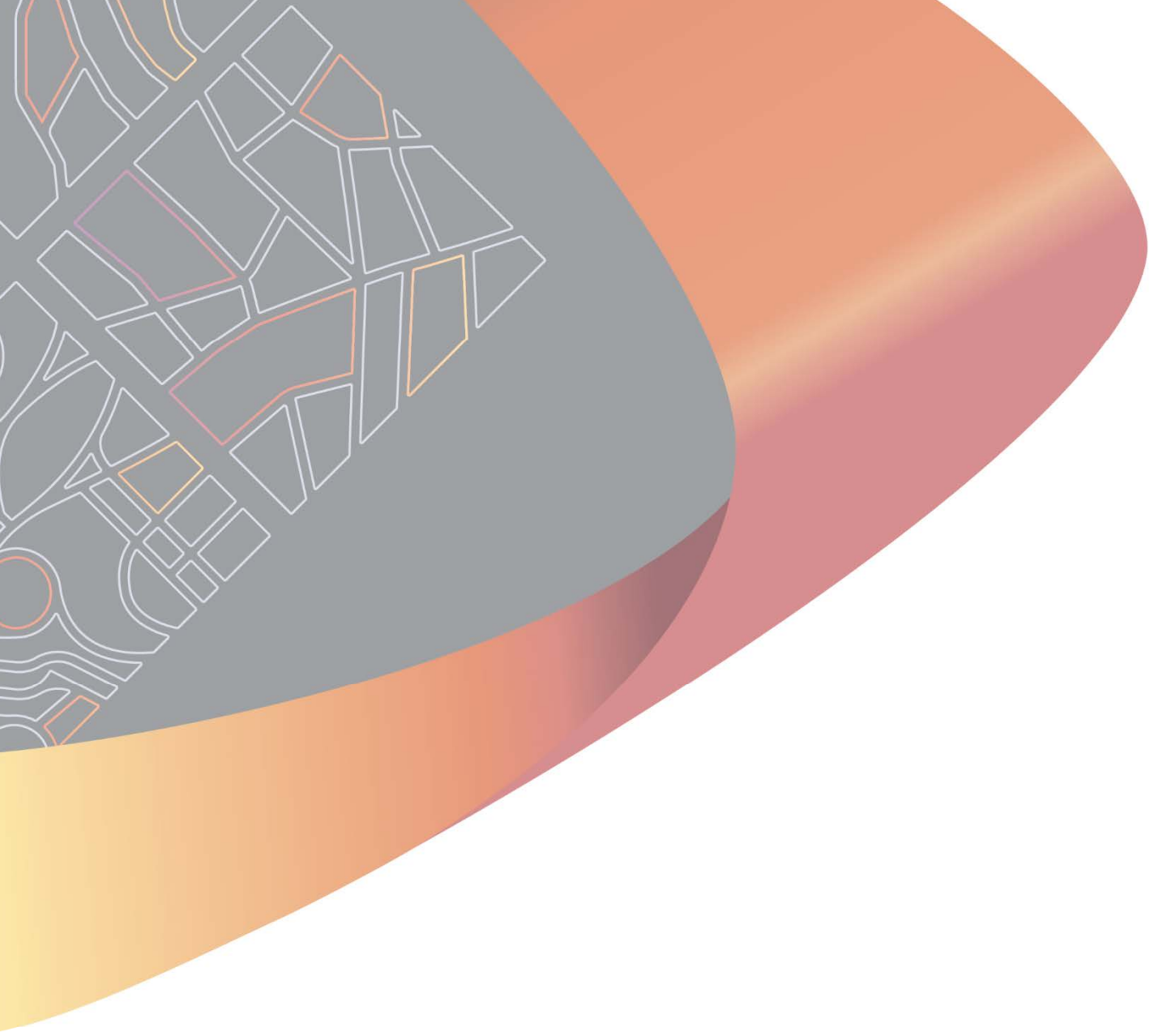
ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (m H2O)	Pressure (Maximum) (m H2O)	Pressure (Minimum) (m H2O)
89	J-27	11.80	<None>	<Collection: 0 items>	0	52.52	41	41	41
981	J-18	11.80	<None>	<Collection: 0 items>	0	52.18	40	40	40
992	J-19	11.80	<None>	<Collection: 0 items>	0	51.91	40	40	40
975	Childcare	11.80	<None>	<Collection: 1 item>	0	51.91	40	40	40
988	J-20	11.80	<None>	<Collection: 0 items>	0	51.73	40	40	40
972	Service Station	11.80	<None>	<Collection: 1 item>	1	51.72	40	40	40
1001	J-21	11.80	<None>	<Collection: 0 items>	0	51.59	40	40	40
1004	Auto Centre	11.80	<None>	<Collection: 1 item>	0	51.59	40	40	40
996	J-22	11.80	<None>	<Collection: 0 items>	0	51.48	40	40	40
999	Food /Drink	11.80	<None>	<Collection: 1 item>	0	51.48	40	40	40
985	J-23	11.80	<None>	<Collection: 0 items>	0	51.36	39	39	39
969	KFC	11.80	<None>	<Collection: 2 items>	30	47.09	35	35	35

Scenario: Base
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (L/s)	Velocity (m/s)	Headloss Gradient (Maximum) (m/m)
982	P-28(1)	149	J-27	J-18	250.0	PVC	130.0	0.000	25	0.51	0.001
1015	P-6	109	J-23	J-27	150.0	PVC	120.0	0.000	-5	0.26	0.001
998	P-5	34	J-22	J-23	150.0	PVC	120.0	0.000	-4	0.25	0.001
1003	P-4	30	J-21	J-22	150.0	PVC	120.0	0.000	-4	0.23	0.001
1002	P-3	38	J-20	J-21	150.0	PVC	120.0	0.000	-4	0.22	0.001
994	P-2	45	J-19	J-20	150.0	PVC	120.0	0.000	-3	0.19	0.000
993	P-1	61	J-18	J-19	150.0	PVC	120.0	0.000	-3	0.17	0.000
991	P-13	26	Service Station	J-20	100.0	PVC	120.0	0.000	-1	0.07	0.000
995	P-14	15	Childcare	J-19	100.0	PVC	120.0	0.000	0	0.05	0.000
987	P-12	25	J-23	KFC	100.0	PVC	120.0	0.000	0	0.04	0.000
1000	P-15	25	J-22	Food /Drink	100.0	PVC	120.0	0.000	0	0.03	0.000
1005	P-16	26	J-21	Auto Centre	100.0	PVC	120.0	0.000	0	0.03	0.000

Scenario: Fire Fighting Scenario
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (L/s)	Velocity (m/s)	Headloss Gradient (Maximum) (m/m)
987	P-12	25	J-23	KFC	100.0	PVC	120.0	0.000	30	3.86	0.172
1015	P-6	109	J-23	J-27	150.0	PVC	120.0	0.000	-20	1.11	0.011
993	P-1	61	J-18	J-19	150.0	PVC	120.0	0.000	12	0.69	0.004
994	P-2	45	J-19	J-20	150.0	PVC	120.0	0.000	12	0.66	0.004
1002	P-3	38	J-20	J-21	150.0	PVC	120.0	0.000	11	0.63	0.004
1003	P-4	30	J-21	J-22	150.0	PVC	120.0	0.000	11	0.62	0.004
998	P-5	34	J-22	J-23	150.0	PVC	120.0	0.000	11	0.61	0.003
982	P-28(1)	149	J-27	J-18	250.0	PVC	130.0	0.000	35	0.72	0.002
991	P-13	26	Service Station	J-20	100.0	PVC	120.0	0.000	-1	0.07	0.000
995	P-14	15	Childcare	J-19	100.0	PVC	120.0	0.000	0	0.05	0.000
1000	P-15	25	J-22	Food /Drink	100.0	PVC	120.0	0.000	0	0.03	0.000
1005	P-16	26	J-21	Auto Centre	100.0	PVC	120.0	0.000	0	0.03	0.000



Premise

APPENDIX F

Traffic Impact Assessment prepared by Premise

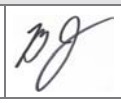
PARKSIDE DEVELOPMENTS PTY LTD

GREATER ASCOT SHOPPING CENTRE STAGE 1

TRAFFIC IMPACT ASSESSMENT

Report No: P001406/R01
Rev: B
7 November 2024

Premise

DOCUMENT AUTHORISATION					
Revision	**Revision Date**	**Proposal Details**			
DRAFT	24/07/24	For review			
A	29/08/24	For comment			
B	07/11/24	For submission			
Prepared By		**Reviewed By**		**Authorised By**	
Prineth Fernando		Bradley Jones		Bradley Jones	

CONTENTS

TABLES

FIGURES

1. INTRODUCTION

Parkside Developments Pty Ltd (Parkside) is proposing to develop Stage 1 of the Greater Ascot town centre on the northeast corner of Dalrymple Road / Shaw Road intersection in Shaw. Premise Townsville Pty Ltd (Premise) has been engaged by Parkside to prepare a Traffic Impact Assessment (TIA) for the Stage 1 of the proposed Greater Ascot Town Centre.

1.1 Background

On 28 May 2013, the Townsville City Council (TCC) approved, subject to conditions, the Development Permit – Material Change of Use (Impact) MI11/0064 for the Neighbourhood Centre at 890 Dalrymple Road, as enclosed in Appendix A. The application was supported by the "Greater Ascot Neighbourhood Centre, Townsville: Traffic Impact Assessment", TPAR023/R01revB dated 13 July 2012, as enclosed in Appendix B. The report was prepared by UDP Horman Traffic (now Premise) in accordance with Department of Transport and Main Roads' (TMR's) "Guidelines for Assessment of Road Impacts of Developments" (GARID) which was superseded by TMR's "Guide to Traffic Impact Assessment" (GTIA) in July 2017. Also, since approval of MI11/0064, Townsville City Plan SC6.4.5.2 Traffic Impact Assessment has been adopted which provides guidelines for assessment of traffic impacts on TCC transport networks.

Premise has been engaged by Parkside to prepare a Traffic Impact Assessment (TIA) for the Stage 1 of the proposed Greater Ascot Town Centre in accordance with the current TMR and TCC guidelines. This report makes references to TPAR023/R01revB and MI11/0064.

1.2 Scope and Study Area

The site is located at 890 Dalrymple Road in Shaw with a property description of Lot 2 on SP 107219. The location of the site is shown in Figure 1. It is bounded by Dalrymple Road to the south, Shaw Road to the west, and Greater Ascot internal roads to the north and east. The impact assessment area consists of Dalrymple Road fronting the subject site, including the Dalrymple Road / Shaw Road traffic signals, Dalrymple Road / Bishop Putney Avenue traffic signals and the proposed left-in / left-out (LILO) access located approximately 200m east of the Dalrymple Road / Shaw Road traffic signals. The expected opening year for Stage 1 of the shopping centre is 2026 and Stage 2 is 2031.

Figure 1: Site location and the surrounding road network (Source: Queensland Globe)

2. EXISTING CONDITIONS

2.1 Land Use and Zoning

As shown by Figure 2, the subject site is currently zoned as an "emerging community" zone under the TCC Planning Scheme.

Figure 2: Zone map showing the subject site location (Source: TownsvilleMAPS – Townsville City Plan)

2.2 Adjacent Land Uses / Approvals

As shown in Figure 2, the subject site is bounded by:

- Dalrymple Road to the south
- Shaw Road to the west
- Greater Ascot internal roads to the north and east

The sites to the north and west of the subject site are zoned as "residential", the site to the south is zoned as "emerging community" and the vacant site to the west is zoned as "rural".

St Benedict's Catholic School occupies land directly to the south on the opposite side of Dalrymple Road to the subject site.

2.3 Surrounding Road Network Details

2.3.1 SHAW ROAD

Shaw Road generally comprises of an undivided carriageway providing a single lane in each direction with wide sealed shoulders within the vicinity of the site. It is a State-Controlled Road (SCR) under the governing authority of TMR. The posted speed limit on Shaw Road is 80km/h in the vicinity of the site. Shaw Road forms a signalised intersection with Dalrymple Road with the subject site located in the northeast corner.

2.3.2 DALRYMPLE ROAD

Dalrymple Road comprises of two lanes in each direction divided by a median along the frontage of the site. It is a Local Government Road (LGR) under the governing authority of TCC. The posted speed limit on Dalrymple Road is 80km/h along the frontage of the site.

2.3.3 BISHOP PUTNEY AVENUE

Bishop Putney Avenue is a two-way, two-lane, undivided road in the north-south direction. It is a LGR administered by TCC. Bishop Putney Avenue currently serves the St Benedict's Catholic School. It will form a four-way intersection controlled by traffic signals to access the proposed shopping centre as part of the Stage 1 works.

2.4 Traffic Volumes

2.4.1 SHAW ROAD

Premise received traffic volume data from TMR for Shaw Road, 800m north of Dalrymple Road / Shaw Road traffic signals. The data was collected in May 2023 and the data reports are enclosed in Appendix D.

The Average Annual Daily Traffic (AADT) on Shaw Road is 10,482 vehicles per day (vpd), with 4,600 vehicles travelling in the northbound direction and 5,882 vehicles travelling in the southbound direction. The recorded heavy vehicle percentage (HV%) is 12%.

2.4.2 DALRYMPLE ROAD

Premise received STREAMS data from TMR for the Dalrymple Road / Shaw Road traffic signals. The data was collected in May 2024. The data reports are enclosed in Appendix E.

Based on the data, the Average Daily Traffic (ADT) on Dalrymple Road at the site frontage is 11,383vpd.

2.4.3 BISHOP PUTNEY AVENUE

Premise received STREAMS data from TMR for the Dalrymple Road / Bishop Putney Avenue traffic signals. The data was collected in May 2024. The data reports are enclosed in Appendix E.

Based on the data, the ADT on Bishop Putney Avenue is 1,490vpd.

2.5 Road Safety Issues

Road safety issues within the assessment area was assessed based on the reported crash data provided by TMR for a period from 1 January 2007 to 31 January 2024. TMR provided crash data for all reported crashes on Shaw Road between Tompkins Road and Hervey Range Road and on Dalrymple Road between Bruce Highway and Golf Links Drive. The crash reports provided by TMR are enclosed in Appendix F.

The assessment area consists of Dalrymple Road including the Dalrymple Road / Shaw Road traffic signals and the Bishop Putney Avenue / Dalrymple Road traffic signals. There has been a total of 20 reported crashes in the assessment area. Out of the 20 crashes, seven (7) crashes resulted in hospitalisation, eight (8) resulted in medical treatment, one (1) resulted in minor injury and four (4) resulted in property damage only.

2.5.1 DALRYMPLE ROAD / SHAW ROAD TRAFFIC SIGNALS

14 crashes have been recorded at the Dalrymple Road / Shaw Road traffic signals during this period. A summary of the types of crashes are listed below.

- One (1) crash involving turning vehicles in the opposite approach
- Two (2) crashes involving vehicles in the adjacent approach
- Eight (8) rear end crashes
- Three (3) loss of control and going off-path type crashes

2.5.2 DALRYMPLE ROAD / BISHOP PUTNEY AVENUE

One (1) rear end type crash has been recorded at the Dalrymple Road / Bishop Putney Avenue traffic signals during this period.

2.5.3 DALRYMPLE ROAD

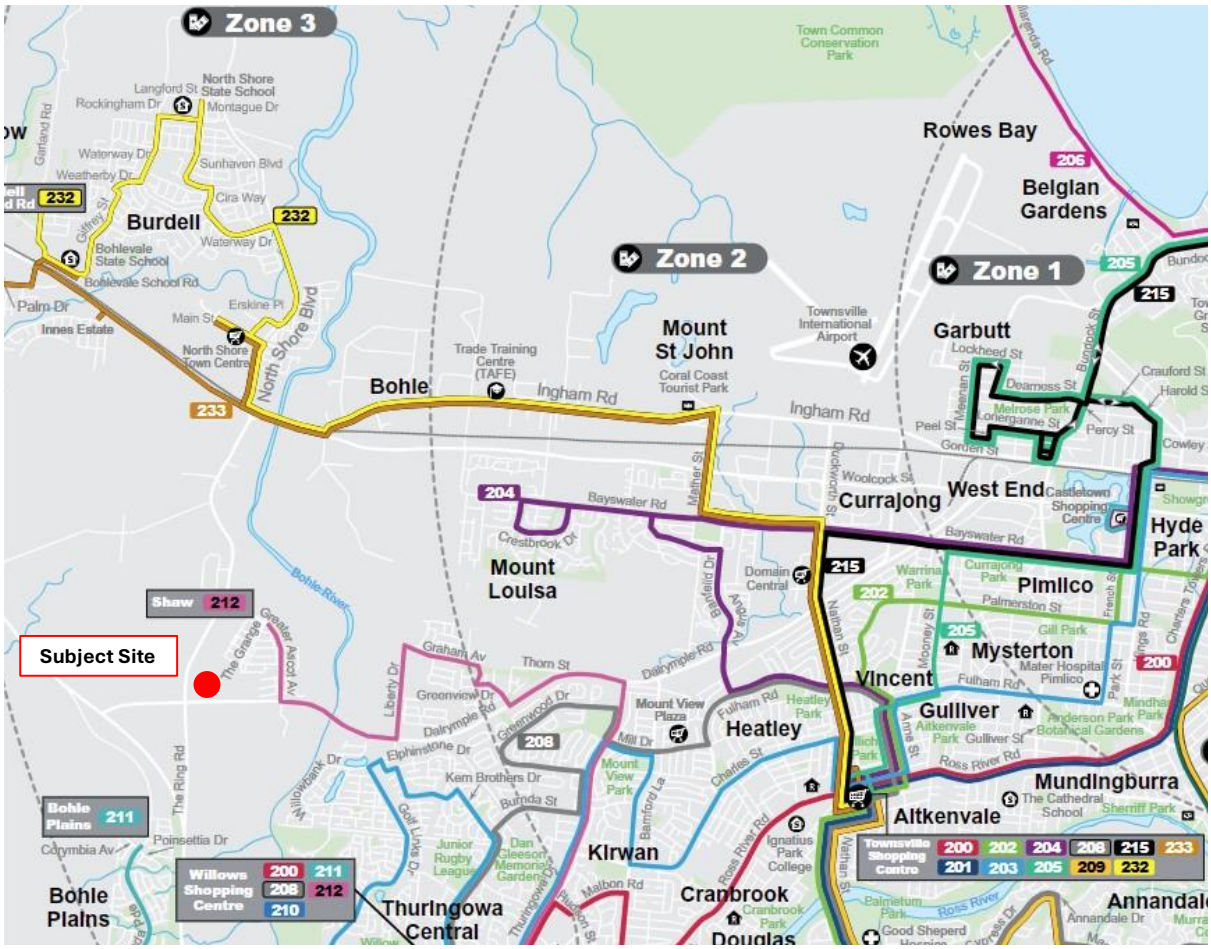
Five (5) crashes have been recorded on Dalrymple Road between the Dalrymple Road / Shaw Road traffic signals and the Dalrymple Road / Bishop Putney Avenue traffic signals during this period. A summary of the types of crashes are listed below.

- Three (3) rear end crashes
- One (1) loss of control and going off-path type crash
- One (1) crash involving lane changing

2.6 Public Transport

Public transport in Townsville generally consists of bus services. The subject site is located within Zone 3 of the Translink Townsville bus network as shown in Figure 3.

Figure 3: Townsville bus network plan (Source: Translink)



Bus route 212 services Greater Ascot Avenue approximately 500m east of the subject site. Bus route 212 operates Shaw to Willows Shopping Centre via Mt Louisa with services in both directions operating hourly between 8AM and 6PM Monday to Saturday. The service does not operate on Sundays.

2.7 Active Transport

2.7.1 BICYCLE NETWORK

Currently a wide sealed shoulder provides an on-road bicycle lane on Shaw Road and Dalrymple Road along the site frontage however no pavement markings indicate provision of a bicycle lane. Bicycle lanes are generally provided at the Dalrymple Road / Shaw Road traffic signals.

Shaw Road and Dalrymple Road in the vicinity of the site are identified as principal cycle routes in the Principal Cycle Network Plan.

2.7.2 PEDESTRIAN NETWORK

Pedestrian signals are provided on all four (4) legs of the Dalrymple Road / Bishop Putney Avenue intersections however the only slip lane crossing that is controlled is on the southwest corner adjacent to St Benedict's Catholic School.

Paths are provided on both sides of Dalrymple Road east of Bishop Putney Avenue and on Bishop Putney Avenue south of Dalrymple Road. A path is provided only on the southern side of Dalrymple Road between Bishop Putney Avenue and Shaw Road.

3. PROPOSED DEVELOPMENT DETAILS

3.1 Development Site Plan

Site layouts of the proposed Stage 1 of the shopping centre and the completed shopping centre (Stages 1 & 2) are shown in Figure 4 and Figure 5, and enclosed in Appendix C.

Figure 4: Site layout of the Stage 1 of the shopping centre

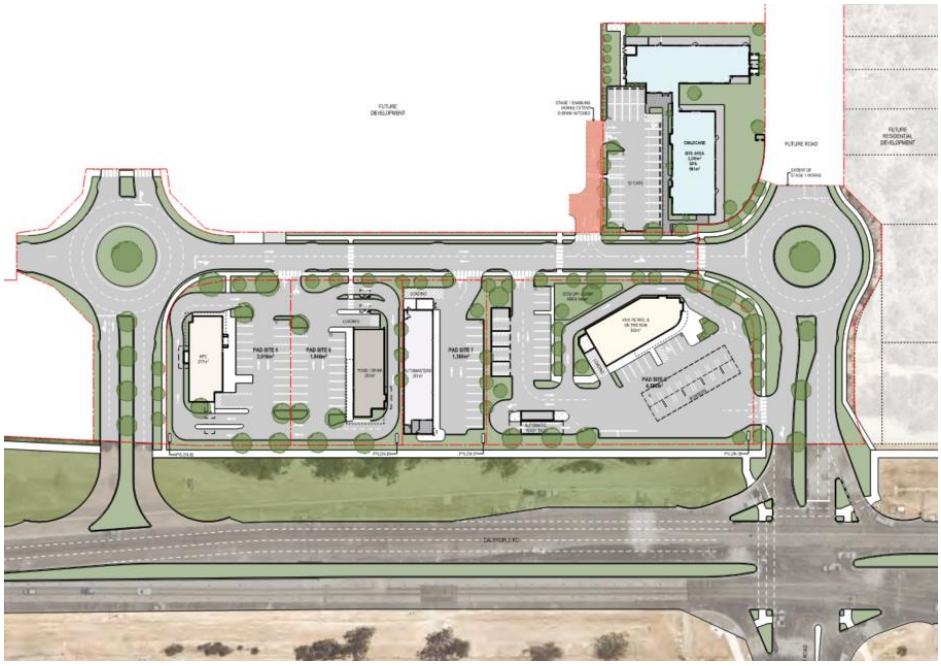
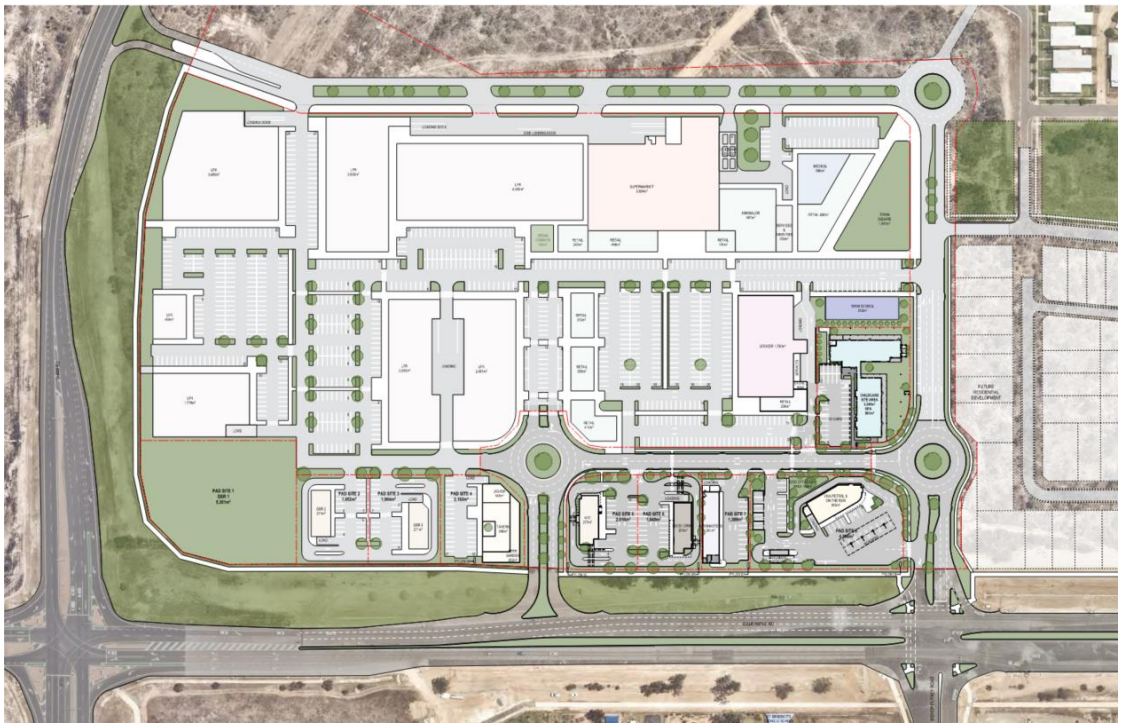


Figure 5: Site layout of the completed shopping centre (Stages 1 & 2)



3.2 Operational Details

Stage 1 of the shopping centre has a Gross Leasable Area (GLA) of 2,329m^2 and comprises of the following components.

- A service station, including a convenient store and a carwash, with a GLA of 363m^2
- A car service centre of with a GLA of 351m^2
- Two (2) fast-food restaurants with a total GLA of 528m^2
- A childcare centre with a GLA of 919m^2

Stage 2 of the shopping centre has a GLA of 31,303m^2 and comprises of the following components.

- Tavern, beer garden and liquor store with a total GLA of 748m^2
- Two (2) fast food restaurants with a total GLA of 548m^2
- Seven (7) department stores with a total GLA of 17,142m^2
- 10 retail stores with a total GLA of 4,256m^2
- A grocery store with a GLA of 1,750m^2
- A supermarket with a GLA of 3,804m^2
- A medical centre with a GLA of 586m^2

3.3 Proposed Access

Three (3) accesses are proposed for the shopping centre off the external road network.

- New northern leg at the Dalrymple Road / Bishop Putney Avenue traffic signals
- LILO access forming a T intersection with Dalrymple Road, approximately 200m east of the Dalrymple Road / Shaw Road traffic signals
- LILO access forming a T intersection with Shaw Road, approximately 300m north of the Dalrymple Road / Shaw Road traffic signals

Two (2) roundabouts are proposed within the site, connected by an internal east-west road. Two (2) internal north-south roads connect the roundabouts to the shopping centre's main entrances off Dalrymple Road. These two accesses will be assessed as part of the TIA.

The service station proposed on the northwest corner of the Dalrymple Road / Bishop Putney Avenue traffic signals is proposed have a LILO access approximately 15m north of the traffic signals.

4. DEVELOPMENT TRAFFIC

4.1 Traffic Generation

Traffic generation for Stage 1 and Stage 2 of the shopping centre was estimated following a review of the "Guide to Traffic Generating Development, RTA (2002)". The peak traffic hour for the shopping centre is on a Thursday between 4.30pm and 5.30pm.

The "Guide to Traffic Generating Development, RTA (2002)" specifies the following for calculating peak hour vehicle trips for each amenity:

- 'Section 3.6.2 Service stations and convenient stores' estimates 281 vehicle trips in the evening peak for a service station with convenient store facilities.
- 'Section 3.6.4 Car tyre retail outlets'' estimates one (1) evening peak hour vehicle trip per 100m^2 of site area. The car service station generates 14 evening peak hour vehicle trips.
- 'Section 3.7.1 Drive-in take away food outlets' estimates 100 vehicles trips in the evening peak hour for a fast-food outlet with dine-in and drive-in takeaway facilities.
- 'Section 3.11.3 Childcare centres' estimates 0.7 vehicles trips per child in the evening peak hour, with a mean floor area of 7.8m^2 per child for a long-day care facility. The proposed childcare generates 82 vehicle trips in the evening peak hour.
- 'Section 3.7.2 Restaurants' estimates an evening peak hour trip generation of 5 vehicle trips per 100m^2 of GLA. Therefore, it is estimated that the tavern and beer garden will generate 38 vehicle trips in the evening peak hour.
- 'Section 3.6.1 Shopping centres' estimates generation rates of 51 vehicle trips for fast trade department stores and 20 vehicles trips for slow trade departments stores per 1000m^2 of GLA in the evening peak hour. It is assumed that four (4) fast trade department stores of total GLA of 9,208m^2 and three (3) slow trade department stores of total GLA of 7,935m^2 are proposed. The seven (7) department stores generate a total of 629 vehicle trips in the evening peak hour.
- 'Section 3.6.8 Bulky goods retail stores' estimates a generation rate of 2.5 vehicle trips per 100m^2 in the evening peak hour. It is assumed that 10 retail stores of total GLA of 4,256m^2 are proposed. The 10 retail stores generate a total of 106 vehicle trips in the evening peak hour.
- 'Section 3.6.1 Shopping centres' estimate a generation rate of 155 vehicle trips in the evening peak hour per 1000m^2 of GLA for grocery stores and supermarkets. The proposed grocery store and supermarket generate 272 and 590 vehicle trips in the evening peak hour.
- 'Section 3.11.1 Extended hours medical centres' estimate a generation rate of 8.8 vehicle trips per 100m^2 in the weekday evening peak hour. The proposed medical centre will generate 52 vehicle trips in the evening peak hour.

The traffic generated by Stage 1 and Stage 2 of the shopping centre development and the residential precincts are documented in Table 1.

Table 1: Traffic generated by Stage 1 and Stage 2 of the shopping centre and residential precincts

	Amenity	Peak hour traffic	RTA Section
Stage 1	Service station and convenient store	281vph	Section 3.6.2 Service stations and convenient stores
	Car service centre	14vph	Section 3.6.4 Car tyre retail outlets
	Two (2) fast-food restaurants	200vph	Section 3.7.1 Drive-in take away food outlets
	Childcare centre	82vph	Section 3.11.3 Childcare centres
Stage 2	Tavern and beer garden	38vph	Section 3.7.2 Restaurants
	Two (2) fast-food restaurants	200vph	Section 3.7.1 Drive-in take away food outlets
	Seven (7) department stores	629vph	Section 3.6.1 Shopping centres
	Ten (10) retail stores	94vph	Section 3.6.8 Bulky goods retail stores
	Grocery store	272vph	Section 3.6.1 Shopping centres
	Supermarket	590vph	Section 3.6.1 Shopping centres
	Medical centre	52vph	Section 3.11.1 Extended hours medical centres

For a shopping centre of GLA of less than 10,000m^2, it is assumed that 25% of the trips generated are internal trips and for a GLA of over 30,000m^2, it is assumed that 15% of the trips generated are internal trips. Therefore, the total internal trips generated in the peak hour in Stage 1 is 144vph and in Stage 2 is 281vph.

It is assumed that the directional split for trips generated by Stage 1 and Stage 2 are 50% inbound and 50% outbound in the Thursday evening peak hour.

4.2 Trip Distribution

The "Transport Assessment Guide draft document" (Queensland Transport, 1995) defines three (3) shopping centre trip types as follows:

- New trips are trips which would have not appeared on either the immediate approaches, local network or regional network prior to the opening of the shopping centre. These trips only appear as a consequence of the opening of the centre.
- Diverted trips are linked trips (i.e. in conjunction with another trip purpose) which are diverted off the regional road network to access the shopping centre.
- Drop-in trips are linked trips (i.e. in conjunction with another trip purpose) which would have appeared in the local road network irrespective of the presence of the shopping centre.

Table 2 adapted from the "Guide to Traffic Management Part 12: Traffic Impacts of Development (AGTM12-16) shows the typical proportion of trips of various type for shopping centre development.

Table 2: Segmentation of traffic generation for shopping centre (AGTM12-16)

Development	Trip Segmentation		
	New	Diverted	Drop-in
Shopping centres > 20,000 m^2	63%	18%	19%
Shopping centres 3,000 m^2 – 20,000 m^2	50%	22%	28%
Shopping centres < 3,000 m^2	50%	32%	18%
Fast food outlets	40%	25%	35%

Based on Table 2, it is assumed that that proposed development:

- 50% of Stage 1 development traffic (217vph) and 63% of Stage 2 development traffic (1004vph) are new trips which are attracted from the surrounding area.
- 32% of Stage 1 development traffic (139vph) and 18% of Stage 2 development traffic (287vph) are diverted trips from Dalrymple Road.
- 18% of Stage 1 development traffic (78vph) and 19% of Stage 2 development traffic (303vph) are drop-in trips which will already be passing the development site entering through the Bishop Putney Avenue.

4.3 Development Traffic Volumes on the Network

Based on the traffic generation estimated in Section 4.1 and trip distribution detailed in Section 4.2, Figure 6 and Figure 7 show the estimated development traffic volumes on the network in the Thursday evening peak hour at the completion and of Stage 1 and Stage 2. Volumes have been rounded to the nearest whole number which may result in slight inconsistency in values.

Figure 6: Development traffic at the completion of Stage 1

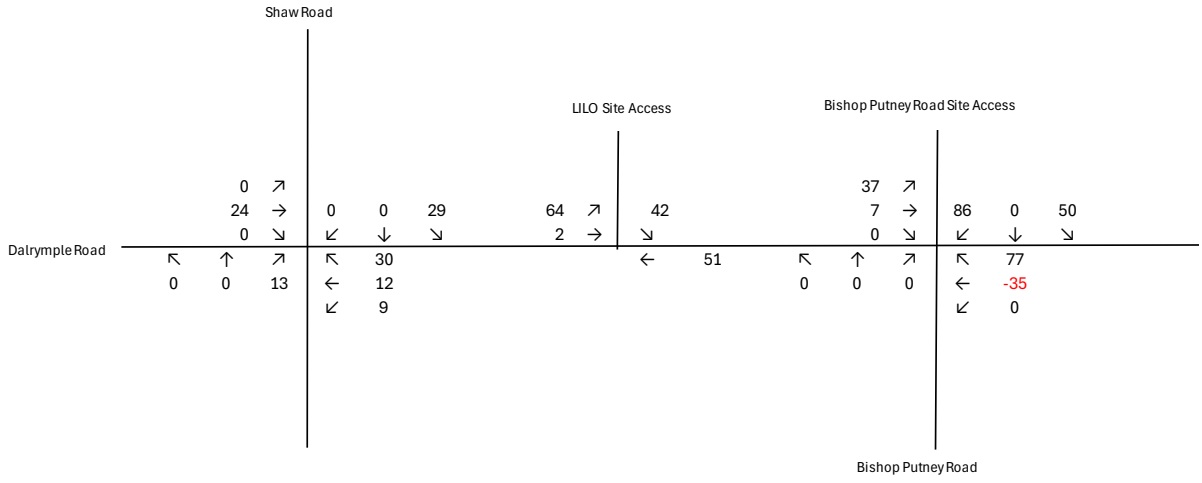
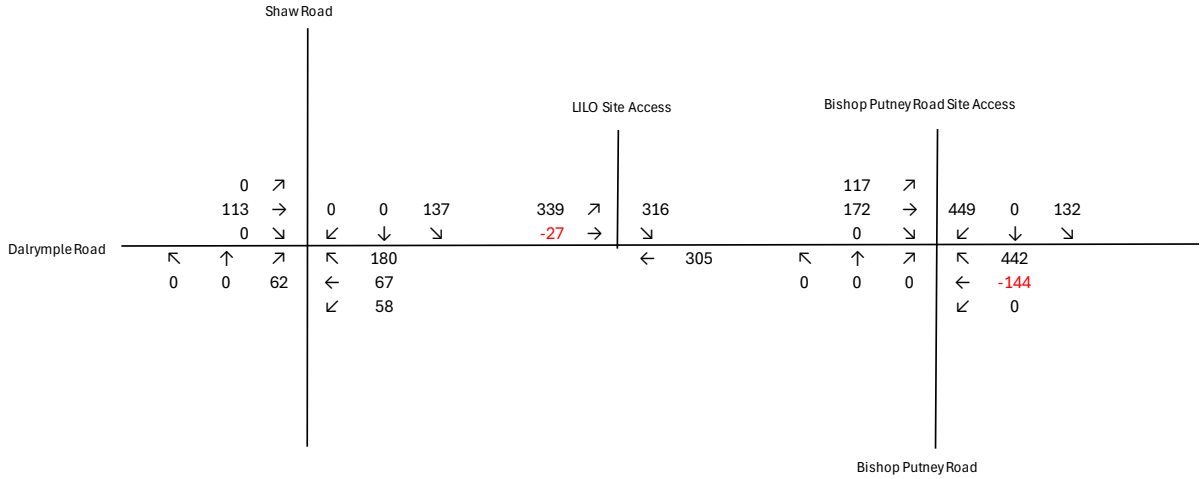


Figure 7: Development traffic at the completion of Stage 2



5. IMPACT ASSESSMENT AND MITIGATION

5.1 With and Without Development Traffic Volumes

5.1.1 "WITHOUT DEVELOPMENT" TRAFFIC VOLUMES

It is assumed that 10% of AADT is in the peak hour and the two-way peak hour traffic is split 50:50 in each direction. The TMR traffic data did not provide the historic growth rate on Dalrymple Road and Shaw Road. Based on TCC's Traffic Forecast Model, a growth factor of 1% is adopted to calculate the increase in background traffic in the opening year (2031). The turning volumes at the Dalrymple Road / Shaw Road signals and Dalrymple Road / Bishop Putney Avenue signals were extracted from the STREAMS data provided by TMR.

With the construction of the northern leg of Dalrymple Road / Bishop Putney Avenue traffic signals, it is expected that a proportion of the dwellings in the residential precinct north of the shopping centre will use the northern leg to access the external road network at the completion of Stage 2. Section 3.3.1 Dwelling houses' of the "Guide to Traffic Generating Development, RTA (2002)" estimates a generation rate of 0.85 vehicle trips per dwelling in the weekday evening peak hour. A total of 178 vehicle trips, generated by 209 dwellings, will be added onto the intersection in the Thursday evening peak hour. As a result, there will be a reduction in residential traffic heading eastbound at the Dalrymple Road / Bishop Putney Avenue traffic signals. It is assumed that the directional split for the trips generated by the residential precinct is 70% inbound and 30% outbound.

Figure 8 and Figure 9 show the "without development" traffic volumes excluding and including trips generated by the residential precinct north of the shopping centre.

Figure 8: "Without development" traffic excluding trips generated by the residential precinct

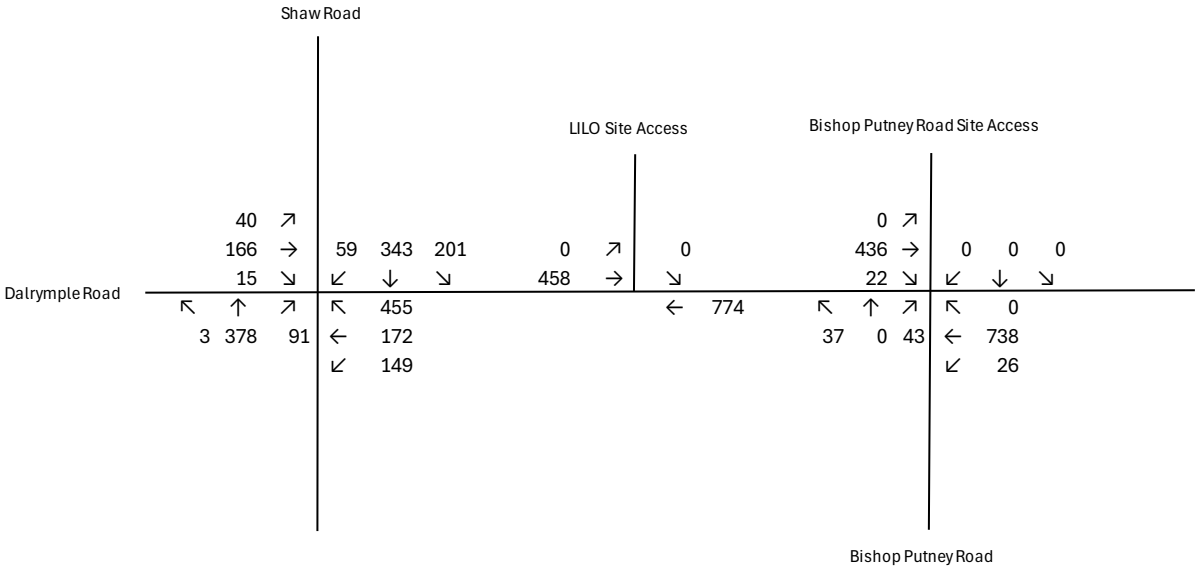
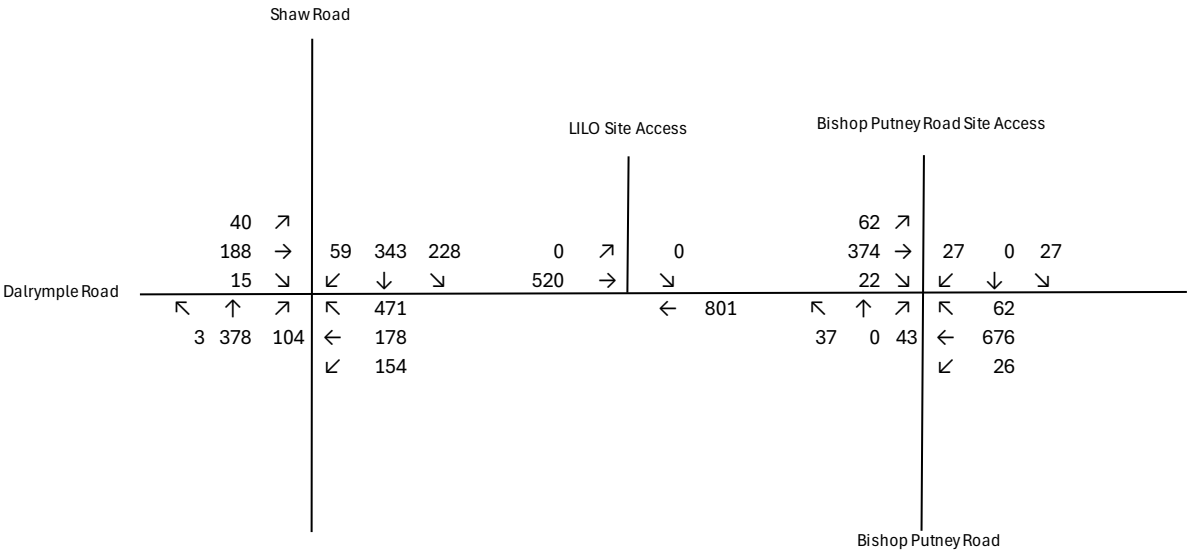


Figure 9: "Without development" traffic including trips generated by the residential precinct



5.1.2 "WITH DEVELOPMENT" TRAFFIC VOLUMES

"With development" traffic volumes shown in Figure 10 at the completion of Stage 1 is the sum of the development traffic in Figure 6 and "without development" traffic in Figure 8. "With development" traffic volumes shown in Figure 11 at the completion of Stage 2 is the sum of the development traffic in Figure 7 and "without development" traffic in Figure 9.

Figure 10: "With development" traffic at the completion of Stage 1

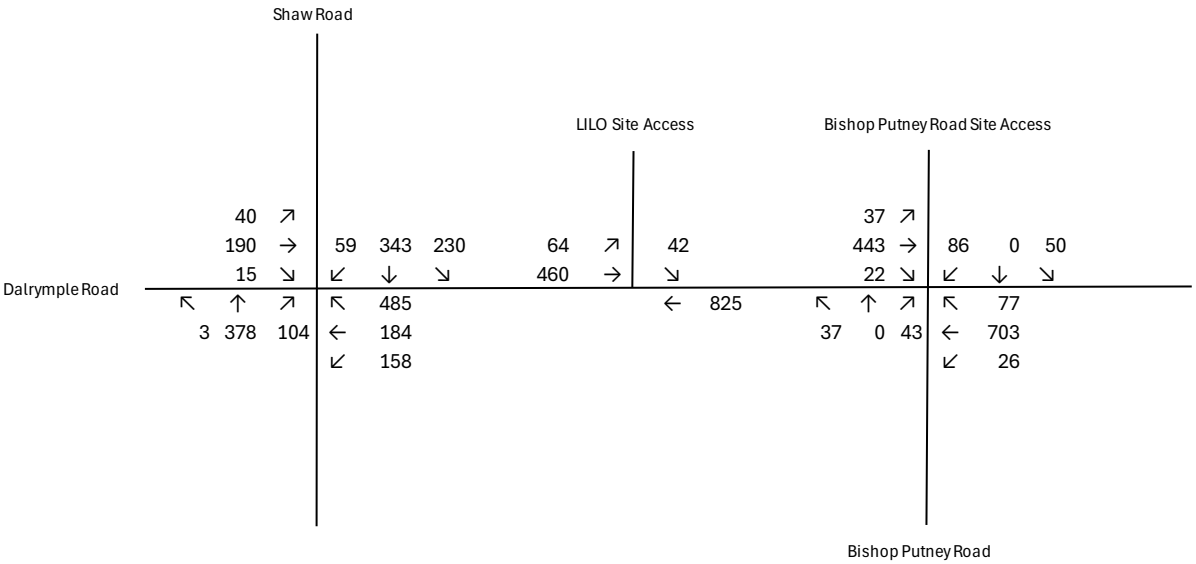
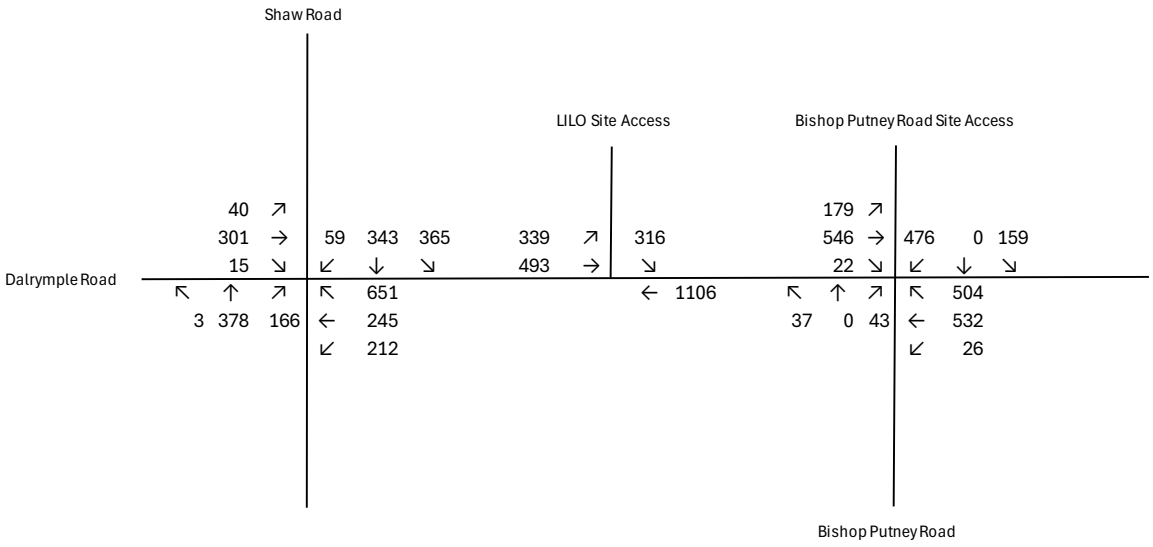


Figure 11: "With development" traffic at the completion of Stage 2



5.2 Road Safety Impact Assessment and Mitigation

The GTIA specifies the following two (2) stage process for assessment of road safety impacts:

1. Risk Assessment to determine the change in risk profile associated with existing road safety issues as a result of the development
2. Safety Assessment to determine if changes to the road environment require either a road safety audit by an accredited road safety auditor, or a road safety assessment by either an accredited road safety auditor or a registered professional engineer of Queensland (RPEQ)

5.2.1 RISK ASSESSMENT

A road safety risk assessment was conducted in accordance with the risk assessment process specified by the GTIA, the risk assessment process involves the following steps for each risk item:

- Evaluate potential consequences based on accident severity from 1, property damage only, to 5, fatality;
- Evaluate potential likelihood from 1, rare, to 5, almost certain; and
- Sum the potential consequence and likelihood values to determine the risk score with scores up to and including 4 considered low risk, 5 to 7 medium risk, and 8 or greater high risk.

Table 3 summarises the road safety risk assessment with further detail provided in the following sections.

Table 3: Road safety risk assessment

	Without development			With development			With development and mitigation			
Risk item	**Likelihood**	**Consequence**	**Risk Score**	**Likelihood**	**Consequence**	**Risk Score**	**Mitigation measures**	**Likelihood**	**Consequence**	**Risk Score**
Vehicles on adjacent approach (DCA 101, 106) at Dalrymple Road / Shaw Road traffic signals	1	4	M	2	4	M	No action.			
Opposing vehicles turning (DCA 202) at Dalrymple Road / Shaw Road traffic signals	1	3	L	2	3	M	The crash was in 2011 when the intersection was a three-legged intersection allowing filtered right turns. The intersection was converted to a four-legged intersection in 2016 removing the filtered right turns. No action required.	1	3	L
Rear end (DCA 301, 302, 303) at Dalrymple Road / Shaw Road traffic signals	2	4	M	3	4	M	No action.			
Off path (DCA 708, 802) at Dalrymple Road / Shaw Road traffic signals	1	4	M	2	4	M	No action.			
Rear end (DCA 301) at Dalrymple Road / Bishop Putney Avenue traffic signals	1	2	L	2	2	L	No action.			
Rear end (DCA 301, 303) on Dalrymple Road	1	4	M	2	4	M	No action.			
Lane changing (DCA 306) on Dalrymple Road	1	3	L	2	3	M	The crash was in 2014. The merging lane has been converted to a traffic lane in 2023, eliminating the need to merge into a single lane. No action required.	1	3	L
Off path (DCA 701) on Dalrymple Road	1	4	M	2	4	M	No action.			

5.2.1.1 "Without Development" Risk Assessment

To provide an objective assessment of the potential likelihood, Premise uses the average recurrence interval / frequency criteria listed in Table 4.

These criteria are more conservative than those suggested by TMR's "Guide to Traffic Impact Assessment: Frequently Asked Questions (December 2017)" but are consistent with other TMR guidelines that three (3) fatal or serious injury (potential consequence 4) accidents in five (5) years (potential likelihood 4) is high risk and should be mitigated. It was found that the highest risk scores generally resulted from consideration of the highest consequence / most severe accidents.

Table 4: Potential likelihood evaluation criteria

Potential Likelihood	Average Recurrence Interval	Accidents over 16 years
Almost Certain (5)	≤1 year	16 or more
Likely (4)	≤ 2 years	8 to 15
Moderate (3)	≤ 4 years	4 to 7
Unlikely (2)	≤ 8 years	2 or 3
Rare (1)	> 8 years	1

Based on DCA crash groups, the following risk items are identified.

- Dalrymple Road / Shaw Road traffic signals
  - Vehicles on adjacent approach (DCA 101, 106): There were a total of two (2) crashes. One (1) resulted in hospitalisation and one (1) resulted in property damage only. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.
  - Opposing vehicles turning (DCA 202): There was one (1) crash which resulted in medical treatment. Therefore, the likelihood of a crash resulting in medical treatment (potential consequence of 3) is rare (potential likelihood of 1). The risk score is low.
  - Rear end (DCA 301, 302, 303): There were a total of eight (8) rear end crashes. Three (3) resulted in hospitalisation, three (3) resulted in medical treatment and two (2) resulted in property damage only. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is unlikely (potential likelihood of 2). The risk score is medium.
  - Off-path (DCA 708, 802): There were a total of three (3) crashes. One (1) resulted in hospitalisation, one (1) resulted in medical treatment and one (1) resulted in property damage only. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.
- Dalrymple Road / Bishop Putney Avenue traffic signals
  - Rear end (DCA 301): There was one (1) rear end crash which resulted in minor injury. Therefore, the likelihood of a crash resulting in minor injury (potential consequence of 2) is rare (potential likelihood of 1). The risk score is low.
- Dalrymple Road
  - Rear end (DCA 301, 303): There were a total of three (3) rear end crashes. One (1) resulted in hospitalisation and two (2) resulted in medical treatment. Therefore, the likelihood of a crash

resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.

- Lane changing (DCA 306): There was one (1) crash which resulted in medical treatment. Therefore, the likelihood of a crash resulting in medical treatment (potential consequence of 3) is rare (potential likelihood of 1). The risk score is low.
- Off path (DCA 701): There was one (1) crash which resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.

5.2.1.2 With Development" Risk Assessment

To provide an objective assessment of the potential likelihood increase due to a development, Premise uses the volume ratio of with development traffic and without development traffic ("with development" traffic divided by "without development" traffic) listed in Table 5.

Table 5: Potential likelihood increase criteria

Potential Likelihood Increase	Volume Ratio (R)
+4 bands	8 < R
+3 bands	4 < R ≤ 8
+2 bands	2< R ≤ 4
+1 band	1.05 < R ≤ 2
No increase	R ≤ 1.05

The volume ratio (R) is calculated by comparing the "with development" traffic volumes to "without development" traffic volumes at the Dalrymple Road / Shaw Road traffic signals in the opening year (2031). R is 1.3, and therefore, the potential likelihood increases by one (1) band as a result of the development traffic introduced onto the road network.

5.2.2 SAFETY ASSESSMENT

In addition to the risk assessment process in Section 5.2.1, any changes to access configurations, nearby intersections, bus stop locations, cycling facilities, footpaths and so on, once designed, should be assessed to identify if they introduce any additional safety issues. There are two (2) potential levels of assessment of these changes detailed in the GTIA, namely:

- Road safety assessment; and
- Road safety audit.

The level of assessment required relates to the road environment the development is accessing and the scale of the potential risk, based on the scale of the development. Table 6 and Table 7 define the level of safety risk, and the assessment required.

Table 6: Road environment safety matrix (level of risk)

Traffic volume (AADT)	Speed (km/h)		
	Up to 50 km/h	60 km/h to 70 km/h	80 km/h+
≤ 8000	Low	Medium	Medium
> 8000	Medium	Medium	High

Table 7: Type of road safety assessment based on road environment safety rating

Development type	Road environment safety rating		
	Low	Medium	High
Major Development	road safety assessment	road safety audit	road safety audit
Planning Act Development	road safety assessment	road safety assessment	road safety audit

With a posted speed limit of 80km/h and a traffic volume greater than 8,000vpd on Dalrymple Road, the road network is assessed by the GTIA to be a high-risk environment. Therefore, as the proposed development is a planning act development, a Road Safety Audit (RSA) is recommended. The RSA must be undertaken by an accredited road safety auditor registered on TMR register of approved RSA professionals.

5.3 Access and Frontage Impact Assessment

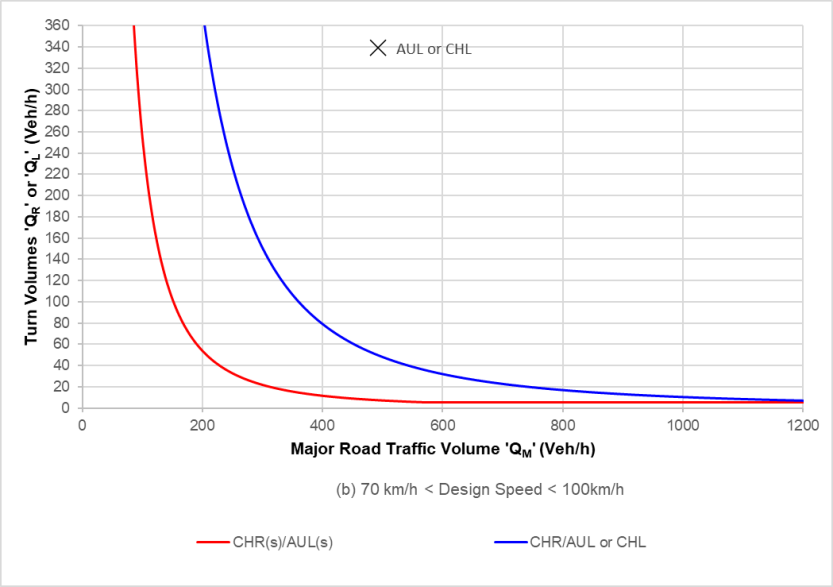
5.3.1 TURN WARRANT ASSESSMENT

Premise has reviewed the turn warrant requirements as part of the overall intersection review with reference made to the TMR's Supplement to the Austroads Guide to Roads Design (AGRD), Part 4A (Figure 4A-A4). This assessment review is for the proposed LILO access on Dalrymple Road and the LILO access on Bishop Putney Avenue.

5.3.1.1 LILO access on Dalrymple Road

The turn warrant assessment of the LILO access on Dalrymple Road at the completion of Stage 2 is shown in Figure 12.

Figure 12: Turn warrant assessment at the LILO access on Dalrymple Road

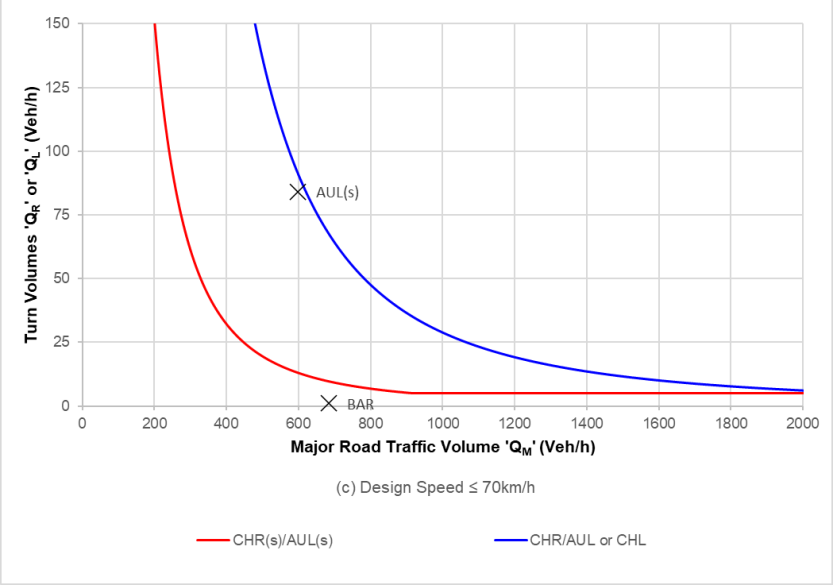


The access warrants a Channelised Left turn treatment (CHL) or an Auxiliary Left turn treatment (AUL) in the Normal Design Domain (NDD) for a design speed of 90km/h.

5.3.1.2 LILO Access on Bishop Putney Avenue

The proposed LILO access is approximately 15m north of the Dalrymple Road / Bishop Putney Avenue traffic signals and provides access to the service station. 140 trips inbound trips will be generated by the service station in the Thursday Peak hour, and it is assumed that 60% of the inbound trips are via the access on Bishop Putney Avenue. This equates to 84 vehicles turning left into the access. The turn warrant assessment of the LILO access at the completion of Stage 2 is shown in Figure 13.

Figure 13: Turn warrant assessment at the LILO access on Bishop Putney Avenue



The access warrants an AUL(s) turn treatment in the NDD for a design speed of 50km/h.

5.3.2 INTERSECTION ANALYSIS

Intersection performance has been assessed using SIDRA Intersection Version 9.1 (SIDRA). SIDRA is an advanced micro-analytical traffic tool for the evaluation of intersections. SIDRA reports intersection performance in terms of a range of parameters including:

- Demand Volumes (V): The modelled number of vehicles arriving at the intersection during the assessment hour. Demand volumes are calculated by dividing the peak hour volume by the peak flow factor (PFF). SIDRA's default PFF of 95% has been adopted for all movements.
- Degree of Saturation (DoS): The ratio of the demand volume, V, to the theoretical capacity. An intersection is considered to be operating at its practical capacity when the DoS reaches 0.85 for a roundabout and 0.90 for traffic signals.
- Average Delay (D): The mean control delay including both queuing delay and geometric delay for all vehicles arriving during the assessment period including the delay experienced after the end of the flow period until the departure of the last vehicle arriving during the flow period. The GTIA specifies that average delays exceeding 42 seconds for any movement at a priority-controlled intersection or roundabout is a safety issue.
- Back of Queue Length (Q): The maximum backward extent of the queue relative to the stop line or give-way / yield line during a signal cycle or gap acceptance cycle below which 95% of all queue lengths fall (95th percentile back of queue) or 50% of all queue lengths fall (average back of queue). The 95th percentile back of queue length is generally accepted as the maximum queue length for design purposes.

5.3.2.1 Dalrymple Road / Bishop Putney Avenue Traffic Signals

Intersection analysis was conducted using SIDRA for the Dalrymple Road / Bishop Putney Avenue traffic signals based on "without development" traffic volumes shown in Figure 8 and Figure 9, and "with development" traffic volumes at the completion of Stage 1 and Stage 2 as shown in Figure 10 and Figure 11.

A HV% of 5% and a Peak Flow Factor (PFF) of 95% were used for the model. A cycle time of 130 seconds was used based on the STREAMS data provided by TMR. A summary of the analysis is detailed below, and the SIDRA output reports are attached in Appendix G.

- "Without development" traffic
  - The traffic signals are operating below its practical capacity. The straight through movement on Dalrymple Road east leg has the highest DoS of 0.786.
- "With development" traffic at the completion of Stage 1
  - The traffic signals are operating below its practical capacity. The straight through movement on Dalrymple Road east leg has the highest DoS of 0.749.
- "With development" traffic at the completion of Stage 2
  - The traffic signals reach its practical capacity. The right turn movement on the New Road leg has the highest DoS of 1.816.
- "With development" traffic at the completion of Stage 2 with recommended mitigation measures

- To improve the capacity of the right turn movement on New Road leg it is recommended that the exclusive through lane (middle lane) on New Road leg is converted to a shared through-and-right lane.
- With the recommended upgrades, the traffic signals operate below its practical capacity with all movements operating at DoS below 0.90.

Based on the analysis, the Dalrymple Road / Bishop Putney traffic signals do not require any upgrades at the completion of Stage 1 of the shopping centre.

The Dalrymple Road / Bishop Putney Avenue traffic signals is expected to operate below its practical capacity at the completion of Stage 2 provided the recommended mitigation measure to change the lane layout at the New Road leg is implemented.

5.3.2.2 Proposed Roundabout

The roundabout that will be constructed north of the Dalrymple Road / Bishop Putney Avenue traffic signals as part of the development was analysed based on "with development" traffic volumes at the completion of Stage 2, including the residential precinct north of the shopping centre. A summary of the analysis is detailed below, and the SIDRA output reports are attached in Appendix G.

> The roundabout will operate well below its practical capacity. The highest DoS is 0.406 on west leg of the roundabout.

5.3.3 SIGHT DISTANCES

The GTIA specifies minimum sight distance requirements for intersections as the Approach Sight Distance (ASD) required to the road surface at all intersections and accesses. ASD is defined in the "Guide to Road Design Part 4A: Unsignalised and Signalised Intersections" (Austroads 2017). Austroads also provides formulas for calculating the acceptable minimum sight distances.

ASD is the distance at which a driver can see any line marking on the road surface at the intersection. ASD should be sufficient to allow a driver to react to the intersection and, if necessary, come to a complete stop before entering the intersection. Minimum ASD is calculated using the formula;

$$ASD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

where:

R_T = reaction time (2 seconds for a higher speed urban area)

V = design speed (90kmh on Dalrymple Road and 60km/h on Bishop Putney Avenue)

d = coefficient of deceleration (0.61 for cars braking on dry, sealed roads)

a = longitudinal grade (0 for a relatively flat grade)

5.3.3.1 LILO Access on Dalrymple Road

The reaction time is two (2) seconds for a high-speed urban area. Dalrymple Road has a posted speed limit of 80km/h at the site frontage, and therefore, a design speed of 90km/h is used in the ASD calculations. The coefficient of deceleration is 0.46 on normal road conditions in the Normal Design

Domain (NDD). The minimum required ASD at the LILO access on Dalrymple Road is 119m. There is more than the required 119m of unobstructed sight distance available at the proposed access.

5.3.3.2 LILO to the Service Station

The proposed LILO access to the service station is located approximately 15m north of Dalrymple Road / Bishop Putney Avenue intersection. Due to the site constraints, the ASD calculated for the NDD cannot be achieved. Therefore, the ASD at the LILO access is calculated based on a range of values for the Extended Design Domain (EDD). ASD for the EDD is calculated by the same process as that used for the NDD. The main difference with EDD is that less conservative values which are below the lower bound of the NDD are used. The reaction time of 1.5 seconds and a coefficient of deceleration of 0.61 is used to calculate the ASD for the EDD.

Table 8 summarises the ASD values in both the NDD and EDD for design speeds up to 60km/h.

Table 8: The minimum required ASD values in NDD and EDD

Design speed	Minimum required ASD for NDD	Minimum required ASD for EDD
20km/h	15m	11m
25km/h	20m	15m
30km/h	25m	19m
40km/h	36m	27m
50km/h	49m	37m
60km/h	64m	48m

Based on the values in Table 7, a vehicle turning at the Dalrymple Road / Bishop Putney Avenue traffic signals left turn slip lane will have to do so at a speed of 20km/h or lower for the NDD and at a speed of 25km/h or lower for the EDD to comply with the 15m of ASD available at the LILO access to the service station.

It is expected that turning vehicles will slow down to give way to traffic coming through the traffic signals but without stop control of the slip lane it is not reasonable to rely on the vehicles travelling at less than 25km/h. A more reasonable turning speed for the left turn slip lane is considered to be 30km/h. Therefore, it is recommended that the LILO access is moved approximately 5m to the north to comply with the minimum required ASD for the EDD of 19m.

5.4 Intersection Delay Impact Assessment and Mitigation

As specified in the GTIA, TMR considers that it is unreasonable to require quantifying the impacts on intersection delays unless a proposed development creates an increase in traffic over a particular threshold level. This threshold level applies to all intersections where the development traffic exceeds 5% of the base traffic for any movement in the design peak hour in the year of opening year.

If the additional delays created by traffic generated by the development exceeds 5% of the base traffic for any movement, it needs to be mitigated by upgrades to intersection.

Intersection delay impacts are assessed for the SCR network based on "without development" traffic volumes shown in Figure 8 and Figure 9, and "with development" traffic volumes Figure 10 and Figure 11. All movements are assumed to include 5% heavy vehicles and have the SIDRA default PFF of 95%. The Dalrymple Road / Shaw Road traffic signals are modelled as operating on a coordination cycle time of 130 seconds consistent with the current operation of traffic signals based on STREAMS data provided by TMR. All SIDRA outputs for the Intersection Delay Impact Assessment are attached in Appendix H.

5.4.1 INTERSECTION DELAY WITHOUT DEVELOPMENT

SIDRA outputs for the Dalrymple Road / Shaw Road traffic signals for "without development" traffic volumes are summarised in Table 9 assuming the current phase time arrangements are retained. The key points are:

- The intersection operates below its practical capacity (DoS < 0.90) with a maximum DoS of 0.654 on the through movement on Shaw Road north leg.

Table 9: SIDRA output for "without development" volumes

Movement	Volume (veh)	Degree of Saturation	Delay (sec)	Queue length (veh)
South approach: Shaw Road				
Left	3	0.002	7.2	0.0
Through	398	0.643	36.9	11.8
Right	96	0.117	46.4	2.5
East approach: Dalrymple Road				
Left	157	0.116	8.6	2.1
Through	181	0.427	35.6	13.1
Right	479	0.645	44.4	21.0
North approach: Shaw Road				
Left	212	0.149	7.0	1.6
Through	361	0.654	57.9	11.1
Right	62	0.346	43.9	2.9
West approach: Dalrymple Road				
Left	42	0.048	16.2	0.9
Through	175	0.636	64.9	6.7
Right	16	0.636	70.8	6.7

5.4.2 INTERSECTION DELAY WITH DEVELOPMENT

SIDRA outputs for the Dalrymple Road / Shaw Road traffic signals for "with development" traffic volumes at the completion of Stage 1 are summarised in Table 10, assuming the current phase time arrangements are retained. The key points are:

- The intersection is operating below its practical capacity (DoS < 0.90) with the maximum DoS of 0.688 on the right turn movement on the Dalrymple Road east leg.
- The overall increase in delay is 1.1% compared to "without development" total delay, as shown in Table 13. No upgrades are required to the intersection as the increase in overall delay is less than 5%.

Table 10: SIDRA output for "with development" traffic volumes at the completion of Stage 1

Movement	Volume (veh)	Degree of Saturation	Delay (sec)	Queue length (veh)
South approach: Shaw Road				
Left	3	0.002	7.4	0.0
Through	398	0.669	37.9	12.0
Right	109	0.143	47.5	2.9
East approach: Dalrymple Road				
Left	166	0.124	8.6	2.3
Through	194	0.456	36.0	14.1
Right	511	0.688	45.2	22.8
North approach: Shaw Road				
Left	242	0.173	7.4	2.2
Through	361	0.654	57.9	11.1
Right	62	0.346	44.4	2.9
West approach: Dalrymple Road				
Left	42	0.049	17.2	1.0
Through	200	0.660	64.2	7.6
Right	16	0.660	70.1	7.6

SIDRA outputs for the Dalrymple Road / Shaw Road traffic signals for "with development" traffic volumes at the completion of Stage 2 are summarised in Table 11, assuming the current phase time arrangements are retained. The key points are:

- The intersection is operating below its practical capacity (DoS < 0.90) with the maximum DoS of 0.882 for the right turn movement on the Dalrymple Road east leg.
- However, the overall increase in delay is 12.6% compared to "without development" total delay as shown in Table 13. Therefore, mitigation measures are recommended to bring the overall delay to within 5%. The recommended mitigation measures are discussed in Section 5.4.3.

Table 11: SIDRA output for "with development" traffic volumes at the completion of Stage 2

Movement	Volume (veh)	Degree of Saturation	Delay (sec)	Queue length (veh)
South approach: Shaw Road				
Left	3	0.002	8.1	0.0
Through	398	0.760	43.1	13.1
Right	175	0.245	51.5	5.0
East approach: Dalrymple Road				
Left	223	0.166	8.7	3.2
Through	258	0.584	36.6	19.7
Right	685	0.882	55.5	37.4
North approach: Shaw Road				
Left	384	0.290	9.2	5.3
Through	361	0.690	59.6	11.3
Right	62	0.375	46.9	3.1
West approach: Dalrymple Road				
Left	42	0.053	24.1	1.2
Through	317	0.871	69.1	12.7
Right	16	0.871	77.1	12.7

5.4.3 INTERSECTION DELAY MITIGATION

To mitigate the increase in delays in the peak hour at the completion of Stage 2, it is recommended that the signal phase split is adjusted while keeping the signal phase sequence and the cycle time as existing. SIDRA outputs for the Dalrymple Road / Shaw Road traffic signals with these changes are summarised in Table 12. The key points are:

- The intersection is operating below its practical capacity (DoS < 0.90) with the maximum DoS of 0.727 on the through movement on the Shaw Road south leg.
- The overall increase in delay is 4.6% compared to "without development" total delay, as shown in Table 13. The overall increase in delay is within the threshold of 5%, with the recommended mitigation measure.

Table 12: SIDRA output for "with development" traffic volumes with mitigation at the completion of Stage 2

Movement	Volume (veh)	Degree of Saturation	Delay (sec)	Queue length (veh)
South approach: Shaw Road				
Left	3	0.002	7.9	0.0
Through	398	0.727	56.1	15.0
Right	175	0.685	72.6	6.2
East approach: Dalrymple Road				
Left	223	0.159	7.2	2.2
Through	258	0.480	28.2	17.3
Right	685	0.724	38.1	29.1
North approach: Shaw Road				
Left	384	0.281	9.2	5.2
Through	361	0.540	49.1	10.2
Right	62	0.450	70.4	3.9
West approach: Dalrymple Road				
Left	42	0.059	21.9	1.2
Through	317	0.717	60.7	11.5
Right	16	0.717	66.8	11.5

5.4.4 INTERSECTION DELAY IMPACT AND MITIGATION

An intersection delay impact assessment was undertaken in accordance with the GTIA for the Dalrymple Road / Shaw Road traffic signals as shown by Table 12. Key points are:

- The total delays are increased by 1.1% by the development traffic introduced onto the Dalrymple Road / Shaw Road traffic signals at the completion of Stage 1 and 12.6% by the development traffic introduced at the completion of Stage 2.
- With adjustment to signal phase split while retaining the signal phase sequencing and cycle time as existing, the delay impact at the Dalrymple Road / Shaw Road traffic signals can be brought to within 5%.

The proposed mitigation option to adjust signal phase split does not require physical changes to the intersection infrastructure.

Table 13: Dalrymple Road / Shaw Road traffic signals net intersection delay comparison

	Without Development			With Stage 1 Development			With Stage 1 and 2 Development			With Development & Mitigation		
	Demand Volume, V	Average Delay, D	Total Delay, BC (=VxD)	Average Delay, D'	Total Delay, WD (=VxD')	Delay Impact	Average Delay, D'	Total Delay, WD (=VxD')	Delay Impact	Average Delay, D"	Total Delay, WD' (=VxD")	Delay Impact
South Approach: Shaw Road												
Left	3	7.2	21.6	7.4	22.2	0.6	8.1	24.3	2.7	7.9	23.7	2.1
Through	398	36.9	14686.2	37.9	15084.2	398.0	43.1	17153.8	2467.6	56.1	22327.8	7641.6
Right	96	46.4	4454.4	47.5	4560.0	105.6	51.5	4944.0	489.6	72.6	6969.6	2515.2
East Approach: Dalrymple Road												
Left	157	8.6	1350.2	8.6	1350.2	0.0	8.7	1365.9	15.7	7.2	1130.4	-219.8
Through	181	35.6	6443.6	36.0	6516.0	72.4	36.6	6624.6	181.0	28.2	5104.2	-1339.4
Right	479	44.4	21267.6	45.2	21650.8	383.2	55.5	26584.5	5316.9	38.1	18249.9	-3017.7
North Approach: Shaw Road												
Left	212	7.0	1484.0	7.4	1568.8	84.8	9.2	1950.4	466.4	9.2	1950.4	466.4
Through	361	57.9	20901.9	57.9	20901.9	0.0	59.6	21515.6	613.7	49.1	17725.1	-3176.8
Right	62	43.9	2721.8	44.4	2752.8	31.0	46.9	2907.8	186.0	70.4	4364.8	1643.0
West Approach: Dalrymple Drive												
Left	42	16.2	680.4	17.2	722.4	42.0	24.1	1012.2	331.8	21.9	919.8	239.4
Through	175	64.9	11357.5	64.2	11235.0	-122.5	69.1	12092.5	735.0	60.7	10622.5	-735.0
Right	16	70.8	1132.8	70.1	1121.6	-11.2	77.1	1233.6	100.8	66.8	1068.8	-64.0
Total	**1887**		**86502.0**		**87485.9**	**983.9**		**97409.2**	**10907.2**		**90457.0**	**3955.0**
					101.1%	1.1%		112.6%	12.6%		104.6%	4.6%

5.5 Other Assessments

5.5.1 INTERSECTION SPACING

5.5.1.1 Access to service station on Bishop Putney Avenue

Based on the sight distance assessment in Section 5.3.3.2, it is recommended that the service station access on Bishop Putney Avenue is relocated 5m to the north to provide 20m of separation between the left turn slip lane and the service station access.

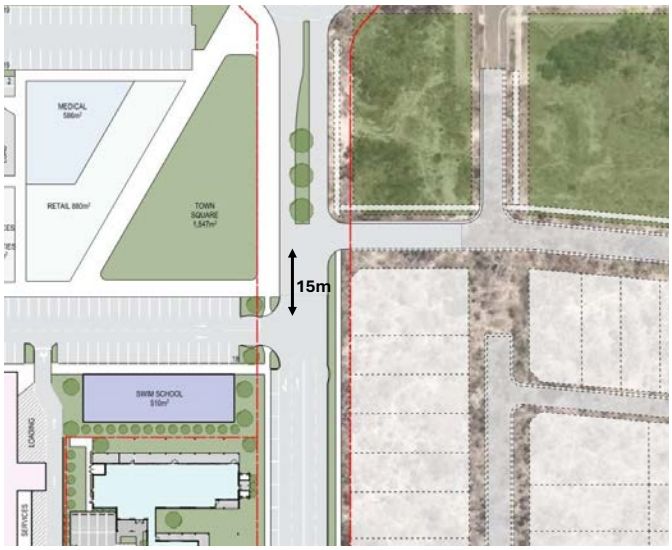
The turn warrant assessment undertaken in Section 5.3.1.2 determined that an AUL(s) turn treatment is required at the LILO access to the service station in the NDD. For a design speed of 50km/h. Austroads' 'Guide to Road Design Part 4A: Unsignalised and Signalised Intersections' specifies that the minimum diverge /deceleration length required for a short lane is 15m which is consistent with the access location recommended based on the sight distance assessment.

Moving the service station access 5m north will reduce the spacing between the service station access and the roundabout on Bishop Putney Avenue to approximately 19m. The output of the SIDRA analysis of the roundabout at the completion of Stage 2 is enclosed in Appendix G. The maximum expected queue length on the southern leg of the roundabout is 23m, which is equivalent to three (3) vehicles. The queuing is likely to block egress from the service station in the peak hour but not the flow of entering traffic. Vehicles intending to turn left out of the service station will have to wait for queues from the roundabout to dissipate. This it is not expected to cause significant delays to vehicles exiting the service station as the queues at the roundabout will dissipate quickly with the roundabout operating at an acceptable level of service.

5.5.1.2 Staggered intersection

A staggered intersection is proposed on the new road with the minor roads separated by approximately 15m, as shown in Figure 14, providing sufficient storage space for two (2) vehicles turning right simultaneously into the side roads. It is recommended that the two (2) right turn pockets are marked to guide drivers.

Figure 14: Staggered intersection proposed on the new road



6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Impact and Mitigation Measures

Parkside is proposing to develop Stage 1 of the Greater Ascot town centre on the northeast corner of Dalrymple Road / Shaw Road intersection in Shaw. A new road link will be constructed on the northern leg of the Dalrymple Road / Bishop Putney Avenue traffic signals, providing access to the residential precincts north of the proposed shopping centre. The shopping centre will be further expanded in Stage 2 of the development. This TIA assesses the impacts of the traffic generated by the Stage 1 and Stage 2 of the shopping centre.

Stage 1 of the shopping centre generates a total of 578 vehicle trips in the Thursday evening peak hour, of which 217 are new trips, 139 are diverted trips, 78 are drop-in trips and 144 are multi-purpose trips. Stage 2 of the shopping centre generates a total of 1,875vehicle trips in the Thursday evening peak hour, of which 1,004 are new trips, 287 are diverted trips, 303 are drop-in trips and 281 are multi-purpose trips.

The TIA is completed in accordance with the GTIA resulting in the following conclusions and recommendations:

- Dalrymple Road has a posted speed limit of 80km/h and a traffic volume greater than 8,000vpd, and therefore, it is assessed by the GTIA to be a high-risk environment. It is recommended that a RSA be undertaken, by a TMR accredited road safety auditor, to assess the proposed LILO access on Dalrymple Road and changes made to the lane layout at the Bishop Putney Avenue / Dalrymple Road traffic signals.
- The LILO access on Dalrymple Road warrants a CHL or an AUL.
- The LILO access to the service station warrants an AUL(s) turn treatment with a short lane length of 20m. It is recommended that the service station access is moved approximately 5m to the north to provide a 20m short lane.
- The minimum required ASD at the LILO access on Dalrymple Road is 119m. There is more than the required 119m of unobstructed sight distance available at the proposed access.
- The proposed LILO access to the service station is located approximately 15m north of Dalrymple Road / Bishop Putney Avenue intersection. Due to site constraints, the ASD was calculated using EDD values. A vehicle turning at the left turn slip lane will have to do so at a speed of 25km/h or lower for the EDD to comply with comply with an ASD of 15m. It can be assumed that majority of the vehicles will be turning at a speed of 30km/h or lower. It is recommended that the LILO access is moved approximately 5m to the north to comply with the minimum required ASD for the EDD of 19m.
- Based on SIDRA analysis of the roundabout proposed, the maximum average delay is 9.1 seconds, and the highest DoS is 0.406, both on the west leg of the roundabout. The roundabout is expected to operate well below its practical capacity.
- Based on SIDRA analysis of the Dalrymple Road / Bishop Putney Avenue traffic signals:
  - The traffic signals operate below its practical capacity when Stage 1 development traffic is introduced. Therefore, no upgrades are required at the completion of Stage 1.

  - The traffic signals reach its practical capacity when Stage 1, Stage 2 and residential traffic from the northern precincts are directed through the traffic signals, with the right turn movement on the New Road leg having the highest DoS. To improve the capacity, it is recommended that the exclusive through lane (middle lane) on New Road leg is converted to a shared through-and-right lane.

- Based on SIDRA analysis of the Dalrymple Road / Shaw Road traffic signals:
  - The overall increase in delay is 1.1% compared to "without development" total delay when Stage 1 development traffic is introduced. No upgrades are required to the intersection as the increase in overall delay is less than 5%.
  - The overall increase in delay is 12.6% compared to "without development" total delay when Stage 1 and Stage 2 development traffic is introduced. Therefore, it is recommended that the signal phase split is adjusted while retaining the signal phase sequencing and cycle time as existing, to bring the increase in total delay below 5%. The proposed mitigation option to adjust signal phase split does not require physical changes to the intersection infrastructure.
- A staggered intersection proposed on the new road link has a separation of approximately 15m. It provides sufficient storage space for two (2) turning vehicles. It is recommended that the two (2) right turn pockets are marked to guide drivers.
- It is recommended that the LILO access to the service station is moved approximately 5m to the north to allow space for a 20m long AUL(s).

6.2 Certification Statement and Authorisation

This report was prepared by Prineth Fernando (RPEQ 32194). The Traffic Impact Assessment Certification in accordance with the GTIA is attached in Appendix I.

APPENDICES

APPENDIX A

Development Permit – Material Change of Use (MI11/0064)

Date >> 04 October 2013

TOWNSVILLE CITY COUNCIL
ADMINISTRATION BUILDING
103 WALKER STREET

PO BOX 1268, TOWNSVILLE
QUEENSLAND 4810

TELEPHONE >> 07 4727 9001
FACSIMILE >> 07 4727 9052

enquiries@townsville.qld.gov.au
www.townsville.qld.gov.au

Parkside Development Pty Ltd
C/- Brazier Motti
595 Flinders Street
TOWNSVILLE QLD 4810

DEVELOPMENT APPLICATION NEGOTIATED DECISION NOTICE

***Sustainable Planning Act 2009* (SPA)**

The request for a Negotiated Development Permit with **Material Change of Use (Impact) – (MI11/0064) Neighbourhood Centre** was assessed and partially **APPROVED SUBJECT TO CONDITIONS**. The decision was made on **3 October 2013**.

The following schedule provides all the relevant details.

1. Applicant details

Name and address	Parkside Development Pty Ltd C/- Brazier Motti 595 Flinders Street TOWNSVILLE QLD 4810
Applicant Reference	26700-003-02

2. Property description

Assessment number	13901025
Property address	890 Dalrymple Road SHAW QLD 4818
Legal description	Lot 6 SP 107219

3. Application details

Application number	MI11/0064
Assessing officer	Cassie James
Approval applied for	Development Permit
Development type	Material Change of Use (Impact)
Description	Neighbourhood Centre
Assessed under	City of Thuringowa Planning Scheme

4. Decision Notice History

Original Decision Decided	28 May 2013
Negotiated Decision Decided	3 October 2013

5. Conditions

The conditions of this approval are set out in the Schedule of Conditions (attached). The conditions are identified to indicate whether the assessment manager or a concurrence agency imposed them.

6. The Nature of the changes

Condition 2	Commencement of Trade	Amended
Condition 3(b)	Amended Plans	Remain
Condition 15(i)	Carparking	Deleted
Condition 16(c)	Stormwater Drainage	Amended

7. Further development permits required for this development

Development Permit – Operational Work
Development Permit – Building Work

8. Compliance assessment required under part 10 of the *Sustainable Planning Act 2009*.

Condition 2 – Commencement of Trade
Condition 3 – Amended Plans
Condition 5 – Building Materials
Condition 12 – Screening of Plants & Utilities
Condition 15 – Car Parking
Condition 16 – Stormwater Drainage
Condition 17 – Stormwater Quality Management
Condition 18 – Sewerage Reticulation
Condition 19 – Water Supply
Condition 22 – Landscaping Plan
Condition 23 – Roadworks & Traffic
Condition 25 – Bicycle Facilities

9. Code for self assessable development

All self assessable development related to the development approval must comply with the relevant codes identified in the City of Thuringowa Planning Scheme 2003.

10. Referral agencies

Concurrence agency >>	Department of Transport and Main Roads PO Box 1089 TOWNSVILLE QLD 4810
Advice agency >>	Department Of Environment And Heritage Protection Administration Officer Permit and Licence Management Implentation and Support Unit GPO Box 2454 BRISBANE QLD 4001

Advice agency >>	Principal Town Planner Ergon Energy PO Box 15107 CITY EAST QLD 4002
Advice agency >>	Powerlink Queensland PO Box 1193 VIRGINIA QLD 4014

11. Submissions

There were 2 properly made submissions received regarding this application.

Perpetual Trustee Company Limited
C/- Dexus Wholesale Property Limited
PO Box R1822
ROYAL EXCHANGE NSW 1225

Stockland Commercial Property
C/- RPS Australia East
PO Box 977
TOWNSVILLE QLD 4810

12. Conflict with a relevant instrument

The assessment manager does not consider that this decision conflicts with a relevant instrument.

13. When approval lapses

Section 341 of the *Sustainable Planning Act 2009* establishes when an approval lapses.

14. Rights of appeal

Sections 461, 481, 482, 485, 488, 490 of the *Sustainable Planning Act 2009* indicate the Right of Appeal and these sections are attached for your information.

Yours faithfully

For Assessment Manager
Planning and Development

Appendices >>	Conditions; Referral Agency's Responses; Adopted Infrastructure Charge Notice; Submission List; Rights of Appeal.
Enclosed >>	Approved Plans

AMENDED DEVELOPMENT PERMIT

MATERIAL CHANGE OF USE (MI11/0064)
NEIGHBOURHOOD CENTRE

1. Site Layout

a) The proposed development must generally comply with drawings as referenced in the table below, which forms part of this application, except as otherwise specified by any condition of this approval.

DRAWING NAME	DRAWING NO.	REVISION NO.	REV./STAMP DATE
Site Plan: Master Plan	SD 1002	J	13 July 2012
Floor Plan	SD 2001	E	22 February 2013
Elevations	SD 3001	F	22 February 2013
Extent of Road and Pathway Networks	PAR071/SK04	2	1 March 2013

b) The proposed development must comply with all conditions of this approval prior to commencement of the use.

c) The proposed development must comply with all Planning Scheme requirements as applying at the date of this application, except as otherwise specified by any condition of this approval.

2. Commencement of Trade

The Neighbourhood Centre is not to commence trade until the number of dwellings in the Primary Trade Area as defined on *Map 2.1 – Greater Ascot Primary Trade Area* of the Location IQ Report (dated June 2012) reaches a minimum of ~~2,000~~ **1,900** constructed dwellings.

The Relevant Period for this approval applies up to and including a period of eighteen (18) months from the achievement of 1,900 constructed dwellings in the Primary Trade Area as defined on *Map 2.1 – Greater Ascot Primary Trade Area* of the Location IQ Report (dated June 2012).

3. Amended Plans

Prior to the issue of a Development Permit for Building Works, the developer must provide amended plans to Council for approval which includes the following:

a) Provide updated plans removing the central parking on the Major Collector Access Road between Cherington Boulevard and Lockton Street.

Advice Note: The remainder of the centre parking is accepted, but may be required to be removed if the total traffic volume on the road exceeds 10,000 vpd, or if more than 50% of the total traffic volume is through traffic.

b) The developer must either:

i) Provide a study in accordance with AustRoads Traffic & Road Use Management Manual - Pedestrian Crossing Facility Guidelines & Prioritisation System User Guide demonstrating the suitability of installing zebra crossings in the proposed locations; or

ii) Provide amended plans showing an alternative suitable means of providing pedestrian crossings across the Major Collector Access Road.

c) Provide further details on the proposed bus stops along the Major Collector Access Road, including:

i) Confirmation from the Department of Transport and Main Roads that these stops are appropriately located; and

ii) Proposed design and location of bus shelters to be constructed by the developer.

d) The centre car parking area between Lockton Street and Blackmoor Wood must be amended to accommodate a minimum of 4 shade trees.

4. Maximum Floor Area

The premises must have a maximum gross lettable area (GLA) of 5,464m^2.

5. Building Materials

Prior to the issue of a Development Permit for Building Work, the developer must submit to, and be approved in writing by Council the details of the external building materials and colours to be used as part of this development. In particular,

a) Details of the treatments and materials proposed to be used on the building façade along the Dalrymple Road and Unnamed Eastern Road frontages to create visual interest (ie. public art, mixture of textures) for pedestrians at the street frontage;

b) Amendments to the eastern elevation to show the detailed design treatments for the south-eastern façade of the Neighbourhood Centre. The treatment must provide aesthetic interest and allow recognition as a visual marker; and

c) All buildings and structures associated with the use must be constructed from materials and painted an appropriate colour that is sympathetic to the surrounding environment.

6. Signage

Should signage associated with the use exceed $2m^2$, the developer must submit plans of the signage as an application for Operational Works for approval by council prior to commencement of the use. Details must include the location of the signage, construction materials, size of the sign and graphic content. All signage must comply with the City of Thuringowa Planning Scheme Policy for Advertising Devices. Approved signs must be maintained to the satisfaction of council.

7. Storage of Materials and Machinery

All materials and machinery to be used during the construction period are to be wholly stored on the site, unless otherwise approved by council.

8. Storage

Goods, equipment, packaging material or machinery must not be stored or left exposed outside the building so as to be visible from any public road or thoroughfare. Any storage on site is required to be screened from view from all roads and adjacent properties.

9. Site Appearance

The site is to be kept in a clean and tidy condition at all times to the satisfaction of council.

10. Lighting

a) The developer must ensure all internal and external lighting is fitted with shades and erected in a manner that ensures that adjoining premises and roads are not affected.

b) Lighting must be provided in accordance with the *Australian/New Zealand Standard AS/NZS1158 Lighting for Roads and Public Spaces.*

11. Property Numbering

Effective property numbers must be erected at the premises prior to the commencement of the use and be maintained to the satisfaction of the Council.

The site identification numbers should be of reflective material, maintained free from foliage and other obstructions, and be large enough to be read from the street.

12. Screening of Plant and Utilities

a) Plant and utilities including air-conditioners must not be visible from the street. The developer must submit a plan identifying the location of all plant and utilities and details of aesthetic screens. Details must be submitted to and approved by Council prior to the issue of a Development Permit for Building Works.

b) The aesthetic screens must be installed prior to the commencement of the use and must be maintained thereafter to the satisfaction of Council.

13. Refuse Facilities

Refuse collection arrangements must be provided by the developer so as to achieve the requirements of the Centres Planning Area, in accordance with the *General Development Code of the City of Thuringowa Planning Scheme*. In particular,

a) The storage area is to be of sufficient size to house all waste containers. The storage area is to be an imperviously paved area, graded and drained through an approved sediment/silt trap to a legal sewer connection with a hose cock and hose fitted in close proximity to the enclosure.

b) The minimum overhead clearance required for mobile garbage (wheelie) bin refuse collection is 4200mm. Access for the collection of the bins is not to be impeded by any overhead obstructions such as trees, wires or other structures. This minimum height clearance is to be maintained at all times.

c) The minimum overhead clearance required for bulk bin refuse collection is 6500mm. Access for the collection of bins is not to be impeded by any overhead obstructions such as trees, wires or other structures. This minimum height clearance is to be maintained at all times.

d) The bulk refuse storage facilities must be:

   i) a suitable enclosure with an impervious floor, with dimensions which exceed the size of the nominated bin size by at least 300mm at the rear and both sides and 600mm at the front;

   ii) within the curtilage of the premises in an accessible location to receive the service;

   iii) graded and drained through an approved sediment/silt trap to a legal sewer connection;

   iv) provided with a hose cock and hose in close proximity to the enclosure.

   v) enclosure must be screened and not visible from any street frontage.

14. Relocation of Utilities

The developer must be responsible for any relocation and/or alteration to any public utility installation required as a result of any works carried out in connection with this development at no cost to council.

15. Car Parking

a) All car parking facilities, associated ramps and driveways must be constructed in accordance with council Standards and as detailed in the latest amendment of the Australian/New Zealand Standard AS/NZ 2890 and must be maintained thereafter to the standard.

b) The minimum car parking classifications for off-street carparking applicable to this development are as per Table 1.1 in AS/NZS 2890.

c) The layout of the on-site car parking spaces must be designed to ensure that all vehicles entering and leaving the site may do so in a forward direction.

d) The developer must provide a minimum of two hundred and seventy-four (274) car spaces including disabled parking on site in accordance with Australian/New Zealand Standard AS/NZ2890.

e) The developer must erect signage indicating the location of the entry and exits to the car parks, specific use bays (e.g. visitor, disabled, bus, taxi, bicycle, loading, etc.), as well as regulatory signs controlling movement within the car park.

f) All exposed services provided within the car parking area must be suitably screened so as to conceal any unsightly elements. Details of such screening must be submitted to and approved in writing by council prior to the issue of a Development Permit for Building Work.

g) The car parking area must be suitably screened so as to prevent light spillage from the car park areas and car headlights into adjoining properties and roads. Details of such screening must be submitted to and approved in writing by council prior to the issue of a Development Permit for Building Work.

h) All signage and line marking for off-street car parking must comply with the requirements of AS/NZS2890 and AS1742 and associated standards.

i) All signage and line marking for on-street car parking and traffic control must comply with the requirements of the Department of Transport and Main Roads (DTMR) Manual of Uniform Traffic Control Devices (MUTCD) and associated standards.

~~j) The developer must provide details to ensure the balance of the development site is treated to minimise dust nuisance (ie. bitumen sealing or grassed with irrigation) for approval prior to the issue of a Development Permit for Building Works.~~

16. Stormwater Drainage

Prior to the issue of a Development Permit for Building Works, certification by an appropriately qualified and experienced Registered Professional Engineer of Queensland (RPEQ) of the following requirements must be provided to achieve, in particular:

a) The development site must be graded so that it is free draining. All runoff from storms naturally falling into this development site (including roof runoff) must be collected within the property boundaries and discharged to the lawful point of discharge through stormwater infrastructure constructed by the Developer.

b) The developer must ensure that no ponding of stormwater occurs on adjacent allotments and that no stormwater formerly flowing onto their development site is diverted onto other neighbouring allotments.

c) The developer must ensure that the post development discharge of stormwater from the subject land ~~does not exceed pre-development peak flows~~ **is in accordance with the Stormwater Management Master Plan for the Greater Ascot development, as agreed with Council**.

d) Overland flow paths and underground drainage must be designed so as not to directly or indirectly cause nuisance to a downstream or adjoining property.

e) Details of the stormwater infrastructure works must be submitted to and approved as part of Compliance Assessment for the development.

f) Following the completion of any works for the purposes of stormwater drainage, a stormwater drainage certificate from a Registered Professional Engineer of Queensland (RPEQ) must be submitted to and endorsed by Council. The stormwater drainage certificate must verify that the completed stormwater works associated with the proposed use has been constructed in accordance with the approved design.

17. Stormwater Quality Management

A stormwater quality management plan (SQMP) must be submitted to and be approved by council prior to the issue of a Development Permit for Building Work. The SQMP must be prepared by a suitably qualified person*.

In particular, the SQMP must adopt the water quality strategy of council's Coastal Dry Tropics Water Sensitive Urban Design Technical Design Guidelines.

The SQMP must be implemented in accordance with the guideline and incorporate any further reasonable requests from council. All works must be carried out in accordance with council Development Specifications.

* Suitably Qualified Person as defined by the State Planning Policy 4/10 Healthy Waters.

18. Sewerage Reticulation

The developer must construct all necessary sewerage infrastructure to connect the site to the nearest existing sewerage infrastructure. Details of the sewerage reticulation works must be submitted and approved as part of Compliance Assessment for the development.

19. Water Supply

The developer must construct all necessary water infrastructure to connect this site to existing infrastructure. Construction of the water infrastructure must include all fittings and valves necessary to meet Council's current standards. Details of the water reticulation works must be submitted to and approved as part of Compliance Assessment for the development.

20. Soil Erosion Minimisation, Sediment Control and Dust Control

During the construction phase of this development the developer must be responsible for the installation and maintenance of adequate erosion and sediment control management. In particular,

a) The contingent design, implementation and maintenance of measures must be provided in accordance with *Aus-Spec Specification - C211 Control of Erosion and Sedimentation*.

b) During the construction and maintenance phases of this development the developer must be responsible for adequate mitigation measures being put in place for the suppression of dust so as not to cause a nuisance to neighbouring property.

c) The developer must ensure that no sediment or litter is discharged from the site into stormwater. Stormwater inlet pits on and adjacent to the development must be protected to prevent the entry of sediment and litter.

21. Vegetation Disposal

All felled trees and waste vegetation on the site must be removed from site, unless an alternative method of disposal, such as wood chipping, is approved by Council. This material must be transported to the nearest approved waste disposal facility. Burning or burying of waste vegetation on site is not permitted.

22. Landscaping Plan

a) Prior to any works commencing on site, a landscaping plan is required to be submitted to and be approved by council as part of Compliance Assessment against the applicable Landscaping Code and/or relevant approval.

The Landscape and Irrigation Design Plans must be prepared in accordance with the relevant sections of City of Thuringowa Planning Scheme - General Development Code 5.5.1 (Landscaping). As part of the landscaping plan the following items are to be included:

* Details of shade trees or shade sails proposed for car parking areas.

* The developer must provide at least 4 shade trees within the centre car parking area between Lockton Street and Blackmoor Wood.

* Details showing any trees planted in hard stand areas being provided with a minimum of $4m^3$ of root-ball space to ensure suitable growth.

* Details of landscaping to the proposed outdoor dining area to enhance the streetscape and improve the amenity of this space.

* Details of landscaping proposed to the south of the subject site, specifically the areas on the site Masterplan (drawing no. SD1002 – Issue J) marked “street parking” and “open space” including the Dalrymple Road road reserve and the 2.5m shared pathway that is to form part of the Greater Ascot path network.

* Details of the treatment to be provided on the eastern side of the supermarket building between the building and the road.

* The developer must provide details of the proposed street enhancements along the eastern and southern road frontages, and must include but not be limited to:
  * Pavement type;
  * Landscaping, including street trees;
  * Provision of approximately 4 street trees to be provided within the centre car park;
  * Upgrade of kerb and channel;
  * Public art;
  * Street furniture;
  * Shade structures and awnings;
  * Driveway treatments; and

b) The landscape plans must be prepared by a suitably Qualified person who:

- is a Qualified Landscape Architect with current membership to the Australian Institute of Landscape Architects; and/or
- is an experienced Landscape Designer

c) All works must be completed in accordance with the approved landscaping plan and constructed to a standard detailed within City of Thuringowa Planning Scheme - General Development Code 5.5 (Landscaping). Following the approval of the plan, with or without amendments, the developer must implement the plan prior to the commencement of the use. Furthermore, all landscaped areas must be maintained thereafter to the satisfaction of council.

23. Roadworks and Traffic

a) The developer must provide a new access driveway and crossover to the property boundary at the developer's expense generally in accordance with Council's relevant Standard Drawings for Driveway Access and Driveway Crossovers. The access may not be provided directly from Dalrymple Road or Shaw Road.

b) During the construction phase, any damages to the road reserve (i.e. footpath/kerb and channel) must be replaced by the developer in accordance with Council's standards.

24. Bicycle Facilities

The applicant is to provide sufficient bicycle racks in accordance with AS 2890 and the AUSTROADS Guide to traffic Engineering Practice Part 14 - Bicycles. Details of the locations and numbers provided must be submitted with Compliance Assessment for approval by council.

25. Further Approvals Required

a) **Compliance Assessment**
A Compliance Assessment application associated with the following conditions must be submitted to Council for approval prior to the issue of a Development Permit for Building Works, unless otherwise approved by Council:

Condition 2 – Commencement of Trade
Condition 3 – Amended Plans
Condition 5 – Building Materials
Condition 12 – Screening of Plants & Utilities
Condition 15 – Car Parking
Condition 16 – Stormwater Drainage
Condition 17 – Stormwater Quality Management
Condition 18 – Sewerage Reticulation
Condition 19 – Water Supply
Condition 22 – Landscaping Plan
Condition 23 – Roadworks & Traffic
Condition 25 – Bicycle Facilities

All engineering and landscaping designs/documentation associated with such an application must be prepared and where necessary, certified by a suitably qualified/experienced person.

b) **Operational Works**
The Developer must obtain a Development Permit for Operational Works for any advertising devices not approved as part of the Plans of Development. The Development Permit for Operational Works must be approved prior to the commencement of use.

Concurrence Agency Conditions - Department Of Transport and Main Roads

Pursuant to Section 285 and Section 287 of the *Sustainable Planning Act 2009*, the Department of Transport and Main Roads advises that it has no objection to Townsville City Council issuing a Development Permit for Material Change of Use subject to the conditions, as attached. The applicant must comply with the Department of Transport and Main Roads conditions as outlined in the Department's correspondence dated 5 August 2011.

Advice Agency – Department of Environment & Heritage Protection

Pursuant to Section 292 of the *Sustainable Planning Act 2009*, **Department of Environment & Heritage Protection** advises that it has no objection to Townsville City Council issuing a Development Permit for Material Change of Use, as attached.

Advice Agency – Ergon Energy

Pursuant to Section 292 of the *Sustainable Planning Act 2009*, **Ergon Energy** advises that it has no objection to Townsville City Council issuing a Development Permit for Material Change of Use, as attached.

Advice Agency – Powerlink Queensland

Pursuant to Section 292 of the *Sustainable Planning Act 2009*, **Powerlink Queensland** advises that it has no objection to Townsville City Council issuing a Development Permit for Material Change of Use, as attached.

ADVICE

1. Infrastructure Charges

An Adopted Infrastructure Charges Notice outlining the estimated infrastructure contributions payable relevant to the Development Permit is attached for your information.

2. Shop Fit Out

a) Prior to any fit out of the intended food premise, a separate application to fit out the premises must be submitted to council's Environmental Health Services for the registration of the food premise. No fit out or construction may take place before approval is granted. A food premise is anywhere food or beverages are prepared, packed, stored, handled, serviced, supplied or delivered for sale. An application must also be made for a licence to operate a food premise.

b) Prior to any fit out of the intended hairdresser/beauty salon, a separate application must be submitted to council's Environmental Health Services for licence issue. No fit out or construction may take place before approval is granted.

c) Prior to any fit out of the intended Skin Penetration Establishment, a separate application must be submitted to council's Environmental Health Services for Licence issue. No fit out or construction may take place before approval is granted.

3. Waste Collection

a) The owner/occupier of the premises is required to provide an adequate number of waste containers to manage the waste generated by the activities being undertaken onsite.

b) The proprietor is to arrange for the removal of waste from the premises by a suitably licensed waste transport contractor approved by the local government to transport waste under Section 369A of the *Environmental Protection Act 1994.* Adequate provision must be made for the collection of the waste storage containers within the premises.

c) The collection of putrescibles waste arising from activities undertaken on this development must be collected and removed at periods not exceeding seven days.

d) The collection of waste is to be undertaken so as to minimize, so far as reasonably practicable excessive noise to neighboring occupants. The collection method must ensure that waste is adequately managed to prevent escape or contamination.

e) This development has the potential to generate or handle clinical and regulated waste material. Clinical and medical related waste is to be handled in accordance with AS/NZS 3816:1998 “Australian Standard/New Zealand Standard – Management of Clinical and Related Wastes”.

f) Where practicable, all loading and unloading shall take place within the containment area (storage area). This area is to be constructed in such a way that any spills from loading or unloading are not permitted to escape to an area subject to storm water. No clinical and related wastes shall be disposed of via the storm water drainage system.

4. Connection to Council Water Supply

A copy of this permit and the approved water reticulation design must be submitted to council for connection to council's water supply. Council will respond to the application with a quotation for the work and upon payment will schedule the works for connection.

5. Connection to Council Sewer

A copy of this permit and the approved sewer reticulation design must be submitted to council for connection to council's sewer supply. Council will respond to the application with a quotation for the work and upon payment will schedule the works for connection.

6. Roadworks Approval

The developer is responsible for obtaining a Roadworks Approval in accordance with Local Laws 4 for the installation of any hoardings, gantries or temporary road closures of the footpath or road prior to the commencement of works. The application must include the following:

(i) Completed Roadworks approval application form
(ii) Prescribed fee
(iii) Traffic Management Plan prepared by a suitably qualified traffic professional detailing the traffic management measures put in place to manage all roadworks including pedestrians, cyclists and vehicles in accordance with the Manual of Uniform Traffic Control Devices Part 3 - Works on Roads.

If the works require closure of part of the road reserve, a temporary Road Closure Permit will be required. This permit allows for a section of road reserve to be closed for the purpose of works.

The Queensland Police Service is the issuing authority for these permits. An application will need to be made to Council for a letter of no objection prior to applying to the Queensland Police Service for the permit. The Traffic Management Plan will need to be included with the application to Council.

7. Haulage of Materials

a) Where the development of the subject site requires materials to be imported or exported in excess of 2,500m^3, the developer must obtain a separate council approval for the transport route. Specific conditions may apply, including contributions towards the cost of accelerated pavement degradation along haulage routes and/or repairs to haulage routes.

b) The approval for the route of transport must show the period and time of transport during the construction phase of the development.

8. Environmental Considerations

Construction must comply with the *Environmental Protection Act 1994*, Policies and Guidelines.

9. Trade Waste Permit

The developer is advised that a Trade Waste Permit may be required and should confirm this with council's Trade Waste Inspector.

In these conditions:

a) A reference to an Act includes all statutory instruments and subordinate legislation made under that Act; and,

b) Terms used have the meaning contained in the Planning Scheme, the *Integrated Planning Act 1997/Sustainable Planning Act 2009* or the relevant legislation referred to in those conditions, as the case may be.

10. Flammable and Combustibles

Where flammable and combustible liquids are stored or handled on site, advice regarding the requirements for storage and handling of Flammable and Combustible Liquids must be obtained from The Department of Industrial Relations – Work Place Health & Safety.

11. Noise

The hours of construction and building work on site must be limited to between:

* 6.30 a.m. to 6.30 p.m. Monday to Saturday; with
* No work on Sundays or Public Holidays.

Queensland Government

28 September 2012

The Chief Executive Officer
Townsville City Council
PO Box 1268
Townsville QLD 4810

Attention: Ramon Samanes

Dear Sir

CONCURRENCE AGENCY RESPONSE – CONDITIONS

Proposed Development:	Development Permit for Material Change of Use for the purpose of Neighbourhood Centre
Real Property Description:	Lot 6 on SP107219
Street Address:	299 Shaw Road, Shaw QLD 4814
Assessment Manager ref.:	MI11/0064
Local Government Area:	Townsville City Council

Reference is made to the referral agency material for the development application described above which was received by the Department of Transport and Main Roads (the department) under section 272 of the *Sustainable Planning Act 2009* (SPA) on 23 December 2011 and the proponents subsequent information response dated 13 July, 2012.

An assessment of the proposed development has now been undertaken against the purposes of the *Transport Infrastructure Act 1994* for state-controlled roads. Based on this jurisdiction, the department provides this concurrence agency response under section 285 of the SPA.

The department advises the assessment manager that it requires conditions to attach to any development approval for the application. The department would also like to provide advice about the application to the assessment manager under section 287(6) of the SPA.

Under section 325(1) of the SPA, the assessment manager must therefore attach this response, including the enclosed Department of Transport and Main Roads Concurrence Agency Conditions and Statement of Reasons, to any approval for the application.

Department of Transport and Main Roads
Program Delivery and Operations
Northern Region
146 Wills Street Townsville Queensland 4810
PO Box 1089 Townsville Queensland 4810

Our ref TMR11-000877
Your ref MI11/0064
Enquiries John Irving
Telephone **+61 7 4720 7421**
Facsimile +61 7 7420 7288
Website www.tmr.qld.gov.au
Email john.x.irving@tmr.qld.gov.au

The department may change its concurrence agency response in accordance with section 290(1)(b) of the SPA.

The department encourages the applicant to review the proposed neighbourhood centre main street access arrangement and connectivity with Dalrymple Road. The department is concerned that based on the current proposal, the movement of vehicles to and from Dalrymple Road (which is a high speed urban arterial road (70km/ph)) into the proposed main street (which is a low speed town centre environment) will not function as intended. There may be insufficient traffic calming between the two roads to allow this internal road to function as a main street, for both pedestrians and motor vehicle movements.

The attached conditions of development, in particular the proposed Town Centre left in left out access point from Shaw Road, are not consistent with the Road Transport Infrastructure Agreement in Respect of Greater Ascot between the Department of Transport and Main Roads and Parkside Developments Pty Ltd dated 11 April 2011. If approved by Council, the infrastructure agreement should be amended to ensure it is consistent with this development proposal.

The department must be provided with a copy of the assessment manager's decision notice regarding the application within five (5) business days after the day the decision is made in accordance with section 334 of the SPA.

A copy of this response has been sent to the applicant for their information.

If you have any questions or wish to seek clarification about any of the details in this response, please contact John Irving, Town Planning Officer (Planning & Development Assessment) on (07) 4720 7421.

Yours sincerely

Gina Turner
Manager (Corridor Management), Planning & Development Assessment

Enc. (Department of Transport and Main Roads Agency Conditions and Statement of Reasons)

C/c Parkside Development Pty Ltd
C/- Brazier Motti
595 Flinders Street
Townsville QLD 4810

Queensland Government

Our ref.: TMR11-000877
Your ref.: 26700-003-02

C/c Parkside Development Pty Ltd
C/- Brazier Motti
595 Flinders Street
Townsville QLD 4810

Attention: Susan Green

Please find attached correspondence for your information and action as required. Should you wish to discuss this correspondence, please contact John Irving, Town Planning Officer (Planning & Development Assessment) on (07) 4720 7421.

Yours sincerely

Gina Turner
Manager (Corridor Management), Planning & Development Assessment

28 September 2012

Enc. (Department of Transport and Main Roads Agency Conditions and Statement of Reasons)

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Department of Transport and Main Roads
Concurrence Agency Conditions and Statement of Reasons

Proposed Development: Development Permit for Material Change of Use for the purpose of Neighbourhood Centre
Real Property Description: Lot 6 on SP107219 (Subject Land)
Street Address: 299 Shaw Road, Shaw QLD 4814
Assessment Manager ref.: MI11/0064
Local Government Area: Townsville City Council

No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
Development Permit for Material Change of Use for the purpose of Neighbourhood Centre			
1.	Access arrangements and the development layout must be carried out generally in accordance with the following plan, except as modified by these concurrence agency conditions: • Submitted plan detailing proposed access locations prepared by Brazier Motti dated 27 September 2012. Drawing No. 26700/077 Rev. B as amended by TMR. (Attachment 1). • Submitted plan titled *'Overall Stormwater Plan'* prepared by UDP Consulting Engineers dated 8 June 2012. Drg. No. PAR071/SK02 Rev 1. • Submitted plan titled *'Floor Plan- Neighbourhood Centre'* prepared by Cottee Parker Architects Pty Ltd dated 5 July 2012. Drawing No SD 2001 Issue D.	Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). The Department of Transport and Main Roads' assessment of the development application was undertaken on the basis of the cited plans and report which depict how the proposed development will be carried out.
2.	(a) Vehicular access between Shaw Road and the development site is only permitted at access location "A", as detailed on the	(a)-(d)	The purposes of the *Transport Infrastructure Act 1994* (TIA).

Queensland Government

No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	submitted plan prepared by Brazier Motti dated 27 September 2012 as amended by TMR (Attachment 1). AND (b) Access "A" shall be Left In/Left Out only and must be a minimum distance of 290 metres from the Shaw Road/Dalrymple Road intersection. AND (a) Access to the future town centre car park is not permitted within 100 metres of access "A" (see median continuation marked on Attachment 1). AND (d) Access A must be designed and constructed in accordance with The Department of Transport and Main Roads' *Road Planning and Design Manual*.	Prior to the commencement of use and to be maintained at all times.	Vehicular access at the permitted road access location minimises impacts on the safety and efficiency of the state-controlled road network. In accordance with Section 33 of the TIA, you must have written approval to carry out road works, including road access works on a state-controlled road. These development conditions do not constitute such approval. You will need to contact the Department of Transport and Main Roads on (07) 4720 7200 or towdawe@tmr.qld.gov.au to make an application for approval under section 33 of the TIA to carry out road works.
3.	No access to or from Dalrymple Road is permitted at location "B" as shown on the submitted plan prepared by Brazier Motti dated 27 September 2012 as amended by TMR (Attachment 1) is permitted.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). Vehicular access at the permitted road access location minimises impacts on the safety and efficiency of the state-controlled road network.

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
			The location of this access point is within the functional area of the Shaw Road/Dalrymple Road intersection which has the potential to significantly impact upon its safe and efficient function. Specifically, this LILO access point is located within the merge lane on Dalrymple Road. This merge lane is required to accommodate the double right turn movement from Shaw Road. An access point on this merge lane would create conflict between merging vehicles on Dalrymple Road and vehicles exiting the Subject Land at this location.
4.	(a) Vehicular access between Dalrymple Road and the development site is only permitted at access location C and D, as detailed on the submitted plan prepared by Brazier Motti dated 27 September 2012 (Attachment 1). AND (b) Access C shall be Left Out only and must be a minimum distance of 360 metres from the Shaw Road/Dalrymple Road intersection.	(a)-(e) Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). Vehicular access at the permitted road access location minimises impacts on the safety and efficiency of the state-controlled road network.

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	AND (c) Access C shall incorporate a controlled boom gate, or similar, to restricts egress from the loading bay to delivery vehicles only. AND (d) Access D shall be an all movements signalised intersection and must be a minimum distance of 440 metres from the Shaw Road/Dalrymple Road intersection. AND (e) Both access C and D must be designed and constructed in accordance with The Department of Transport and Main Roads' *Road Planning and Design Manual*.		
5	(a) The developer shall submit to the Department of Transport and Main Roads, concurrent with the lodgement of the next development application for material change of use or operational works, in respect of the proposed future town centre site, a comprehensive Road Traffic Operations Assessment (TOA). AND (b) The TOA shall include an examination of all potential adverse	(a) - (b) At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and section 282 *Sustainable Planning Act 2009 (Qld)* The traffic impact report which forms the basis of the Infrastructure Agreement between the applicant and the department dated 11 April 2011 states the size of this commercial area to be 15,000m2 of retail and offices. The ultimate development of the future town centre is likely to

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	impacts future development on the Subject Land may have on the existing and proposed future access points within the functional area of the Shaw Road/Dalrymple Road intersection. The TOA shall include: i. Traffic generation rates for the town centre. ii. The volume of car parking proposed. iii. Identify the Gross Floor Area (GFA) of the proposed development. iv. Identify proposed tenure types and uses for the town centre. AND (c) The TOA shall be prepared by a Registered Professional Engineer of Queensland (RPEQ) suitably qualified and experienced in traffic engineering, in accordance with the Department of Transport and Main Roads' *Guidelines for Assessment of Road Impacts of Development* and AUSTROADS' *Guide to Traffic Engineering Practice Part 3 Traffic.*		generate in excess of 30,000m2 of commercial Gross Floor Area (GFA). Therefore, future development of the balance site has the potential to generate a significant increase in anticipated traffic volumes. The Department of Transport and Main Roads must ensure the safe and efficient operation of the state-controlled road network.
6	The developer shall submit concept design plans for the permitted accesses, as detailed in Condition 2 and 4 above, (hereby known as the 'the works') to the Department of Transport and Main Roads', for the departments' written acceptance. The concept design plans are to be in accordance with the Department of Transport and Main Roads' *Road Planning and Design Manual, Specifications and Standard Drawings* current at the time of design	Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and the Department of Transport and Main Roads' *Road Planning and Design Manual* The Department of Transport and Main Roads must ensure access between Shaw Road and the Subject Land and within the functional area of the

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	and include, but not be limited to, kerb and channel, pavement, surfacing, drainage, line marking, electrical installation, landscaping, pedestrian and cycle provisions, relocation of services and lighting works. Where no Department of Transport and Main Roads' standard is available, the Australian Standards or similar shall be utilised at the discretion of the department.		Shaw Road/Dalrymple Road intersection do not adversely effect the safe and efficient operation of the state-controlled road network.
7	All plans, designs and documentation submitted by the developer as a consequence of the Department of Transport and Main Roads conditions must be: a) Certified by a Registered Professional Engineer of Queensland (RPEQ); and b) Provided in electronic format, along with two (2) paper copies.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and *Professional Engineers Act 2002*.
8	All contractors engaged for design or construction works shall be: a) Pre-qualified under the Department of Transport and Main Roads prequalification system; and b) Able to demonstrate, to the Department of Transport and Main Roads' satisfaction, experience in civil design and/or construction works of a similar nature to those required as a result of these conditions.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA).

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
9	Subject to the Department of Transport and Main Roads' acceptance of the concept design plans provided pursuant to Condition 2 and 4, and no less than 12 weeks prior to the anticipated commencement of construction of the works, the developer must submit to the Department of Transport and Main Roads for the departments' consideration and written approval: a. detailed engineering plans for the works b. a bill of works for the whole of the cost of the works, including management and supervision. c. A bond totalling 115% of the cost of the works. i. The bond may take the form of either bank cheque or a bank guarantee. ii. The bond shall consist of separable portions, 100% to be returned upon practical completion of the works and 15% to be returned after the completion of the twelve (12) month defects liability period or submission of 'as constructed' drawings to the Department of Transport and Main Roads, whichever is the latter.	Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and the Department of Transport and Main Roads' *Road Planning and Design Manual*. The Department of Transport and Main Roads must ensure access between Shaw Road and the Subject Land and within the functional area of the Shaw Road/Dalrymple Road intersection do not adversely effect the safe and efficient operation of the state-controlled road network.
10	Where the Department of Transport and Main Roads *Road Planning and Design Manual* is amended or updated after submission of the concept design plans, any amendment or update relevant to the proposed works must be incorporated into the detailed design plans.	At all times.	The Department of Transport and Main Roads' *Road Planning and Design Manual*. Design and construction must be carried out to the most recent policy standards to ensure the quality, safety and efficiency of the state-controlled road network.

Queensland Government

No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
11	Within three (3) months of practical completion, the developer shall provide to the Department of Transport and Main Roads 'as constructed' drawings for the works. Where the developer fails to provide the 'as constructed' drawings required, the Department of Transport and Main Roads may have recourse to the maintenance bond for costs incurred in the department securing the 'as constructed' drawings.	Prior to obtaining a final inspection certificate or certificate of classification, whichever is applicable, or prior to the commencement of use, whichever occurs first.	The purposes of the *Transport Infrastructure Act 1994* (TIA), section 347 of the *Sustainable Planning Act 2009 (Qld)* and the Department of Transport and Main Roads' *Guidelines for the Assessment of Road Impacts of Development.*
12	(a) The management of stormwater (quantity and quality) post development must achieve a no worsening impact (on the pre-development condition) In particular, stormwater management for the development must ensure no worsening or actionable nuisance to the state-controlled road network caused by peak discharges, flood levels, frequency/duration of flooding, flow velocities, water quality, sedimentation and scour effects. AND (b) Any excavation, filling, paving, landscaping, construction or any other works to the land must not: i. create any new discharge points for stormwater runoff onto the state-controlled road; ii. interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road; iii. surcharge any existing culvert or drain on the state-controlled road; iv. reduce the quality of stormwater discharge onto the state-controlled road.	(a) - (c) Prior to the commencement of use and to be maintained at all times. (d) Prior to obtaining a final inspection certificate or certificate of classification, whichever is applicable, or prior to the commencement of use, whichever occurs first.	The purposes of the *Transport Infrastructure Act 1994* (TIA). The safety and efficiency of state-controlled roads can be adversely affected by changes to stormwater runoff as a result of development.

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	AND (c) Open drains and associated stormwater infrastructure directly adjacent to Shaw Road and the functional area of the Shaw Road/Dalrymple Road intersection shall be designed in accordance with the Department of Transport and Main Roads guidelines and specifications and shall cater for, as a minimum, a 50 year average recurrence interval (ARI) rainfall event. AND (d) The applicant must provide RPEQ certification to the Department of Transport and Main Roads that the development has been designed and constructed in accordance with parts (a), (b) and (c) of this condition.		
13	Car parking is not permitted within the state controlled road reserve, namely Shaw Road and the functional area of the Shaw Road/Dalrymple Road intersection.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). Parking on the state-controlled road reserve adjacent to the site can impact on the safety and efficiency of the state-controlled road.
14	(a) Advertising signs are prohibited within the state controlled road reserve, namely Shaw Road and the functional area of the Shaw Road/Dalrymple Road intersection.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and the Department of Transport and Main Roads' *Roadside Advertising Guide*.

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No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
	AND (b) Any advertising signs erected on the Subject Land must not project into the corridor of Shaw Road or Dalrymple Road.		Advertising signs on or near to the state controlled road may obscure signage or distract drivers.
15	All on-site advertising viewable from the State-controlled road, namely Shaw Road, must conform to guidelines set for such signs in the Department of Transport and Main Roads' *Roadside Advertising Guide* (Part 5.5 Visual Amenity and Part 10.4 – Advertising beyond the boundaries, but visible from state controlled roads.	At all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA) and the Department of Transport and Main Roads' *Roadside Advertising Guide*.
16	Any landscaping on the Subject Land that is within 10 metres of the frontage with State-controlled Road network, namely Shaw Road and the functional area of the Shaw Road/Dalrymple Road intersection must be planted in accordance with the Department of Transport and Main Roads' Road Landscape Manual 2004, section C5 – Safety Requirements and Landscape Design.	Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). Landscaping or other objects can impact on sight distance visibility at the intersection of the road access location and state-controlled road, affecting the safety of the state-controlled road network.
17	Any flood lights or illumination on the Subject Land must be shielded, directed downwards and away from the state-controlled road, namely Shaw Road.	Prior to the commencement of use and to be maintained at all times.	The purposes of the *Transport Infrastructure Act 1994* (TIA). If lighting associated with the development

Queensland Government

No.	Conditions of Development	Condition Timing	Jurisdiction and Reasons
			causes unsafe glare or other nuisance, drivers may be distracted, affecting safety on the state-controlled road.
18	No dust/debris from the Subject Land must enter the State-controlled Road network, namely Shaw Road during the construction phase of the development.	To be maintained at all times during construction.	The purposes of the *Transport Infrastructure Act 1994* (TIA). Dust and debris from development on the site can affect the state-controlled road, causing a safety hazard to road users.

Advice for state controlled roads
Under section 33 of the *Transport Infrastructure Act 1994*, written approval is required from the Department of Transport and Main Roads to carry out road works, including road access works, on a state-controlled road. Please contact the Department of Transport and Main Roads on (07) 4720 7200 or towdawe@tmr.qld.gov.au to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ).
An application for a Road Corridor Permit is required for any ancillary works and encroachments on the state-controlled road under section 50(2) and Schedule 6 of the *Transport Infrastructure Act 1994* and Part 5 and Schedule 1 of the *Transport Infrastructure (State-Controlled Roads) Regulation 2006*. Please contact the Department of Transport and Main Roads on (07) 4720 7200 or towdawe@tmr.qld.gov.au to make an application for a Road Corridor Permit. Ancillary works and encroachments include but are not limited to advertising signs or other advertising devices, paths or bikeways, buildings/shelters, vegetation clearing, landscaping and planting.

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Advice for state controlled roads
Pursuant to Section 580 of the *Sustainable Planning Act 2009* it is a development offence to contravene a development approval, including any condition in the approval.
Pursuant to Section 80 of the *Transport Infrastructure Act 1994*, the construction, augmentation, alteration or maintenance of a public utility plant on a state-controlled road reserve, must be in accordance with the Department of Transport and Main Roads' requirements.

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INFORMATION ATTACHMENT TO CONCURRENCE AGENCY RESPONSE

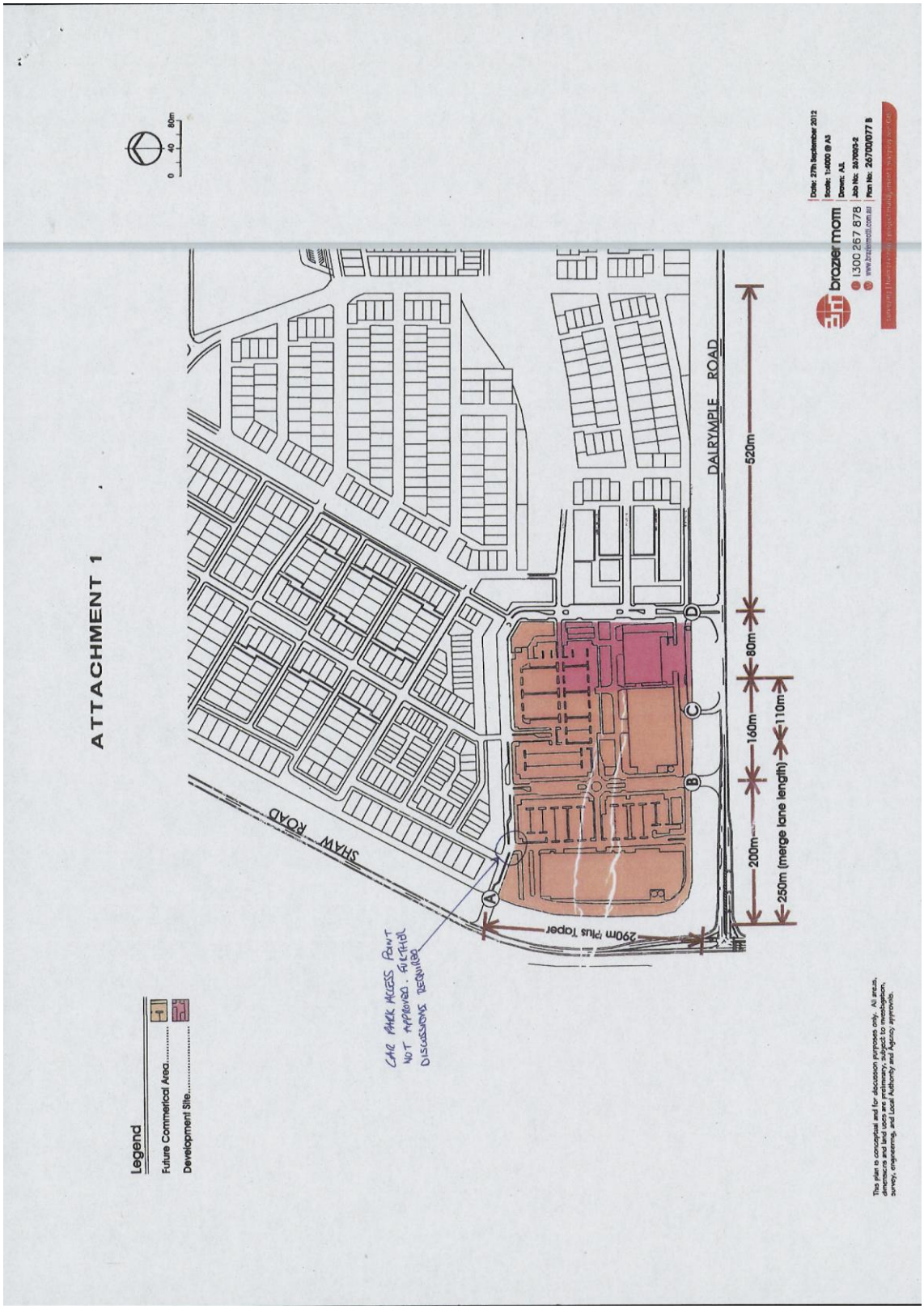
Representations on Referral Agency Response

If the applicant intends to make a representation to the Department of Transport and Main Roads (the department) regarding the attached concurrence agency response, the applicant needs to do this before the assessment manager decides the application. The assessment manager cannot decide the application before 10 business days after receiving the final concurrence agency response, pursuant to section 318(5) of the *Sustainable Planning Act 2009* (SPA).

The applicant will need to give the assessment manager written notice under section 320(1) of SPA to stop the decision-making period to make a representation to the department and subsequently contact the department to make the representation. The decision making period cannot be stopped for more than 3 months.

Planning and Environment Court Appeals

If an appeal is lodged in the Planning and Environment Court in relation to this application, the appellant must give written notice of the appeal to the department under Section 482(1) of the SPA. This notice should be forwarded to the Planning Law Team, Planning Management Branch, Department of Transport and Main Roads, GPO Box 213, Brisbane QLD 4001 within 2 days if the appeal is started by a submitter, or otherwise within 10 business days after the appeal is started.



Department of Environment and Resource Management

Notice

Advice Agency Response - Referable Wetland

This notice is issued by the Department of Environment and Resource Management pursuant to section 292 (advice agency response) of the Sustainable Planning Act 2009 ("the Act").

Townsville City Council
PO Box 1268
TOWNSVILLE QLD 4810

Attn: Ramon Samanes

cc. Parkside Development Pty Ltd
c/- Brazier Motti
595 Flinders Street
TOWNSVILLE QLD 4810

Attn: Erin Berthelsen and Stephen Motti

Project reference: 351111
DERM Permit Number: SPAR03684412

Application Details

Assessment Manager Reference:	MI11/0064 ATTN: Ramon Samanes
Date properly referred to DERM:	06 January 2012
Development approval applied for:	Development permit
Aspect of development:	Material Change of Use, other than for a domestic housing activity, if any part of the land is situated in a wetland management area Sustainable Planning Regulation 2009 - Schedule 7, Table 3, Item 21
Development description:	Material Change of Use – Neighbourhood Centre
Property/Location description:	299 Shaw Road SHAW QLD 4818 (Lot 5000 on SP243799)

Recommendation

The Chief Executive, Department of Environment and Resource Management (DERM), makes the following recommendation to the assessment manager:

Wetland:

The Assessment Manager should consider the potential impacts of the proposed development on wetland values, including the water quality, natural hydrological flows and ecological functioning of the wetland. Development should meet the following outcomes:

- Maintain ecological values of the wetland. There is no loss of wetland habitat and adverse impacts on the functioning and integrity of a wetland from development are avoided. A report prepared and certified by an appropriately qualified professional may assist the Assessment Manager to consider the impacts of the development on the ecological values and functioning of the wetland. If adverse impacts are unavoidable, the Assessment Manager is encouraged to ensure that the values lost are offset in order to achieve an environmental outcome equal or better than the wetland values that are impacted.

  Where a wetland management area is mapped as a 'significant coastal wetland' under a Regional Coastal Management Plan it should be assessed against the policy for areas of state significance (natural resources). An Implementation Guideline should be consulted: http://www.derm.qld.gov.au/services_resources/item_details.php?item_id=202304&topic_id=54.

  For areas where a regional coastal management plan does not exist, where the wetland management area is also defined as a 'significant coastal wetland' under the State Coastal Management Plan – Queensland's Coastal Policy 2001 (SCMP), any approval is consistent with SCMP policy 2.8.1, Areas of state significance (natural resources).

- Maintain wetland water quality. The water quality of any waters in and linked to the wetland is maintained and managed to protect the environmental values of the wetland, and to ensure that the water quality objectives listed under Schedule 1 of the Environmental Protection (Water) Policy 2009 are achieved.

- Maintain wetland water regime. The existing water regime (including surface and groundwater) within and linked to the wetland is maintained and managed to protect existing natural hydrological processes within the wetland ecosystem. This includes safeguarding natural fluctuations in size and location of the wetland, and retaining and allowing for regeneration of native vegetation.

To ensure that the proposed development is able to meet the above outcomes, the Assessment Manager is encouraged to consider the requirement for a buffer area between any proposed works and the wetland. A wetland buffer has two components:

- a support area adjacent to the wetland that maintains and supports the environmental values of the wetland; and
- a separation area around the support area that protects the wetland from external threats such as sediment and nutrient discharge from surrounding landuse.

Buffer distances should be maximised in order to maintain existing biodiversity values, habitat connectivity and to minimise edge effects. Unless otherwise determined by a suitably qualified professional, the following buffer widths are accepted by DERM as precautionary buffer widths likley to absorb impacts from external uses.

- within urban areas, a minimum 50m buffer to wetland
- outside of urban areas a minimum 200m buffer to wetland
- for 'significant coastal wetlands', a buffer width of 200m to wetland

Where required, revegetation of the buffer is recommended using native species representative of the pre-clearing regional ecosystem, with preference given to endemic species. Plants should be of local provenance where possible. A rehabilitation/ revegetation management plan including weed management strategies may assist in determining the rehabilitiation requirements for the development. Conditioning of any approval with building or development envelope(s) may also be a useful way to give formal effect to any required buffer area.

The Assessment Manager should consider requiring applicants to provide a Stormwater Management Plan to demonstrate how stormwater, sediment and other run-off from the site (associated with the construction and operational phases of development) will be effectively managed to prevent adverse impacts on wetland values. Potential impacts are to be addressed through water sensitive urban design including compliance with South East Queensland Regional Plan 2009-2031 Implementation Guideline No. 7: Water sensitive urban design – design objectives for urban stormwater management. For areas outside of the South-east Queensland Regional Plan area any approval should recognise the requirements of the the Draft Urban Stormwater –Queensland Best Practice Environmental Management Guidelines 20091.

General information for assessment managers

The State's Native Title Work Procedures provide that responsibility for assessment of native title issues for an IDAS application rests with the assessment manager. Therefore, DERM as a referral agency for the relevant application has not provided notification to native title parties.

Additional information for applicants

It is a requirement of the Environmental Protection Act 1994 that if an owner or occupier of land becomes aware of a Notifiable Activity (as defined in Schedule 3 and Schedule 4 of the Environmental Protection Act 1994) being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the Department of Environment and Resource Management.

Aboriginal Cultural Heritage

Under section 23 of the Aboriginal Cultural Heritage Act 2003 a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the "cultural heritage duty of care"). Maximum penalties for breaching the duty of care are $1,000,000 for a corporation and $100,000 for an individual.

Applicants will comply with the duty of care in relation to Aboriginal cultural heritage if they are acting in accordance with cultural heritage duty of care guidelines gazetted under the Aboriginal Cultural Heritage Act 2003, available on the DERM website, or in accordance with an agreement with the Aboriginal party for the area or a cultural heritage management plan approved under part 7 of the Aboriginal Cultural Heritage Act 2003.

Applicants are also encouraged to undertake a search of the Aboriginal Cultural Heritage Database and the Aboriginal Cultural Heritage Register, administered by the Cultural Heritage Coordination Unit, DERM. Application forms to undertake a free search of the Cultural Heritage Register and the Database may be

[1] The Draft Urban Stormwater –Queensland Best Practice Environmental Management Guidelines 2009, is available at: http://www.derm.qld.gov.au/environmental_management/water/environmental_values_environmental_protection_water_policy/draft_urban_stormwater_qbpem_guideline_2009.html

Notice
Advice Agency Response

obtained by contacting the Cultural Heritage Coordination Unit on (07) 3239 3647 or on the DERM website www.derm.qld.gov.au/cultural_heritage

Should you have any questions about the above, please contact Glenn Laanekorb on telephone 1300 130 372, quoting the above reference number.

Bleak

Delegate
Bernadette Carter
Delegate for the Chief Executive administering the
Coastal Protection and Management Act 1995,
Environmental Protection Act 1994,
Nature Conservation Act 1992.
Department of Environment and
Resource Management

Enquiries:
Glenn Laanekorb
Department of Environment and
Resource Management
Permit and Licence Management
Address: GPO Box 2454 BRISBANE QLD 4001
Telephone: 1300 130 372
Facsimile: 07 3896 3342
Email: palm@derm.qld.gov.au

9 January 2012

Page 4 of 4 • 091217 Department of Environment and Resource Management

23 January 2012

ERGON. ENERGY

61 Mary Street
Brisbane QLD 4000
PO Box 15107
City East, Brisbane,
QLD 4002
Telephone (07) 3228 8222
Facsimile (07) 3228 8118
Website ergon.com.au

Chief Executive Officer
Townsville City Council
PO Box 1268
Townsville QLD 4810

Attention: Ramon Samanes

cc Parkside Development Pty Ltd
C/- Brazier Motti
595 Flinders Street
Townsville QLD 4810

Attention: Erin Berthelsen

Dear Ramon,

ADVICE AGENCY RESPONSE

MATERIAL CHANGE OF USE
NEIGHBOURHOOD CENTRE
GREATER ASCOT

299 Shaw Road Shaw
Lot 6, SP107219 (proposed Lot 5000 SP243799)

COUNCIL REFERENCE: **MI11/0064**
OUR REFERENCE: **EE12/000044**

This submission is made on behalf of Ergon Energy Corporation Limited ACN 087 646 062 (*Ergon Energy)* pursuant to section 292 (advice agency response) of the *Sustainable Planning Act 2009*. In accordance with section 292 (3), we request that the assessment manager treats this response as a properly made submission.

Ergon Energy acting as an advice agency has no objection to the proposed material change of use, subject to the following conditions being applied to any approval:

1. Development is carried out generally in accordance with the plans and reports provided as part of the application.
2. All Ergon Energy easement conditions must be maintained.
3. Natural ground level within the easement should not be altered without approval from Ergon Energy. Should any cut and/or fill be proposed within the easement, detailed civil design drawings showing proposed levels (and the location of Ergon Energy assets in relation to the proposed development) must be approved by Ergon Energy prior to any works commencing on site. Should changes (ie. realignment) to Ergon Energy infrastructure be proposed or required as part of the development, those changes are made with Ergon Energy's consent and at the developer/owner's expense (unless otherwise agreed to by Ergon Energy).

4. Access to the easement and access along the easement must be available to Ergon Energy personnel and equipment at all times. Where fencing prohibits access to and along the easement area, gates must be supplied and installed at the developer/owner's expense.

5. The developer will be required to negotiate electricity supply arrangements by applying in writing to Ergon Energy, or by contacting Ergon Energy on 13 10 46. Early contact is recommended. Should the development require additional onsite infrastructure (ie. additional or upgraded pad mounted transformer), early contact with Ergon Energy (ie. prior to detailed design) can ensure any easement/design requirements are accounted for in a timely and efficient manner.

We respectfully request that a copy of the decision be provided in accordance with section 334 (1) (b) of the *Sustainable Planning Act 2009*.

DLGP are in the process of updating referral agency information available on their website. In the meantime, please note the address for all referrals to Ergon Energy is as follows:

Principal Town Planner
Ergon Energy
PO Box 15107
City East, Brisbane
QLD 4002

townplanning@ergon.com.au

Please contact me on 3228 7962 or via email address: ian.turton@ergon.com.au for any further information.

Yours sincerely,

Ian Turton
Principal Town Planner
Ergon Energy

RECEIVED
27 JAN 2012
POST

COPY

10 January 2012

Our ref: MSLink105820,
105817 (11/65/2)
DA 519

Brazier Motti
595 Flinders Street
TOWNSVILLE QLD 4810

cc. Townsville City Council
PO Box 1268
TOWNSVILLE QLD 4810

Attention: Erin Berthelsen
Your Ref:- 26700-003-02 DTMR Referral

Attention: Ramon Samanes
Your Ref:- MI11/0064

Dear Sir/Madam

Alan Sherriff to Yabulu South to Townsville GT Transmission Line Corridor
Lot 6 on SP107219
Easement F on SP175715 - Dealing No 709012260
Easement C on RP719917 - Dealing No 601363708
Development Approval for Material Change on Use
Neighbourhood Centre at Corner of Dalrymple and Shaw Roads

Thank you for you application received on 29 December 2011 regarding the above application. We have assessed your application and Powerlink does not object to the proposal subject to the following conditions:

Pursuant to the following item or items of Schedule 7 of the *Sustainable Planning Regulation 2009*, Powerlink Queensland is an advice agency for the above development application:

☐ Item 21, Table 2 of Schedule 7 of the *Sustainable Planning Regulation 2009* (reconfiguring a lot in certain circumstances);

☒ Item 7, Table 3 of Schedule 7 of the *Sustainable Planning Regulation 2009* (a material change of use in certain circumstances);

Powerlink Queensland acting as an advice agency under the *Sustainable Planning Act 2009* provides its response to the above application as **attached**.

Yours sincerely

for Brandon Kingwill
Land Management Team Leader

Enquiries: Frances Jennings

Telephone: (07) 3860 2326

33 Harold Street, Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100
Website: www.powerlink.com.au

ADVICE AGENCY'S RESPONSE

Sections 291 and 292 of the *Sustainable Planning Act 2009*

RESPONSE TO DEVELOPMENT APPLICATION

Powerlink Queensland, acting as an advice agency under the *Sustainable Planning Act 2009* provides its response to the above Development Application.

The assessment manager is to treat the response as a properly made submission.

The advice agency's response is that:

☐ this application should be refused; or

☒ this application should be approved **subject to the following conditions**:

1. Compliance with the terms and conditions of easement dealing no's. 709012260 & 601363708.
2. Compliance with the generic requirements in respect to proposed works in the vicinity of Powerlink Queensland infrastructure as detailed in the enclosed Annexure "A".
3. Any variation to the lot reconfiguration as detailed in the enclosed copy of the submitted Drawing No. SD 1001 issue C dated 11 October 2011 and Unregistered Survey Plan 243799 dated 26 August 2011 shall require resubmission (copy attached).
4. This advice is valid for a period of 2 years from the date of this response, should the development not be initiated within that period, the applicant should resubmit the application for re-consideration.
5. This response does not constitute an approval to commence any works within the easement. Prior written approval is required from Powerlink Queensland before any work is undertaken within the easement areas. All works on easement (including but not limited to earthworks, drainage and detention basins; road construction; underground and overhead service installation) require detailed submissions, assessments and consent (or otherwise) by Powerlink.

ADDITIONAL ADVICE ABOUT THE APPLICATION

Powerlink, as the Advice Agency, offers the following advice to the Assessment Manager about the application:

6. Enclosed is a copy of the Draft State Transmission Code which recommends guidelines for the development of land near high voltage electricity transmission easements. It is Powerlink Queensland's recommendation that the principle of prudent avoidance be exercised wherever possible and setback distances of buildings, as detailed in the Code, be adopted.

Enclosures:-
* Annexure "A"
* Draft State Transmission Code
* Drawing No. SD 1001 issue C dated 11 October 2011
* Unregistered Survey Plan 243799 dated 26 August 2011

ATTACHMENT 1 Total of 3 Pages

ANNEXURE A – GENERIC REQUIREMENTS

The conditions contained in this Annexure have been compiled to assist persons (the applicant) intending to undertake work within the vicinity of high-voltage electrical installations and infrastructure owned or operated by Powerlink. The conditions are supplementary to the provisions of the Electrical Safety Act 2002, Electrical Safety Regulations 2002 and the Terms and Conditions of Registered Easements and other forms of Occupational Agreements hereinafter collectively referred to as the "Easement". Where any inconsistency exists between this Annexure and the Easement, the Easement shall take precedence.

1. **POWERLINK INFRASTRUCTURE**
   You may not do any act or thing which jeopardises the foundations, ground anchorages, supports, towers or poles, including (without limitation) inundate or place, excavate or remove any soil, sand or gravel within a distance of twenty (20) metres surrounding the base of any tower, pole, foundation, ground anchorage or support.

2. **STRUCTURES**
   No structures should be placed within twenty (20) metres of any part of a tower or structure foundation or within 5m of the conductor shadow area. Any structures on the easement require prior written consent from Powerlink.

3. **EXCLUSION ZONES**
   Exclusion zones for operating plant are defined in Schedule 2 of the Electrical Safety Regulation 2002 for Untrained Persons. All Powerlink infrastructure should be regarded as "electrically live" and therefore potentially dangerous at all times.

   In particular your attention is drawn to Schedule 2 of the Electrical Safety Regulation 2002 which defines exclusion zones for untrained persons in charge of operating plant or equipment in the vicinity of electrical facilities. If any doubt exists in meeting the prescribed clearance distances from the conductors, the applicant is obliged under this Act to seek advice from Powerlink.

4. **ACCESS AND EGRESS**
   Powerlink shall at all times retain the right to unobstructed access to and egress from its infrastructure. Typically, access shall be by 4WD vehicle.

5. **APPROVALS (ADDITIONAL)**
   Powerlink's consent to the proposal does not relieve the applicant from obtaining statutory, landowner or shire/local authority approvals.

6. **MACHINERY**
   All mechanical equipment proposed for use within the easement must not infringe the exclusion zones prescribed in Schedule 2 of the Electrical Safety Regulation 2002. All operators of machinery, plant or equipment within the easement must be made aware of the presence of live high-voltage overhead wires. It is recommended that all persons entering the Easement be advised of the presence of the conductors as part of on site workplace safety inductions. The use of warning signs is also recommended.

7. EASEMENTS

All terms and conditions of the easement are to be observed. Note that the easement takes precedence over all subsequent registered easement documents. Copies of the easement together with the plan of the Easement can be purchased from the Department of Environment & Resource Management.

8. EXPENDITURE AND COST RECOVERY

Should Powerlink incur costs as a result of the applicant's proposal, all costs shall be recovered from the applicant.

Where Powerlink expects such costs to be in excess of $10 000.00, advanced payments may be requested.

9. EXPLOSIVES

Blasting within the vicinity (500 metres) of Powerlink infrastructure must comply with AS 2187. Proposed blasting within 100 metres of Powerlink infrastructure must be referred to Powerlink for a detailed assessment.

10. BURNING OFF OR THE LIGHTING OF FIRES

We strongly recommend that fires not be lit or permitted to burn within the transmission line corridor and in the vicinity of any electrical infrastructure placed on the land. Due to safety risks Powerlink's written approval should be sort.

11. GROUND LEVEL VARIATIONS

Overhead Conductors

Changes in ground level must not reduce statutory ground to conductor clearance distances as prescribed by the Electrical Safety Act 2002 and the Electrical Safety Regulations 2002.

Underground Cables

Any change to the ground level above installed underground cable is not permitted without express written agreement of Powerlink.

12. VEGETATION

Vegetation planted within an easement must not exceed 3.5 metres in height when fully matured. Powerlink reserves the right to remove vegetation to ensure the safe operation of the transmission line and, where necessary, to maintain access to infrastructure.

13. INDEMNITY

Any use of the Easement by the applicant in a way which is not permitted under the easement and which is not strictly in accordance with Powerlink's prior written approval is an unauthorised use. Powerlink is not liable for personal injury or death or for property loss or damage resulting from unauthorized use. If other parties make damage claims against Powerlink as a result of unauthorized use then Powerlink reserves the right to recover those damages from the applicant.

14. INTERFERENCE

The applicant's attention is drawn to s.230 of the Electricity Act 1994 (the "Act"), which provides that a person must not wilfully, and unlawfully interfere with an electricity entity's works. "Works" are defined in s.12 (1) of the Act. The maximum penalty for breach of s.230 of the Act is a fine equal to 40 penalty units or up to 6 months imprisonment.

15. REMEDIAL ACTION

Should remedial action be necessary by Powerlink as a result of the proposal, the applicant will be liable for all costs incurred.

16. OWNERS USE OF LAND

The owner may use the easement land for any lawful purpose consistent with the terms of the registered easement; the conditions contained herein, the Electrical Safety Act 2002 and the Electrical Safety Regulations 2002.

17. ELECTRIC AND MAGNETIC FIELDS

Electric and Magnetic Fields (EMF) occur everywhere electricity is used (e.g. in homes and offices) as well as where electricity is transported (electricity networks).

Powerlink recognises that there is community interest about Electric and Magnetic Fields. We rely on expert advice on this matter from recognised health authorities in Australia and around the world. In Australia, the Federal Government agency charged with responsibility for regulation of EMFs is the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA's *Fact Sheet – Magnetic and Electric Fields from Power Lines*, concludes:

"On balance, the scientific evidence does not indicate that exposure to 50Hz EMF's found around the home, the office or near powerlines is a hazard to human health."

Whilst there is no scientifically proven causal link between EMF and human health, Powerlink nevertheless follows an approach of "*prudent avoidance*" in the design and siting of new powerlines. This includes seeking to locate new powerline easements away from houses, schools and other buildings, where it is practical to do so and the added cost is modest.

The level of EMF decreases rapidly with distance from the source. EMF readings at the edge of a typical Powerlink easement are generally similar to those encountered by people in their daily activities at home or at work. And in the case of most Powerlink lines, at about 100 metres from the line, the EMF level is so small that it cannot be measured.

Powerlink is a member of the ENA's EMF Committee that monitors and compiles up-to-date information about EMF on behalf of all electricity network businesses in Australia. This includes subscribing to an international monitoring service that keeps the industry informed about any new developments regarding EMF such as new research studies, literature and research reviews, publications, and conferences.

We encourage community members with an interest in EMF to visit ARPANSA's website: www.arpansa.gov.au Information on EMF is also available on the ENA's website: www.ena.asn.au

DRAFT STATE TRANSMISSION CODE

[Note: It is intended that this Code be implemented as a Regulation under the Electricity Act[1]]

INTRODUCTION

1. This Code is identified as a code for IDAS[2].

2. This Code cannot be changed under a local planning instrument or a local law[3].

PURPOSE OF THE CODE

3. The purpose of this Code is to:

   (1) minimise any potential risk to public safety caused by Vegetation related damage to Transmission Lines and Transmission Structures; and

   (2) minimise the risk of Vegetation related disruptions to electricity supply; and

   (3) provide for the development of land within or nearby to an Electricity Transmission Line Easement that achieves appropriate environmental amenity; and

   (4) provide for the development of land nearby to an Electricity Transmission Line Easement consistent with the principle of prudent avoidance [4]in respect of electric and magnetic fields.

APPLICATION OF THE CODE

4. Table 1 of this Code applies to the assessment of a development application under the *Integrated Planning Act 1997* for a material change of use and/or building work of premises that is:

   (1) assessable development; and

   (2) proposed to be carried out in a Rural Zone, Area or Precinct; and

   where any part of the premises is subject to an Electricity Transmission Line Easement or any part of the premises is within 40 metres of an Electricity Transmission Line Easement.

5. Table 2 of this Code applies to the assessment of a development application under the *Integrated Planning Act* 1997 for a material change of use and/or building work of premises that is:

   (1) assessable development; and

---

1 Note that s.264 of the *Electricity Act* prescribes the power to make a regulation under the *Electricity Act*.
2 See IPA, Schedule 10 (Dictionary), definition of "Code".
3 S.3.1.3(4) IPA.
4 *"Prudent avoidance"* has been defined in an Australian context by the former Chief Justice of the High Court of Australia, Sir Harry Gibbs, in a Report to the New South Wales Minister for Minerals and Energy dated 28 February 1991 ("the Gibbs Report") as follows "It may be prudent to do whatever can be done without undue inconvenience and at modest expense to avert the possible risk".

(2) proposed to be carried out in an Urban Zone, Area or Precinct; and

where any part of the premises is subject to an Electricity Transmission Line Easement or any part of the premises is within 40 metres of an Electricity Transmission Line Easement.

6. Tables 1 and 2 of this Code also apply to self assessable development where any part of the premises is subject to an Electricity Transmission Line Easement or any part of the premises is within 40 metres of an Electricity Transmission Line Easement.

7. Table 3A and 3B of this code applies to the assessment of a development application under the *Integrated Planning Act 1997* for any reconfiguration of a lot that is assessable development and any part of the lot proposed to be subdivided is subject to an Electricity Transmission Line Easement or any part of the lot is within 40 metres of an Electricity Transmission Line Easement.

DEFINITIONS FOR TERMS USED IN THE CODE

8. The following definitions apply to terms used in this Code:

'Child-Related Use' means any building excluding a Habitable Building in which children, who are 13 years old or less, would be expected to occupy on a regular and extended basis, including:

(1) child care facilities providing day care, occasional care, kindergarten and crèche services;

(2) educational establishments providing for preschool and primary school students; and

(3) before or after school care and vacation care.

'Electricity Transmission Line Easement' means an easement over land in favour of an electricity entity, which is intended to be used or is currently used for the transmission of electricity.

'Habitable Building' means any building, part of a building or structure that is used for or able to be lawfully used for a residence.

'Premises' means:-

(1) a building or other structure; or

(2) land (whether or not a building or other structure is situated on the land).

'Rural Zone, Area or Precinct' means an area other than an Urban Zone Area or Precinct.

'Transmission Line' means an electric line and associated equipment used to provide connection of electricity between generation facilities and supply networks or customers not supplied through supply networks operated by the Queensland Electricity Transmission Corporation Limited (trading as Powerlink).

'Transmission Structure' means a tower or pole or any other structure supporting a transmission line.

'Urban Zone, Area or Precinct' means an area in a city or town identified on a map in a planning scheme as an area for urban purposes including residential, industrial, sporting, recreation and commercial purposes but excluding rural residential purposes and future urban purposes.

'Rural Residential Purposes' means a purpose which is predominantly a residential purpose involving a single dwelling on a lot greater than 2000m^2

'Vegetation' means:

(1) native or non-native trees;

(2) native or non-native plants,

whether part of the development or otherwise .

9. Where any term used in this Code is defined in either the *Integrated Planning Act* 1997 or the *Electricity Act* 1994, that term shall have the same meaning as in the relevant Act.

HOW TO COMPLY WITH THIS CODE

10. This Code is complied with if each performance criterion in Column 1 of the relevant Table is complied with.

11. For assessable development, a performance criterion of the relevant table is complied with if:

(1) the acceptable solution to the performance criterion as set out in Column 2 opposite the criterion is complied with; or

(2) the criterion is complied with in another way.

12. For self assessable development a performance criterion of the relevant table is complied with if the acceptable solution to the performance criterion as set out in Column 2 opposite the criterion is complied with.

PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

Table 1 – Rural Zones, Areas or Precincts

Column 1 - Performance Criteria	Column 2 - Acceptable Solutions
PC1 Transmission Lines and Transmission Structures within an Electricity Transmission Line Easement are protected from risks to safety and electricity supply from overgrowth or potential impact from nearby Vegetation.	**AS1.1** Any Vegetation planted within an Electricity Transmission Line Easement will not exceed a maximum mature height of 3.5 metres. Refer to *Diagram 1.* **AS1.2** Vegetation is not to be planted within 20 metres of a Transmission Structure. Refer to *Diagram 5.*
PC2 Vegetation buffers adjoining an Electricity Transmission Line Easement is to be maintained to provide an adequate separation distance and visual buffer between the Transmission Line and nearby land uses.	**AS2** Existing Vegetation is to be retained within a distance of 20 metres from the boundary of the Electricity Transmission Line Easement. Refer to *Diagram 2.*
PC3 Habitable Buildings and Child-Related Uses are located consistent with the principle of prudent avoidance.	**AS3** A separation distance (determined in accordance with Table 4) is to be established between the Habitable Building or the Child-Related Use and the closest boundary of the Electricity Transmission Line Easement. Refer to *Diagram 3.*

Table 2 – Urban Zones, Areas or Precinct

Column 1 - Performance Criteria	Column 2 - Acceptable Solutions
PC4 Transmission Lines and Transmission Structures within an Electricity Transmission Line Easement are protected from risks to safety and reliability of electricity supply from overgrowth of nearby Vegetation.	**AS4** Any Vegetation planted within an Electricity Transmission Line Easement is not to exceed a maximum mature height of 3.5 metres. Refer to *Diagram 1*.
PC5 Child-Related Uses are located consistent with the principle of prudent avoidance.	**AS5** A separation distance (determined in accordance with Table 4) is established between the Child-Related Use and the closest boundary of the Electricity Transmission Line Easement if practicable in the context of the size and location of the premises. Refer to *Diagram 3*.

Table 3A – Reconfiguring a lot in Rural Zones, Areas or Precincts

Column 1 - Performance Criteria	Column 2 - Acceptable Solutions
PC6 Lots are designed and orientated so as to facilitate adequate vegetation buffer areas adjoining Electricity Transmission Line Easements.	**AS6** Lots are designed and oriented in accordance with *Diagram 4*.
PC7 Lots are designed and oriented so as not to prejudice the adequate separation of Habitable Buildings or Child-Related Uses from an Electricity Transmission Line Easement.	**AS7** Lots are designed and oriented to ensure that a Habitable Building or Child-Related Use on each lot can comply with the separation distances set out in Table 4.
PC8 Lots are designed and oriented to facilitate the use of land within and/or adjoining Electricity Transmission Line Easements for park and/or outdoor recreation purposes.	**AS8** No Acceptable Solution is prescribed.

Column 1 - Performance Criteria	Column 2 - Acceptable Solutions
PC9 Lots are designed and oriented to utilise topographical features to minimise the visual exposure of Electricity Transmission Lines from Habitable Buildings.	**AS9** Lots are designed and oriented in accordance with *Diagram 4.*

Table 3B – Reconfiguring a lot in Urban Zones, Areas or Precincts

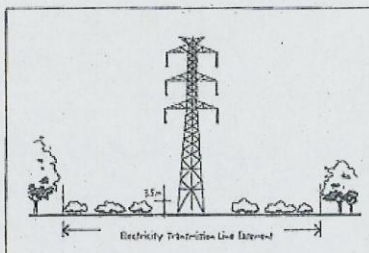
Column 1 – Performance Criteria	Column 2 - Acceptable Solutions
PC10 Lots are designed and orientated so as to facilitate adequate vegetation buffer areas adjoining Electricity Transmission Line Easements.	**AS10** Lots are designed and oriented in accordance with *Diagram 4.*
PC11 Lots are designed and oriented so as not to prejudice the adequate separation of Child-Related Uses from an Electricity Transmission Line Easement.	**AS11** Lots are designed and oriented to ensure that a Child-Related Use and the closest boundary of the Electricity Transmission Line Easement comply with the separation distances set out in Table 4.
PC12 Lots are designed and oriented to facilitate the use of land within and/or adjoining Electricity Transmission Line Easements for park and/or outdoor recreation purposes.	**AS12** No Acceptable Solution is prescribed.
PC13 Lots are designed and oriented to utilise topographical features to minimise the visual exposure of Electricity Transmission Lines from Habitable Buildings.	**AS13** Lots are designed and oriented in accordance with *Diagram 4.*

Table 4 – Separation Distances

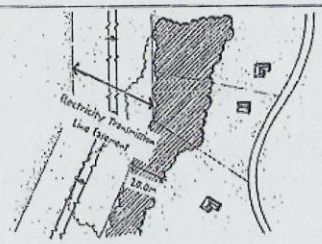
Column 1 - Nominal Operating Voltage[5] of the Transmission Line	Column 2 - Separation Distance – measured from the edge of the Easement[6]
110 kV and 132 kV	20 metres
275 kV and 330 kV	30 metres
500kV	40 metres

[5] Select the highest nominal operating voltage for the easement

[6] To meet the purposes of the Code, basic separations are established from the centreline of the transmission line. These separations for a standard width easement are 40m, 60m, and 75 m respectively for each of the voltage groups listed. The distance from the centreline of the transmission line to the edge of easement will vary depending on the number of lines planned for the easement. For convenience the separation distances given in the Table are reference distances measured from the nearest edge of the easement and are conservative.



(a) Diagram No. 1
"Electricity transmission line easement"
Vegetation



(b) Diagram No. 2
"Electricity transmission line easement"
Vegetated Buffer

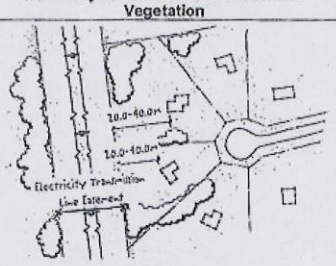
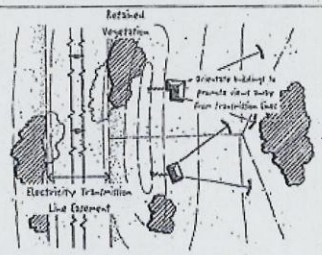


Diagram No. 3
"Electricity transmission line easement"
Separation Distances



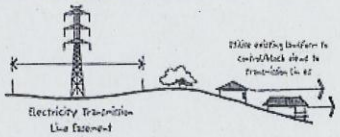
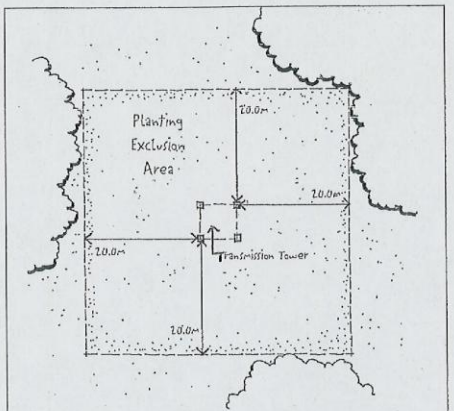
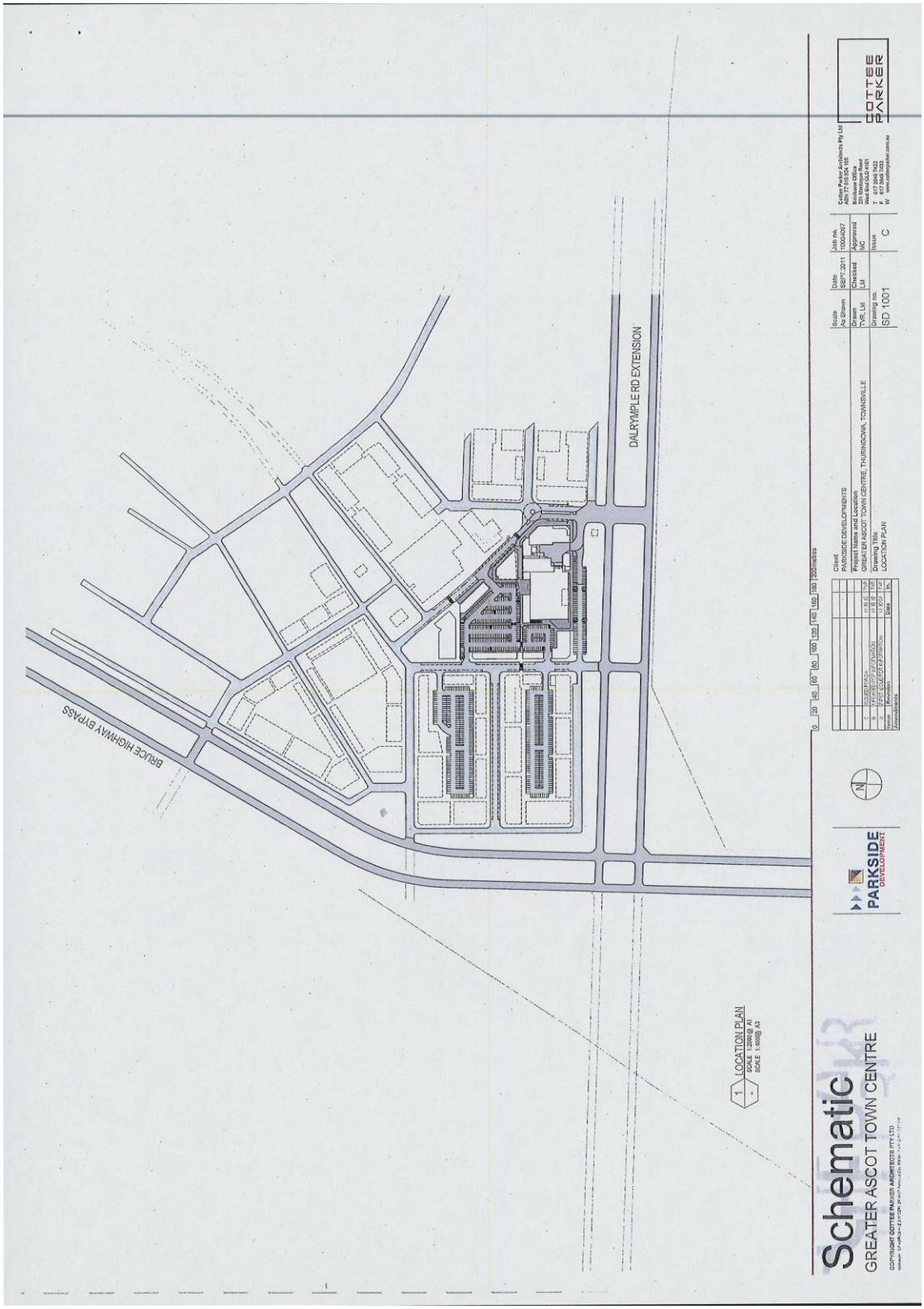
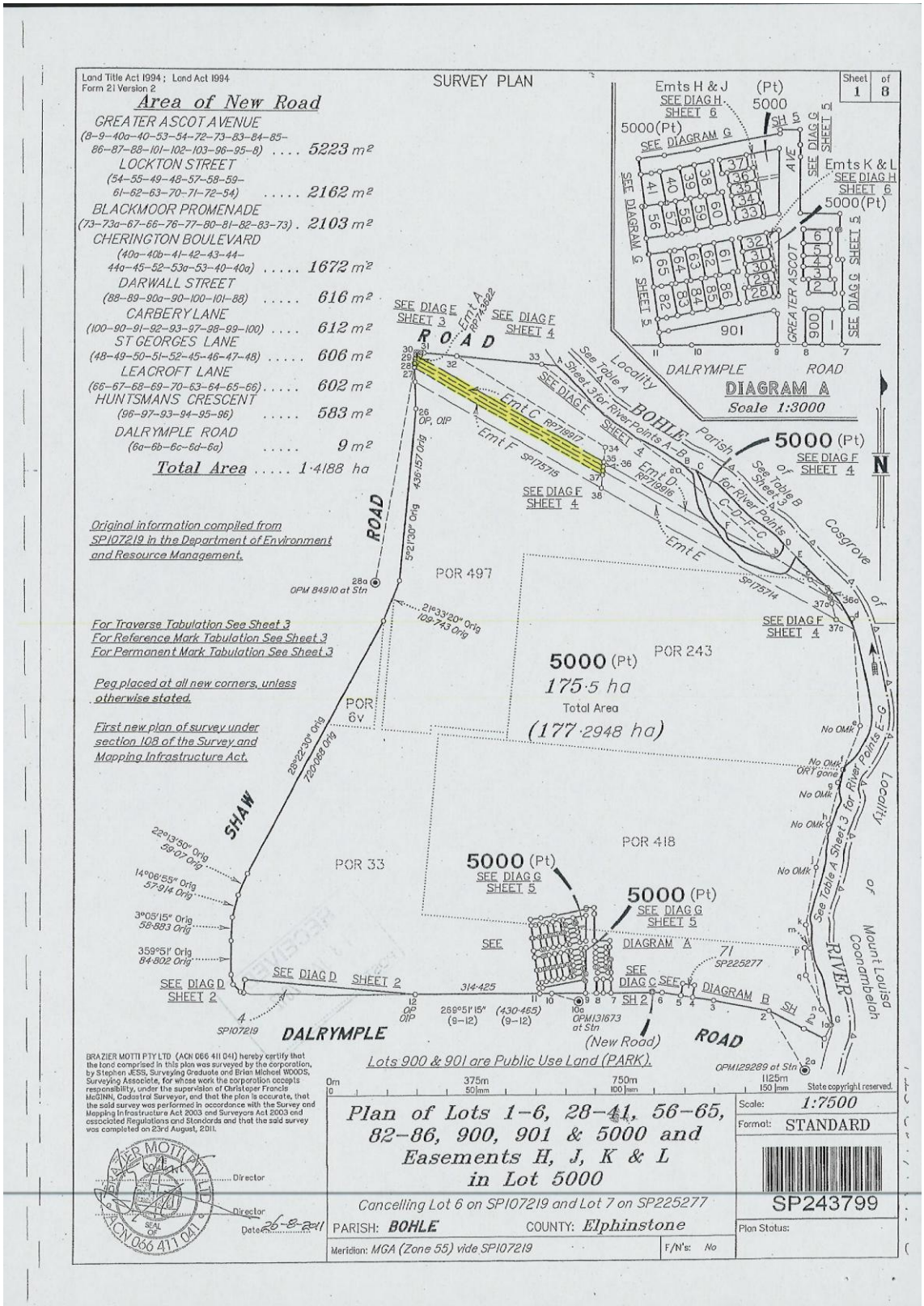


Diagram No. 4
"Electricity transmission line easement"
Lot Design



(c) Diagram No. 5
Planting Exclusion Area





ADOPTED INFRASTRUCTURE CHARGES NOTICE
Issued by Townsville City Council

To: Parkside Development Pty Ltd
C/- Brazier Motti
595 Flinders Street
TOWNSVILLE QLD 4810

Date of Issue: 04 June 2013
Charge Notice No: 10926899
Application No: MI11/0064
Decision Type: Material Change of Use (Impact) – Neighbourhood Centre

LAND TO WHICH THE INFRASTRUCTURE CHARGE APPLIES:

Planning Scheme: City of Thuringowa Planning Scheme
Property Description: Lot 6 SP 107219
Property Address: 890 Dalrymple Road SHAW QLD 4818

TRUNK INFRASTRUCTURE FOR WHICH THE INFRASTRUCTURE CHARGE NOTICE APPLIES

Infrastructure	Charge Payable ($)	Receipt code
SEWER	7,077	
- Trunk sewers & pump systems	(3,036)	CON65
- Treatment plants & outfalls	(4,041)	CON70
WATER SUPPLY	213,359	
- Source works	(71,835)	CON90
- Reservoirs	(16,606)	CON95
- Delivery mains	(114,656)	CON100
- Distribution mains	(10,262)	CON100
PARK	0	P0100
TRANSPORT (PATHWAYS)	0	CON60
TRANSPORT(ROADS)		
- TCC Works	181,405	CON1100b
- TCC Land	1,881	CON1100b
STORMWATER	25,002	CON25
Total Charge Amount	**$428,724**	

NOTE:

- **At the time of payment these amounts may be adjusted for inflation in accordance with the annual financial year movements of the Australian Bureau of Statistics Queensland Road and Bridge Construction Index, as applied to the relevant State Planning Regulatory Provision (being a three year moving average basis).**
- **Please contact Townsville City Council, Planning and Development Division, prior to making payment.**
- **Compounded interest at 11% calculated daily will be applied on all overdue charges.**
- **Should a valid Infrastructure Agreement be in place for this development, the Infrastructure Agreement may prevail over the charges listed on this notice.**
- **These adopted infrastructure charges may be offset or refunded depending on the approved extent and value of trunk infrastructure provided by the development**

The Adopted Infrastructure Charge has been calculated in accordance with the relevant Adopted Infrastructure Charges resolutions.

TO WHOM THE CHARGE MUST BE PAID

Payment of the charge must be made payable to TOWNSVILLE CITY COUNCIL via the Planning Liaison Unit, Planning and Development, 2nd Floor at the City Administration Building, 103-141 Walker Street, Townsville, Telephone (07) 4727 9001 or PO Box 1268 Townsville Qld 4810

PAYMENT DUE BY:

The Adopted Infrastructure Charge is issued in accordance with the *Sustainable Planning Act 2009*.
The applicable development permit triggering the charges refers to: Material Change of Use (Impact)
Payment is due by: **Prior to the Issuing of a Building Permit**

Notice is hereby given that the abovementioned adopted infrastructure charges are levied by Townsville City Council in compliance with the *Sustainable Planning Act 2009*, on land described for the period prescribed, and such charges are DUE AND PAYABLE BY THE TIME STIPULATED IN THIS NOTICE. These charges plus any arrears and interest thereon may be recovered by legal process without further notice if unpaid after the time stipulated in this notice.

IMPORTANT INFORMATION

1. **PAYMENT:**

   This notice is due and payable by the due time shown. Cheques, money orders or postal notes should be made payable to TOWNSVILLE CITY COUNCIL and crossed "Not Negotiable". Change cannot be given on cheque payments. Payees will be liable for any dishonour fees. Payments via credit card transactions will attract a surcharge. Charges can be placed on account with prior approval from Council.

2. **ADOPTED INFRASTRUCTURE CHARGES TAKEN TO BE A RATE:**

   An adopted infrastructure charge fixed by a local government is, for the purposes of recovery, taken to be a rate within the meaning of the *Local Government Act 2009*. This means:

   a) Charges may be recovered by court action for debt;
   b) Charges may be recovered from the person for the time being owning the relevant land, regardless of who was the owner or other person upon whom the charges was imposed;
   c) Interest is payable on overdue payments; and
   d) If charges are unpaid for 3 years, the land can be sold to recover the outstanding charges.

3. **INTEREST:**

   Compound interest at the rate of 11% per annum is payable on all infrastructure charges outstanding after the due date shown on this charge notice.

4. **OVERSEAS PAYEES:**

   Please forward your adopted infrastructure charges payment by way of a bank draft for the required amount in Australian dollars.

5. **GOODS AND SERVICES TAX:**

   The federal government has determined that rates and utility charges levied by local government will be GST free. Accordingly, no GST is included in this infrastructure charge notice.

6. **ADOPTED INFRASTRUCTURE CHARGE IS SUBJECT TO PRICE VARIATION:**

   At the time of payment these amounts may be adjusted for inflation in accordance with the annual financial year movements of the Australian Bureau of Statistics Queensland Road and Bridge Construction Index, as applied to the relevant State Planning Regulatory Provision (being a three year moving average basis).

   PLEASE CONTACT PLANNING AND DEVELOPMENT BEFORE MAKING PAYMENT.

7. **INFRASTRUCTURE CHARGES ENQUIRIES:**

   Please direct any enquiries regarding this adopted infrastructure charge notice to council's Planning and Development Division, Level 2, 103-141 Walker Street, Townsville. Phone (07) 4727 9001, during office hours, 8:30am to 5:00pm, Monday to Friday.

8. **RIGHTS OF APPEAL:**

   Appeals about particular charges for infrastructure

   A person who has been given, and is dissatisfied with an Adopted Infrastructure Charges Notice or a Negotiated Adopted Infrastructure Charges Notice has, under s.478 (1) of the *Sustainable Planning Act 2009*, the right to lodge an appeal to the Planning and Environment Court.

   The timeframes for starting an appeal in the Planning and Environment Court are set out in s.478 (3) of the *Sustainable Planning Act 2009*.

   Sections 478 (4) and (5) of the *Sustainable Planning Act 2009* state the grounds for appealing an Adopted Infrastructure Charges Notice or a Negotiated Adopted Infrastructure Charges Notice.

METHOD OF PAYMENT

PAYMENT BY MAIL	PAYMENT AT COUNCIL OFFICES	PAYMENT MADE BY CREDIT CARD
Confirm the current Adopted Infrastructure Charges applicable and obtain an updated payment advice from Council's Planning and Development Division. Mail this updated payment advice notice immediately with your payment to: PLANNING AND DEVELOPMENT, TOWNSVILLE CITY COUNCIL, PO Box 1268, Townsville Qld 4810. A receipt will be issued. **NOTE:** Cheques, money orders and postal notes must be made payable to TOWNSVILLE CITY COUNCIL	Confirm the current Adopted Infrastructure Charges applicable and obtain an updated payment advice from Council's Planning and Development Division. Present this updated payment advice notice with your payment to Townsville City Council at the Planning and Development Division Counter. **NOTE:** Cheques, money orders and postal notes must be made payable to TOWNSVILLE CITY COUNCIL	Payments via credit card transactions will attract a surcharge.

RIGHTS OF APPEAL

Chapter 7, Part 1, Division 8 Appeals to court relating to development applications and approvals

461 Appeals by applicants

(1) An applicant for a development application may appeal to the court against any of the following—
- (a) the refusal, or the refusal in part, of the development application;
- (b) any condition of a development approval, another matter stated in a development approval and the identification or inclusion of a code under section 242;
- (c) the decision to give a preliminary approval when a development permit was applied for;
- (d) the length of a period mentioned in section 341;
- (e) a deemed refusal of the development application.

(2) An appeal under subsection (1)(a), (b), (c) or (d) must be started within 20 business days (the ***applicant's appeal period***) after—
- (a) if a decision notice or negotiated decision notice is given—the day the decision notice or negotiated decision notice is given to the applicant; or
- (b) otherwise—the day a decision notice was required to be given to the applicant.

(3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

462 Appeals by submitters—general

(1) A submitter for a development application may appeal to the court only against—
- (a) the part of the approval relating to the assessment manager's decision about any part of the application requiring impact assessment under section 314; or
- (b) the part of the approval relating to the assessment manager's decision under section 327.

(2) To the extent an appeal may be made under subsection (1), the appeal may be against 1 or more of the following—
- (a) the giving of a development approval;
- (b) any provision of the approval including—
  - (i) a condition of, or lack of condition for, the approval; or
  - (ii) the length of a period mentioned in section 341 for the approval.

(3) However, a submitter may not appeal if the submitter—
- (a) withdraws the submission before the application is decided; or
- (b) has given the assessment manager a notice under section339(1)(b)(ii).

(4) The appeal must be started within 20 business days (the ***submitter's appeal period***) after the decision notice or negotiated decision notice is given to the submitter.

Chapter 7, Part 1, Division 11 making an appeal to court

481 How appeals to the court are started

(1) An appeal is started by lodging written notice of appeal with the registrar of the court.

(2) The notice of appeal must state the grounds of the appeal.

(3) The person starting the appeal must also comply with the rules of the court applying to the appeal.

(4) However, the court may hear and decide an appeal even if the person has not complied with subsection (3).

482 Notice of appeal to other parties—development applications and approvals

(1) An appellant under division 8 must give written notice of the appeal to—
- (a) if the appellant is an applicant—
  - (i) the chief executive; and
  - (ii) the assessment manager; and
  - (iii) any concurrence agency; and
  - (iv) any principal submitter whose submission has not been withdrawn; and
  - (v) any advice agency treated as a submitter whose submission has not been withdrawn; or
- (b) if the appellant is a submitter or an advice agency whose response to the development application is treated as a submission for an appeal—
  - (i) the chief executive; and
  - (ii) the assessment manager; and
  - (iii) any referral agency; and
  - (iv) the applicant; or
- (c) if the appellant is a person to whom a notice mentioned in section 465(1) has been given—
  - (i) the chief executive; and
  - (ii) the assessment manager for the development application to which the notice relates; and
  - (iii) any entity that was a concurrence agency for the development application to which the notice relates; and
  - (iv) the person who made the request under section 383 to which the notice relates, if the person is not the appellant; or
- (d) if the appellant is a person mentioned in section 466(1)—
  - (i) the chief executive; and
  - (ii) the responsible entity for making the change to which the appeal relates; and

(iii) the person who made the request to which the appeal relates under section 369, if the person is not the appellant; and
(iv) if the responsible entity is the assessment manager—any entity that was a concurrence agency for the development application to which the notice of the decision on the request relates; or

(e) if the appellant is a person to whom a notice mentioned in section 467 has been given—the entity that gave the notice.

(2) The notice must be given within—
(a) if the appellant is a submitter or advice agency whose response to the development application is treated as a submission for an appeal—2 business days after the appeal is started; or
(b) otherwise—10 business days after the appeal is started.

(3) The notice must state—
(a) the grounds of the appeal; and
(b) if the person given the notice is not the respondent or a co-respondent under section 485—that the person may, within 10 business days after the notice is given, elect to become a co-respondent to the appeal by filing in the court a notice of election in the approved form.

485 Respondent and co-respondents for appeals under division 8

(1) Subsections (2) to (8) apply for appeals under sections 461 to 464.

(2) The assessment manager is the respondent for the appeal.

(3) If the appeal is started by a submitter, the applicant is a co-respondent for the appeal.

(4) Any submitter may elect to become a co-respondent for the appeal.

(5) If the appeal is about a concurrence agency's response, the concurrence agency is a co-respondent for the appeal.

(6) If the appeal is only about a concurrence agency's response, the assessment manager may apply to the court to withdraw from the appeal.

(7) The respondent and any co-respondents for an appeal are entitled to be heard in the appeal as a party to the appeal.

(8) A person to whom a notice of appeal is required to be given under section 482 and who is not the respondent or a co-respondent for the appeal may elect to be a co-respondent.

(9) For an appeal under section 465—
(a) the assessment manager is the respondent; and

(b) if the appeal is started by a concurrence agency that gave the assessment manager a notice under section 385—the person asking for the extension the subject of the appeal is a co-respondent; and
(c) any other person given notice of the appeal may elect to become a co-respondent.

(10) For an appeal under section 466—
(a) the responsible entity for making the change to which the appeal relates is the respondent; and
(b) if the responsible entity is the assessment manager—
(i) if the appeal is started by a person who gave a notice under section 373 or a pre-request response notice—the person who made the request for the change is a co-respondent; and
(ii) any other person given notice of the appeal may elect to become a co-respondent.

(11) For an appeal under section 467, the respondent is the entity given notice of the appeal.

488 How an entity may elect to be a co-respondent

An entity that is entitled to elect to be a co-respondent to an appeal may do so, within 10 business days after notice of the appeal is given to the entity, by following the rules of court for the election.

490 Lodging appeal stops particular actions

(1) If an appeal, other than an appeal under section 465, 466 or 467, is started under division 8, the development must not be started until the appeal is decided or withdrawn.

(2) If an appeal is about a condition imposed on a compliance permit, the development must not be started until the appeal is decided or withdrawn.

(3) Despite subsections (1) and (2), if the court is satisfied the outcome of the appeal would not be affected if the development or part of the development is started before the appeal is decided, the court may allow the development or part of the development to start before the appeal is decided.

APPENDIX B

Traffic Impact Assessment (TPAR023/R01revB)

PARKSIDE DEVELOPMENT PTY LTD

GREATER ASCOT NEIGHBOURHOOD CENTRE TOWNSVILLE

TRAFFIC IMPACT ASSESSMENT

Report No: TPAR023/R01
REV: B
Date: 13 July 2012

Dalgety Place
84 Denham Street
Townsville Qld 4810

PO Box 1042
Townsville Qld 4810

Ph: 07 4772 0677
Fax: 07 4772 0566
Email: main@udphorman.com.au
Web: www.udphorman.com.au

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REPORT AUTHORISATION

Revision	Rev. Date	Report Details
A	12 July 2012	For Comment
B	13 July 2012	For Approval

Prepared By	Reviewed By	Authorised By
Krystle Wittingslow	Bradley Jones	Shane Martin

1. INTRODUCTION

Parkside Development Pty Ltd retained UDP Horman Traffic (UDPHT) to undertake a Traffic and Transport Assessment of the proposed Greater Ascot Neighbourhood Centre located in the suburb of Shaw, Townsville.

An application requesting a Development Permit for Material Change of Use was submitted to Townsville City Council (TCC) and the Queensland Department of Transport and Main Roads (TMR) for a proposed Neighbourhood Centre within Greater Ascot residential development in December 2011. A Request for Further Information (RFI) was made by Council and TMR to provide a detailed Traffic and Transport Assessment of the proposed Neighbourhood Centre.

In the course of preparing this assessment, the site and its environs have been inspected, and plans of the development examined.

1.1 Purpose

The purpose of this report is to conduct a Traffic Impact Assessment (TIA) in accordance with the Guidelines for Assessment of Road Impacts of Developments (GARID) by the Queensland Department of Transport and Main Roads (TMR) to support a Development Application (DA) for the proposed mixed use development referred to as the Neighbourhood Centre.

The TIA seeks to provide certainty to the local and state transport authorities that any potential impacts from the proposed development are appropriately managed and mitigated. The following intersections are to be assessed as part of this TIA:

- Dalrymple Road / Shaw Road (existing);
- Dalrymple Road / Greater Ascot development (proposed);
- Neighbourhood Centre / Greater Ascot development (proposed); and
- Neighbourhood Centre loading zone egress / Dalrymple Road.

1.2 Methodology

As defined in GARID, the following topics are addressed within the report:

- Development Profile;
- Traffic Operation Assessment;
- Impact Mitigation; and
- Safety Review.

1.2.1 Design Horizon

GARID states that “For traffic operation assessment and any necessary safety review, the design horizon should be 10 years after the opening of the development. For a staged development this would be after the opening of the final stage.” (Chapter 3-p6)

Furthermore, term ‘existing’ is interpreted as “at the time the development is completed”. Thus the significance of impacts relates to the development timetable and not the timing of the assessment.

It is anticipated that the Greater Ascot Neighbourhood Centre is to be developed in a single stage scheduled for completion in 2016. Given the above, the 'existing' or design year is 2016 with a 10 year design horizon of 2026.

2. BACKGROUND AND EXISTING CONDITIONS

2.1 Location and Land Use

Greater Ascot development is primarily a residential development located at 299 Shaw Road, Shaw, which includes the proposed Neighbourhood Centre situated in the north-east corner of Shaw Road / Dalrymple Road intersection as shown in Figure 2.1.

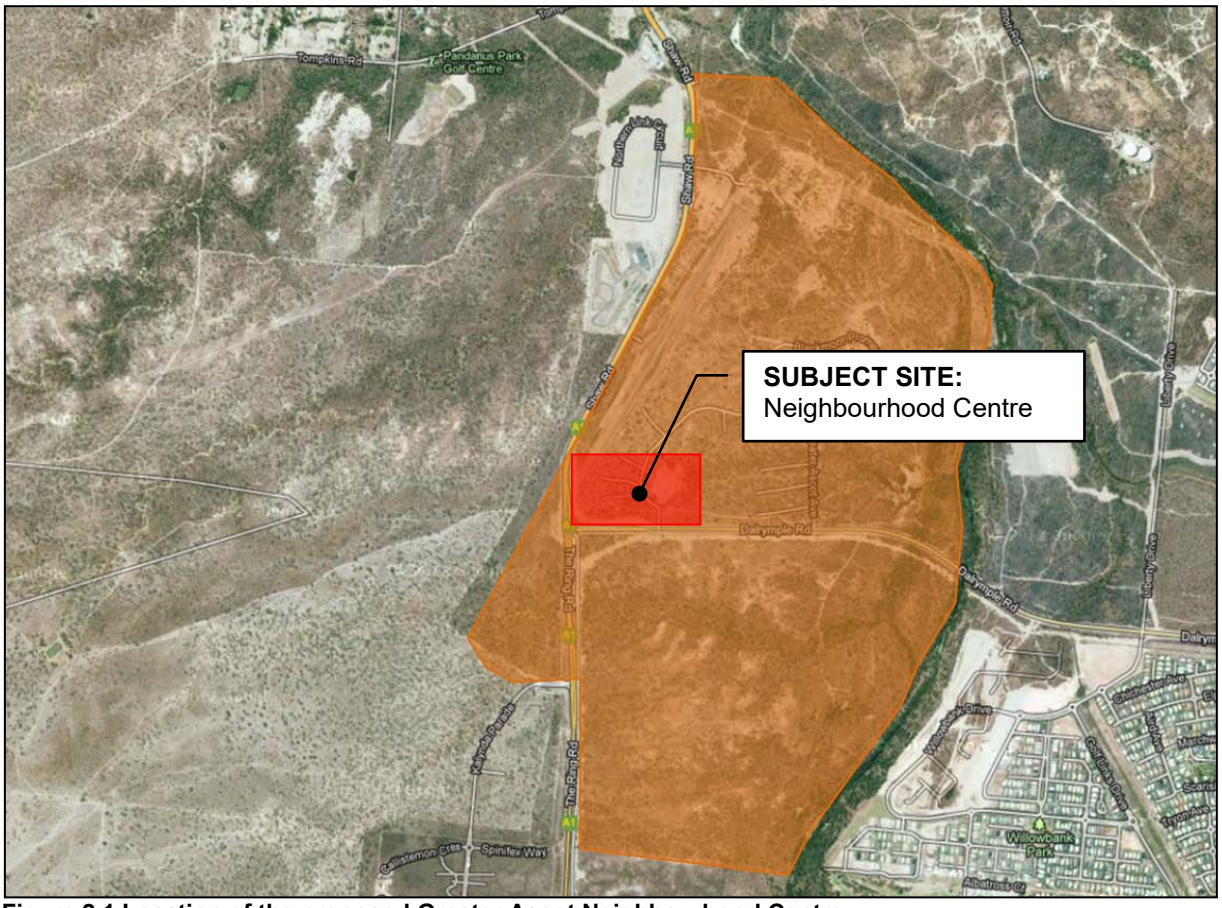


Figure 2.1 Location of the proposed Greater Ascot Neighbourhood Centre

Greater Ascot residential development is irregular in shape with an area of approximately 200 hectares including the Neighbourhood Centre. The Greater Ascot development site is currently vacant and abuts the Bohle River to the north and east, is bound by Shaw Road / the Ring Road to the west and vacant land to the south. Dalrymple Road segregates the site in two (2) forming the north and south portions of the Greater Ascot development.

The subject site is located on the corner of Shaw Road and Dalrymple providing a Neighbourhood Centre with 5,464m^2 of gross floor area (GFA).

2.2 Master Planning and Land Use Pattern

The Greater Ascot Neighbourhood Centre is located centrally within the Greater Ascot master planned community. Figure 2.2 shows the Greater Ascot Masterplan prepared in 2008. It should be noted that this Masterplan has since been revised reducing the proposed Town Centre to a Neighbourhood Centre with the balance of land to be developed as residential. The proposed road network and hierarchy essentially remains the same.

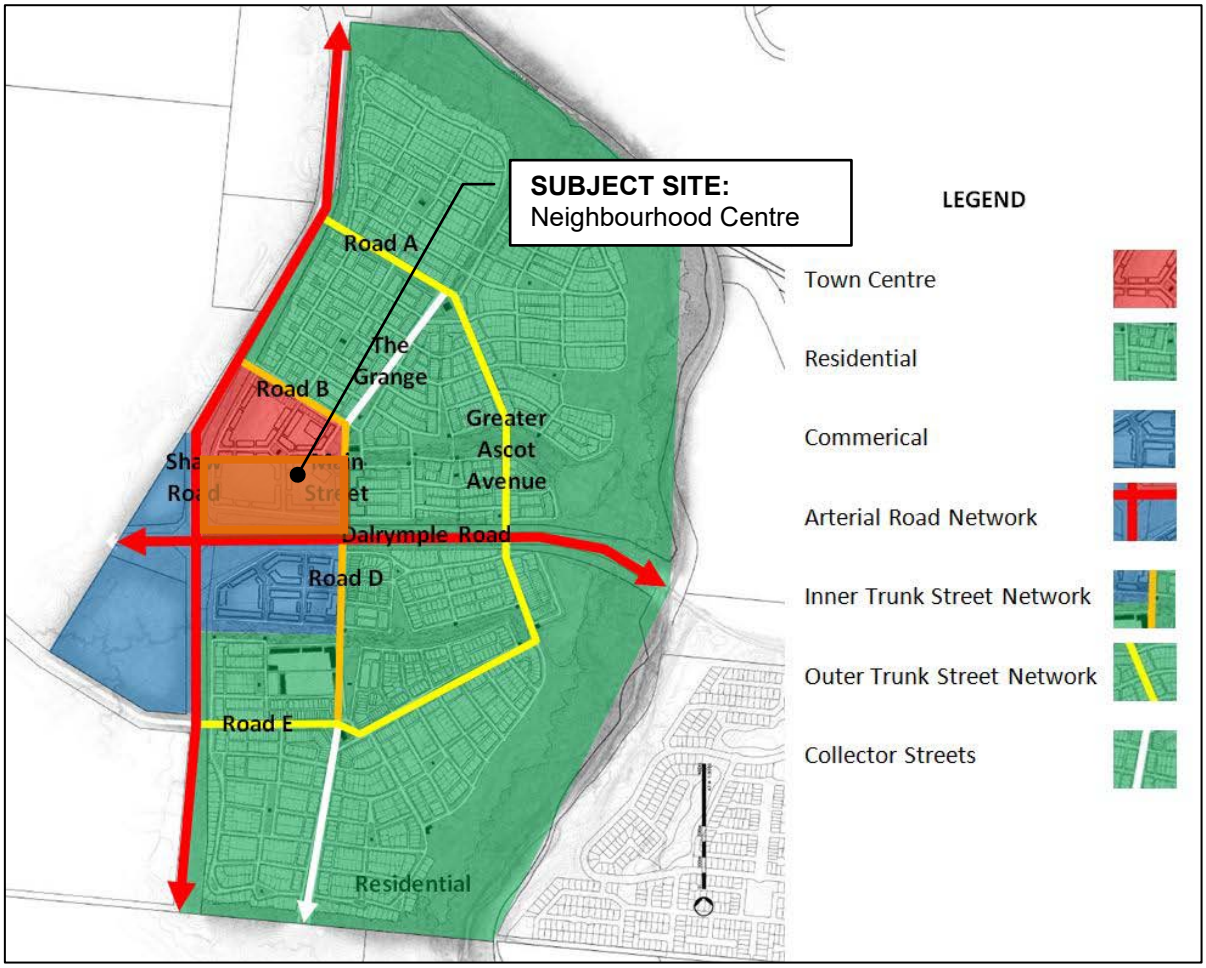


Figure 2.2 2008 Greater Ascot Masterplan

Development of Greater Ascot is proceeding in accordance with the general principles of this masterplan. Key features of the Greater Ascot Community Masterplan relevant to the Neighbourhood Centre are as follows:

- A 5,464m^2 GFA Neighbourhood Centre located to the north-east of the Dalrymple Road / Shaw Road intersection;
- The Neighbourhood Centre is to be bounded to the south and west by service roads and to the north and east by Greater Ascot's inner trunk street network;
- Local public transport services will utilise the network of trunk / collector streets;
- Greater Ascot will ultimately provide approximately 2,400 residential dwellings to the north and south of Dalrymple Road with approximately 1,180 lots to be provided to the north of Dalrymple Road; and
- Adoption of the principles of new urbanism provides a fine, permeable, grid street network for connecting residential development to the Neighbourhood Centre and trunk / collector street network.

Beyond the master planned community, Greater Ascot is bounded to the:

- East by residential development;
- South by future residential development;
- North by Shaw Industrial Precinct; and
- West by undeveloped state land (USL).

2.3 Centres Hierarchy

Figure 2.3 shows the planned hierarchy of major centres serving the Townsville region.

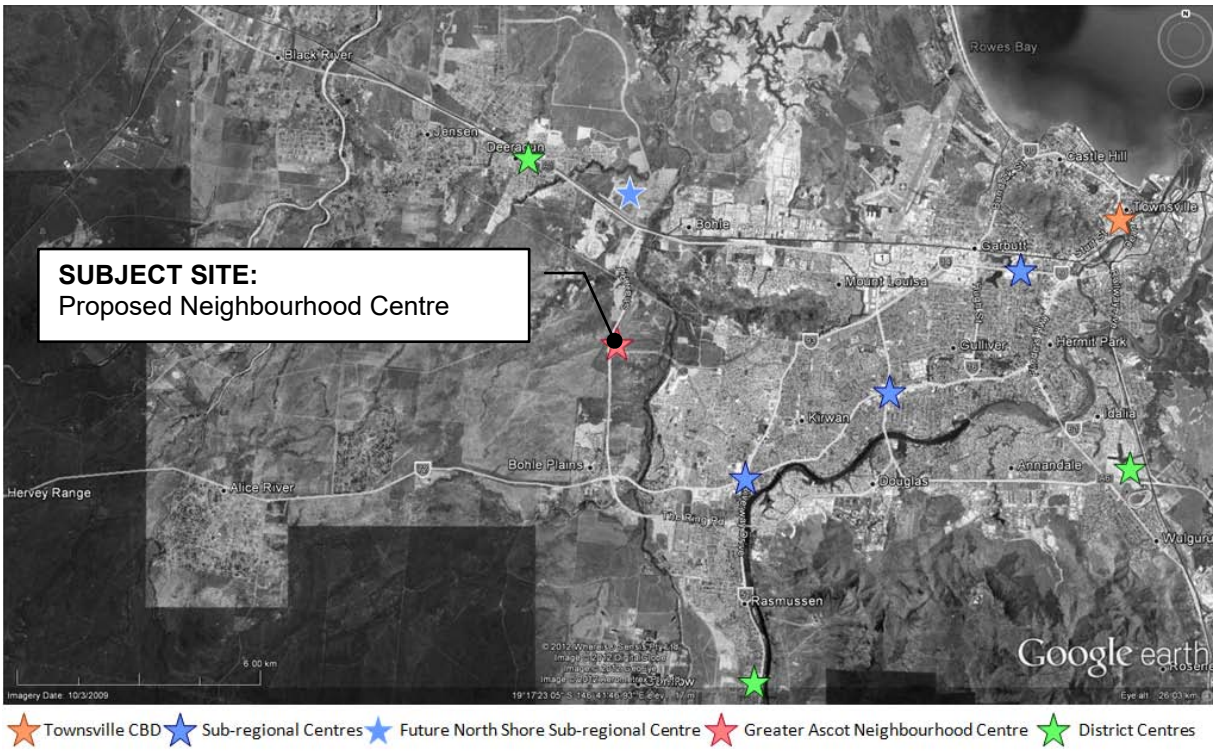


Figure 2.3 Centres Hierarchy

The focus of Townsville's existing centres hierarchy is the Townsville CBD and a line of three (3) sub-regional centres which extends to the southwest of the CBD. In order from the Townsville CBD these sub-regional centres are located at Hyde Park (Castletown), Aitkenvale (Nathan Plaza) and Thuringowa Central (Willows). These centres are between 2.8km and 4.4km apart with an average spacing of 3.8km. These major centres are supported by three (3) district centres which are generally located on Townsville's urban fringe.

The North Shore development located at the northern end of Shaw Road includes a neighbourhood centre which will overtime be developed to a sub-regional centre level. The North Shore Centre is located 12.1km west of the CBD and over 7km from the nearest sub-regional centre (at Thuringowa Central).

The Greater Ascot Neighbourhood Centre is located 13.1km south-west of the Townsville CBD, 3.6km south of the North Shore Centre and 4.6km northwest of Thuringowa Central.

2.4 Road Network

2.4.1 Shaw Road

Shaw Road is an arterial road under the governing authority of TMR running north-south between Woolcock Street (Bruce Highway) and Dalrymple Road.

Shaw Road generally comprises of an undivided carriageway providing a single lane in each direction with wide sealed shoulders within the vicinity of the site as shown in Figure 2.4.

Figure 2.4 Shaw Road looking north past the subject site

A speed limit of 80km / hr applies within the vicinity of the site.

2.4.2 Dalrymple Road

Dalrymple Road is a major arterial road under the governing authority of TMR running east-west along site frontage then generally northeast between Shaw Road and Woolcock Street (Bruce Highway) providing connection with Townsville CBD via Woolcock and Sturt Streets.

Dalrymple Road generally comprises of an undivided carriageway providing a single lane in each direction within the vicinity of the site as shown in Figure 2.5.

Figure 2.5 Dalrymple Road looking west past the subject site

A speed limit of 80km / hr applies within the vicinity of the site.

2.4.3 Shaw Road / Dalrymple Road Intersection

Shaw Road becomes the Ring Road south of Dalrymple Road. Dalrymple Road intersects with Shaw Road / the Ring Road forming a T-intersection as shown in Figure 2.6. The intersection is signalised. Pedestrian crossing facilities are provided on the Ring Road leg (south leg) of the intersection only.

Figure 2.6 Shaw Road / Dalrymple Road / the Ring Road intersection looking south from Shaw Road

On the approach to the intersection:

- Dalrymple Road provides a single right turn lane and bicycle lane as well as a left un-signalised slip lane;
- Shaw Road provides a single through and bicycle lane as well as an un-signalised left slip lane; and
- The Ring Road provides a double right turn lane in addition to a single through lane.

On the departure side of the intersection:

- Dalrymple Road provides two (2) lanes to cater for the double right from the Ring Road where the second lane becomes a merge lane to form a single through lane. A wide shoulder is provided however bicycle lane road markings are not shown;
- Shaw Road provides a single lane with a wide sealed shoulder however bicycle lane markings are not shown; and
- The Ring Road provides a single lane where the left turn from Dalrymple Road is required to give way. No bicycle lane is provided.

A pole mounted CCTV camera was observed on site which suggests the intersection can be observed remotely by the traffic control centre.

2.5 Public Transport

Public transport in Townsville generally consists of bus services. The subject site is located within Zone 9 of the Townsville bus network as shown in Figure 2.7 below. Currently no bus services operate within the immediate vicinity of the subject site.

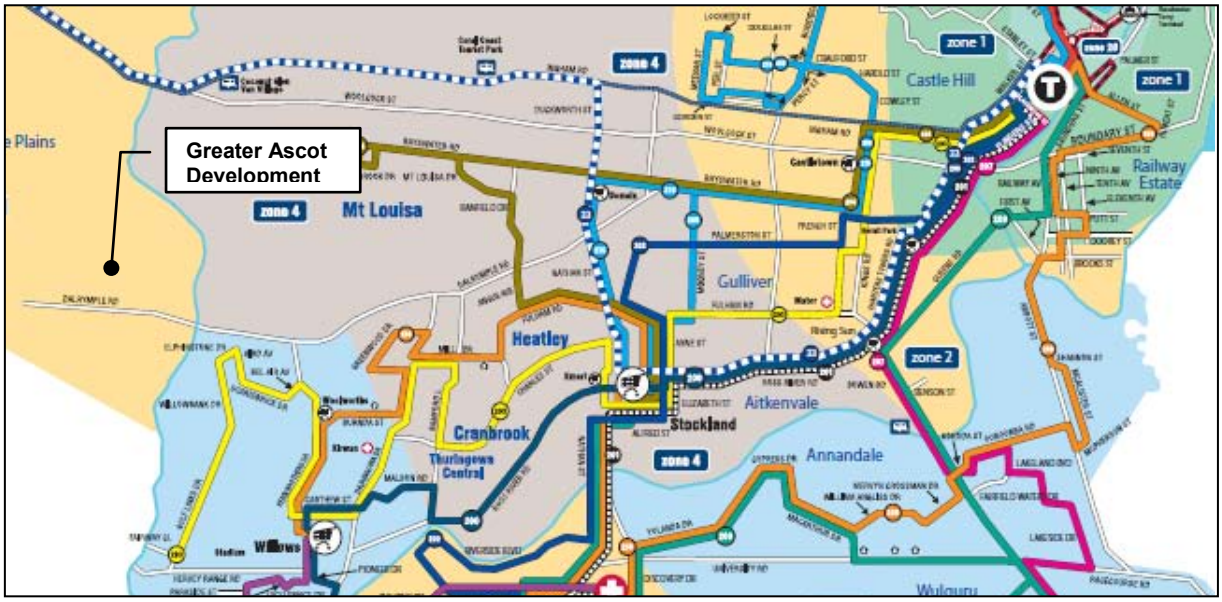


Figure 2.7 Townsville Bus Network – Queensland Government

Bus route 203 (operating between the City Centre to Willows via Castletown, Mater Hospital, and Stockland) is the closest bus service operating along Willowbank Drive approximately 2.5km from the site.

2.5.1 Bicycle Network

Currently a wide sealed shoulder provides an on-road bicycle lane on Shaw Road and Dalrymple Road along the site frontage however no pavement makings indicate provision of a bicycle lane. Bicycle lanes are generally provided at the intersection of Shaw and Dalrymple Road, refer to Section 2.4.3 for detail. In addition, a shared off road path is provided along the Ring Road south of Dalrymple Road as shown in Figure 2.8.

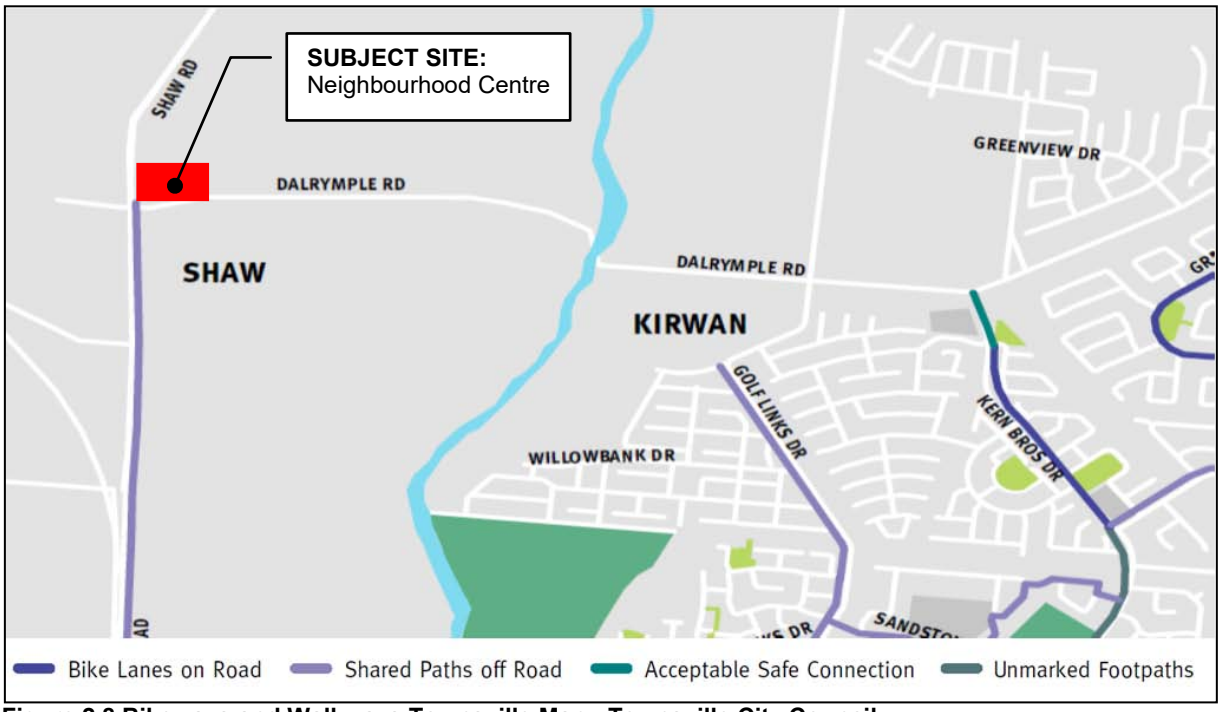


Figure 2.8 Bikeways and Walkways Townsville Map - Townsville City Council

2.5.2 Pedestrian Network

Currently there are no pedestrian facilities including footpaths and crossing within the vicinity of the site with the exception of the signalised pedestrian crossing on the Ring Road at the intersection of Dalrymple Road. The lack of pedestrian facilities is to be expected given that the site and its surrounding area are currently undeveloped.

3. PROPOSED DEVELOPMENT

It is proposed to construct the Neighbourhood Centre to cater for the growing demand generated by residents of Greater Ascot and surrounding residential subdivisions. The proposed Neighbourhood Centre is shown in Figure 3.1 below.

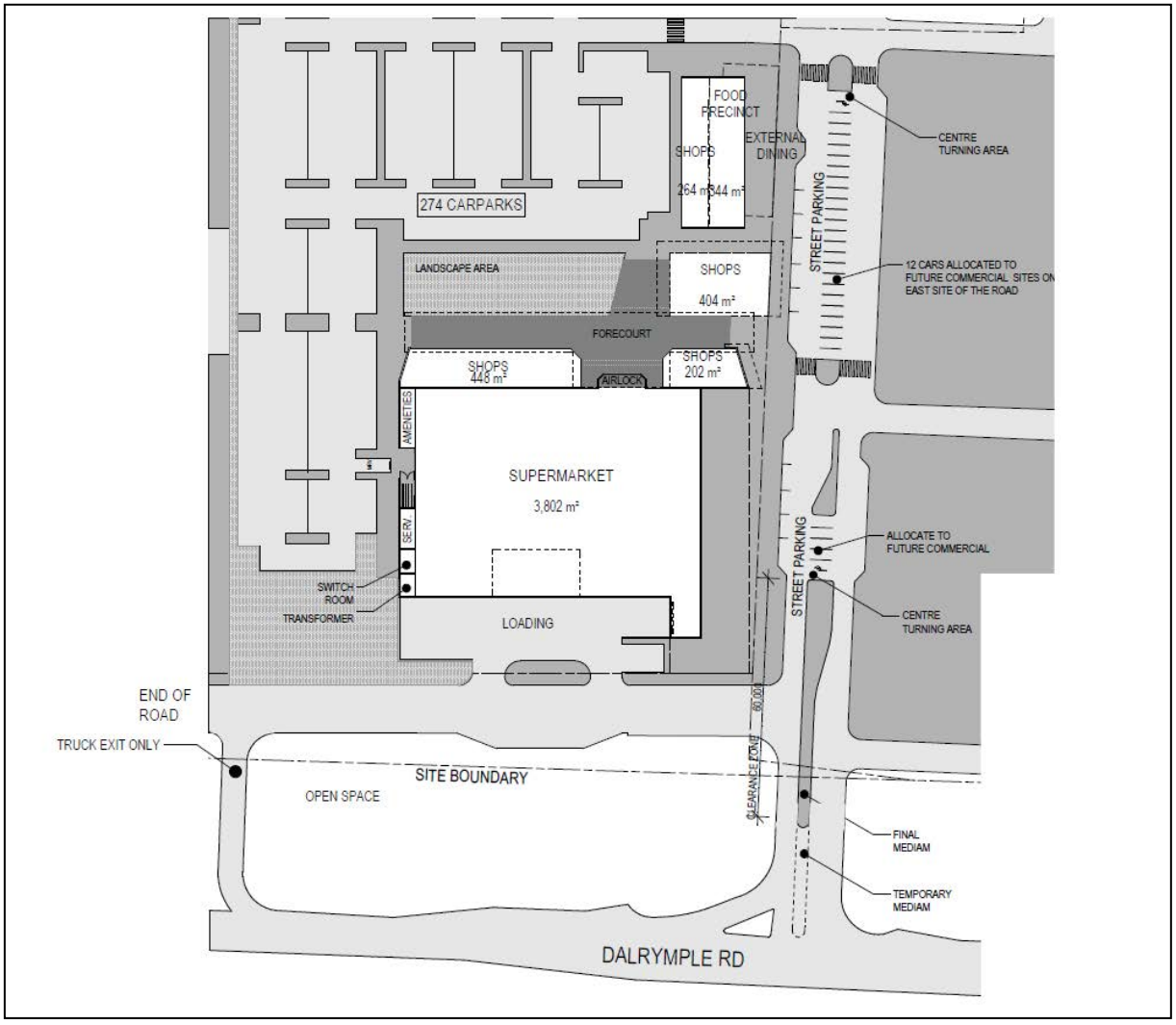


Figure 3.1 Greater Ascot Neighbourhood Centre

Based on the plan prepared by Cottee Parker (Drawing No.SD1003 Rev J, Dated 5 July 2012), it is proposed to develop the site for the purposes of a Neighbourhood Centre comprising of the components listed in Table 3.1.

Table 3.1 Stage 1 Neighbourhood Centre Components

Component	Area / No.
Supermarket	3,802m^2
Shops	1,318m^2
Food precinct	344m^2
Car parking	297 (including 23 on-street)

3.1 Master Planning

A Masterplan for the Neighbourhood Centre has been developed with respect to the Masterplan which developed for the Greater Ascot Northern Sector, see Appendix A. Figure 3.2 shows the location of the Neighbourhood Centre abutting Dalrymple Road and the internal road network connectivity between the Neighbourhood Centre and residential component of Greater Ascot Northern Sector.

It should be noted that the gray area shown in Figure 3.2 provides provision for future expansion of the Neighbourhood Centre however is not envisaged if or when the Neighbourhood Centre is to be expanded.

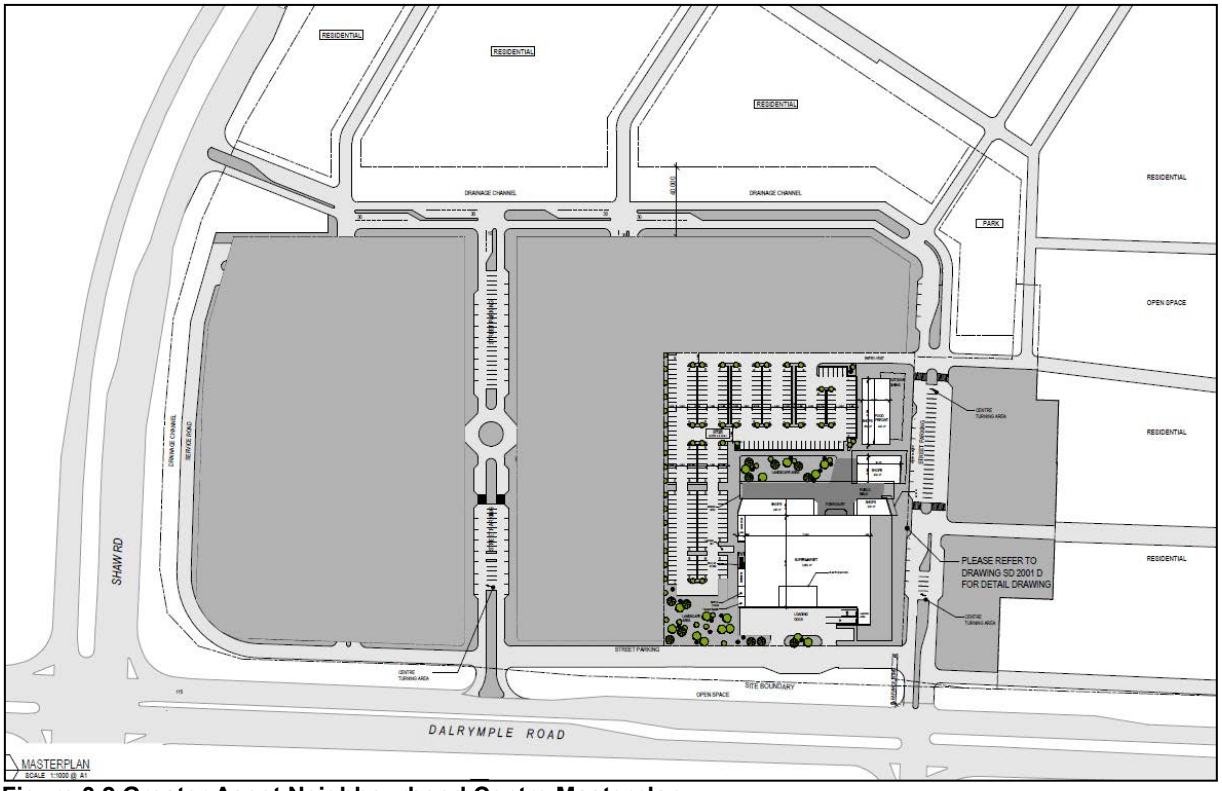


Figure 3.2 Greater Ascot Neighbourhood Centre Masterplan

The Greater Ascot Northern Sector Masterplan (see Appendix A) shows the overall road network connectivity of the residential component in relation to the Neighbourhood Centre. The Masterplan shows:

- An additional two (2) intersections on Dalrymple Road, one (1) either side of the Neighbourhood Centre entrance road proposed as part of this TIA of which the eastern road (Greater Ascot Avenue connecting with Dalrymple Road) is existing;
- Two (2) intersections on Shaw Road located north of Dalrymple Road;
- An additional two (2) internal north-south roads connecting to the Neighbourhood Centre on the north side located west of the main spine road which connects to the Neighbourhood Centre main entrance proposed as part of this TIA; and
- Two (2) internal east-west roads connecting with the main spine road on the eastern side of the Neighbourhood Centre.

It is assumed that the intersections proposed on Shaw Road as part of the Greater Ascot Northern Sector Masterplan will be constructed by the design horizon of the Neighbourhood Centre in 2026. It is noted that the construction of these connections is dependent on the order of staging and rate of development of the residential component of the development.

The proposed intersection on Dalrymple Road west of the main spine road servicing the Neighbourhood Centre is not expected to be constructed until the adjacent land is developed beyond the Neighbourhood Centre design horizon of 2026.

3.2 Neighbourhood Centre Road Network

The following describes the road network for the Greater Ascot Neighbourhood Centre as shown in Figure 3.1:

- Provision of an all movements intersection on Dalrymple Road;
- All access is to the Neighbourhood Centre be provided via the all movements intersection on Dalrymple Road;
- All egress from the Neighbourhood Centre is to be provided via the all movements intersection on Dalrymple Road with the exception of vehicles from the loading zone;
- Access to the loading zone is to be provided via an internal service road running adjacent to Dalrymple Road and operating one-way from east to west;
- Provision of a left out only on Dalrymple Road to provide egress from the loading zone exclusive to the use of loading vehicles;
- The spine road leading into the residential subdivision running north-south is proposed as a divided carriageway with kerb side parallel parking provided in addition to parking in the centre median; and
- Provision of an all movement intersection at the entry / exit of the Neighbourhood Centre car park on the main spine road which in turn connects with Dalrymple Road.

Swept paths prepared by UDP Consulting Engineers for the Neighbourhood Centre demonstrate access and egress of critical movements for the appropriate size vehicle are located in Appendix B based on the Master Plan for the Neighbourhood Centre.

3.2.1 Road Network Connectivity

The residential component of Greater Ascot is expected to continue development in stages however it is assumed that all traffic generated by the residential component of Greater Ascot will access the Neighbourhood Centre via the internal road network.

It is therefore required that internal road connectivity between the Neighbourhood Centre and each stage of residential development within Greater Ascot be defined. Figure 3.3 identifies the extent of road network required to link the Neighbourhood Centre with the residential area (refer to Appendix C for Engineering Drawing prepared by UDP Consulting Engineers).

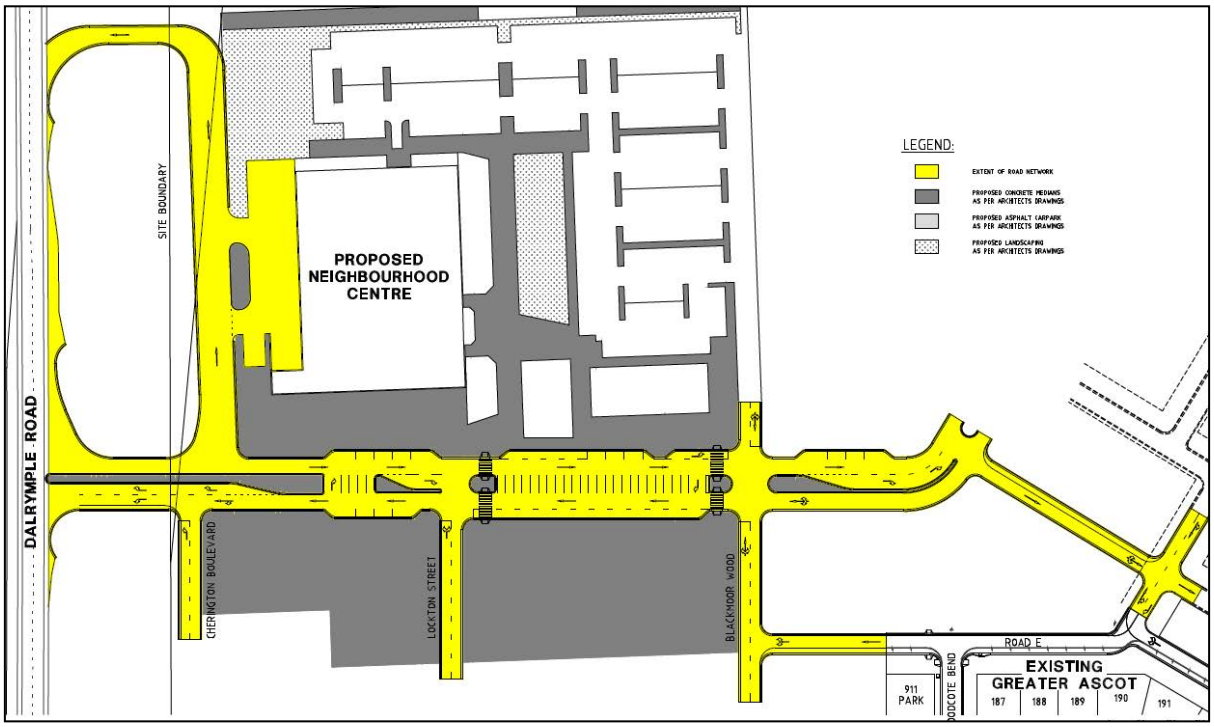


Figure 3.3 Extent of Road Network

3.3 Car Parking

A total of 297 car parking spaces are proposed as part of the Greater Ascot Neighbourhood Centre consisting of 274 off-street spaces within the main shopping centre car park, and 23 on-street car spaces. It is noted that the Masterplan for the Neighbourhood Centre indicates provision of 300 spaces however it is proposed to provide bus stop facilities adjacent to the Neighbourhood Centre resulting in the loss of three (3) on-street kerb side parallel parking spaces.

It is proposed to provide off-street car parking in the form of an at-grade open air car park situated along the north-western sides of the Neighbourhood Centre development.

On-street parking is to be provided in the form of kerbside parallel spaces along the main access road adjacent to the Neighbourhood Centre development in addition to centre median parking along this road.

3.4 Loading

A loading zone is situated on the south side of the supermarket building adjacent to Dalrymple Road. The loading zone is intended to service the supermarket catering for deliveries and garbage collection and is designed to accommodate up to two (2) semi trailers side by side at one time.

Access to the loading zone is provided via a service road running parallel to Dalrymple Road, operating in a one-way direction from east-west. The service road is accessed via the all directions intersection on Dalrymple Road to be constructed as part of the Neighbourhood Centre. Egress from the loading zone is to be provided via a left only service road to Dalrymple Road eastbound. Access to the loading zone is intended to be restricted to delivery and garbage collection vehicles only.

Swept path analysis demonstrates the loading zone, access and egress routes can accommodate a semi articulated truck of up to 19.0m in length.
A second loading dock is provided on the west side of the supermarket building to accommodate a single vehicle at one time. The loading dock is accessed via the

Neighbourhood Centre car park with egress via the same route. Swept path analysis (see Appendix B) demonstrates the loading dock is designed to accommodate a medium ridged vehicle (MRV) of up to 8.8m in length.

3.5 Public Transport

Public transport servicing the Neighbourhood Centre is limited to bus and taxi.

It is proposed to provide on-street kerb side bus stop facilities adjacent to the Neighbourhood Centre on the west and eastern sides of the main access road to the Neighbourhood Centre within Greater Ascot, see Figure 3.4.

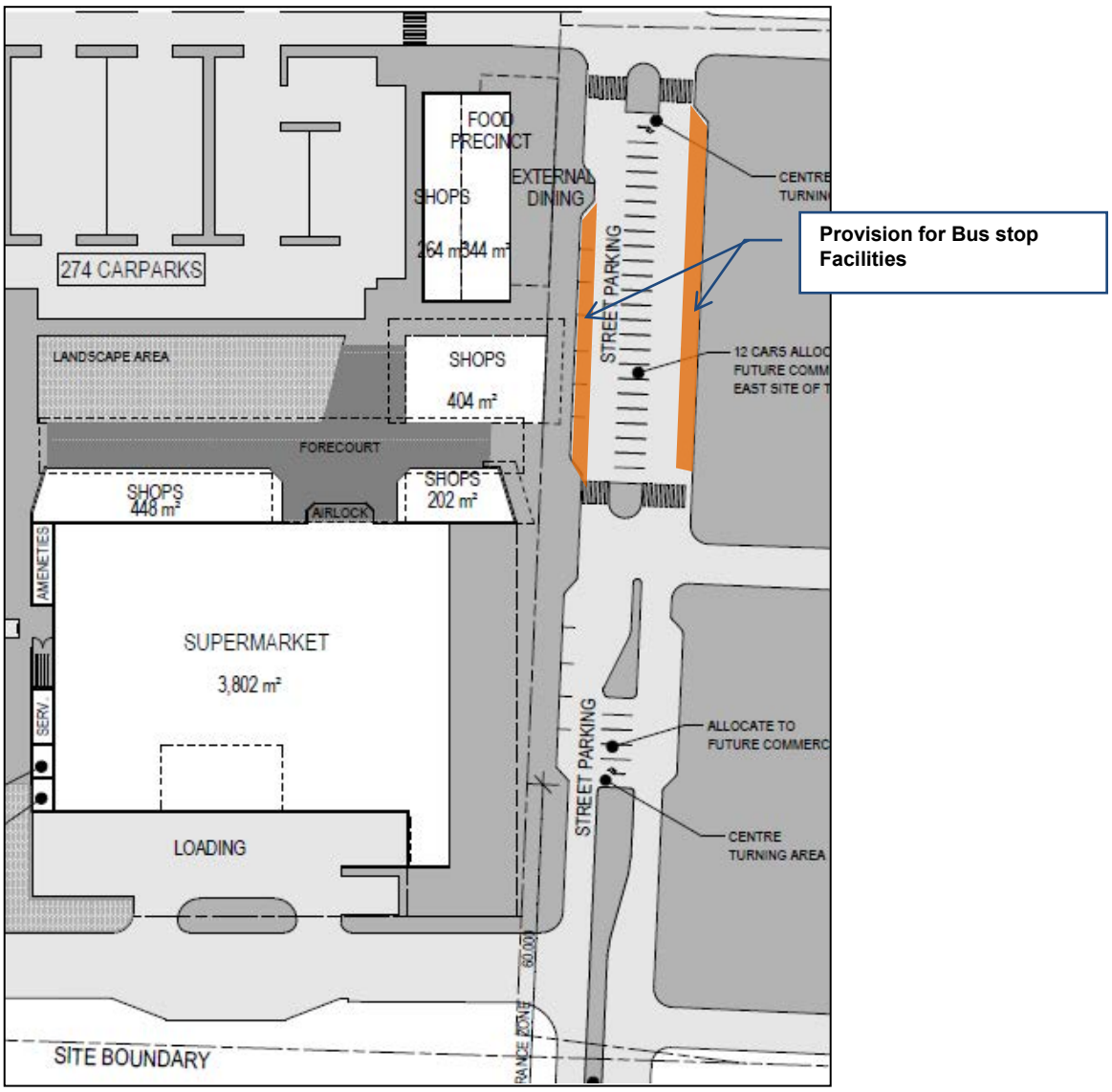


Figure 3.4 Neighbourhood Centre Bus Stop Facilities

It is envisaged that the bus route network would be adapted to service not only the Neighbourhood Centre but the wider Greater Ascot development and surrounding residential estates as these developments continue to expand. The proposed provision for bus stops facilities provides a flexible arrangement to expand bus stop facilities in either the north or southbound direction as demand for bus services grow and the bus network operation evolves.

It is recommended that a dedicated taxi bay is provided in the form of kerb side parallel parking located adjacent to the Neighbourhood Centre, in proximity to the bus stop, to encourage the shared use of bus stop facilities such as shelter and seating. Alternatively a taxi bay should be provided within the Neighbourhood Centre.

4. CAR PARKING PROVISION

A total of 297 car parking spaces are proposed as part of the Neighbourhood Centre of which 274 spaces are off-street parking as part of the Neighbourhood Centre development and 23 on-street parking spaces.

It should be noted that indented kerbside parallel parking along the eastern side of the main road providing access to the Neighbourhood Centre are not counted in the assessment for the Neighbourhood Centre as these spaces are considered to be associated with the future land use of the adjacent site. Applying this premise to the centre median parking, 50% (13 spaces) of the 27 median spaces provided has also been discounted.

4.1 Requirement

Schedule 5.5.3C of the Thuringowa Planning Scheme specifies the parking provision requirements in Table 4.1 with regard to different components of the proposed development.

The Neighbourhood Centre consists of a number of components however 'supermarket' and 'food precinct' are not specifically listed in the Schedule 5.5.3C. It is therefore considered appropriate for the proposed Neighbourhood Centre to be assessed as a 'shopping centre' for the purpose of determining the required number of car parks.

Table 4.1 Neighbourhood Centre parking requirement assessed as a single component

Component	Area	Requirement	
		Rate	Total
Shopping Centre	5,464 m^2	1 space per 20m^2 of GLA	273

Alternatively the car parking generation rate for individual components may be used to determine the car parking requirement for the proposed development. Given that 'supermarket' is not specifically listed in Schedule 5.5.3C of the planning scheme, the parking generation rate for 'shopping centre' has been adopted. Similarly, the parking generation rate for 'restaurant' has been adopted for the 'food precinct'.

Table 4.2 Neighbourhood Centre parking requirement assessed as individual components

Component	Area	Requirement	
		Rate	Total
Supermarket (shopping centre)	3,802 m^2	1 space per 20m^2 of GLA	190
Shop	1,318 m^2	1 space per 15m^2 of GLA	88
Food precinct (restaurant)	344 m^2	1 space per 10m^2 of GLA available to the public 1 space per 50m^2 of GLA of floor area and food preperation*	34 7
Total			**319**

*The food preperation area was assumed to be equal to the GFA. This accounts for the external dining area not specified.

4.2 Adequacy of Car Parking Provision

The provision of 297 parking spaces equates to 24 spaces in excess of the requirement for the Neighbourhood Centre when assessed as a single component or results in a short fall of 19 spaces when assessed as individual components.

It is expected that patrons to the Neighbourhood Centre will visit multiple components of the Neighbourhood Centre in a single visit. Furthermore, the food precinct is expected to generate peak parking demand outside the peak parking demand for retail which is expected to occur during trading hours. The shared use parking and the distributed peak parking demands for individual components of the Neighbourhood Centre is expected to reduce the total provision parking required.

The provision of 297 spaces is midway between the upper and lower parking requirement assessment of 273 and 319. Given the expected shared use of parking and peak distribution, the provision of 297 spaces of which 274 spaces are provided as off-street parking is considered appropriate for the Neighbourhood Centre development.

5. TRAFFIC VOLUMES

To determine if and when the Neighbourhood Centre will have a significant impact on the SCRN, traffic volumes are forecast for the proposed development in the design year (2016) when the Neighbourhood Centre is scheduled for completion and the design horizon (2026) 10 years beyond the design year.

Total traffic volumes consist of base traffic and development traffic.

Development traffic consists of not only the proposed Neighbourhood Centre traffic but must consider traffic generated by Greater Ascot residential component since the road network for the Neighbourhood Centre connects through to the residential subdivision within the Greater Ascot Northern Sector. A portion of residential traffic can therefore be attributed to the proposed intersection on Dalrymple Road to be constructed to service the Neighbourhood Centre.

Base traffic is a term use to describe the forecast traffic that would use the road network if the Neighbourhood Centre was not provided.

Base traffic includes:

- Existing volumes;
- Growth of existing volumes;
- The impact of road network changes; and
- The impact of surrounding developments.

5.1 Development Traffic

Traffic generated by the Greater Ascot development is based on the following components:

- Northern Sector Residential – 700 allotments by 2016;
- Northern Sector Residential – 1180 allotments by 2026; and
- Neighbourhood Centre – 5,418m^2 GFA.

It is assumed that the Greater Ascot Southern Sector will be developed post the Neighbourhood design horizon and therefore is not considered within this report.

A summary of traffic volumes shown in the following sections can be found in Appendix D.

5.1.1 Trip Generation

Greater Ascot Northern Sector – Residential

It is generally accepted that traffic generation associated with low density residential developments in outer suburban areas is in the order of 10 vehicle trips per dwelling per day. Queensland Street - Design Guidelines for Subdivisional Streetworks 1999 suggests the following breakdown of the daily trips per household by trip purpose:

- Shops located within the neighbourhood – Two (2) trips;
- Schools within the neighbourhood – Two (2) trips;
- Work located outside the neighbourhood – Four (4) trips;
- Retail outside the neighbourhood – Two (2) trips; and
- Other located outside the neighbourhood – One (1) trip.

Of the residential trips generated it is assumed that 10% of trip will occur in the peak periods where during the AM peak 80% of trip are outbound and 20% inbound whilst during the PM the reverse occurs.

It is assumed that 700 allotments will be provided by the design year (2016) and that the residential subdivision will be complete by the design horizon (2026) providing a total of 1,180 allotments.

Adopting the traffic generation rates above for the residential component of the Greater Ascot Northern Sector, the following traffic volumes are estimated:

Table 5.1 Residential Traffic Generation – Design Year (2016)

Period	Outbound	Inbound	Total
Daily	3,500 veh	3,500 veh	7,000 veh
AM Peak Hour	560 veh	140 veh	700 veh
PM Peak Hour	140 veh	560 veh	700 veh

Table 5.2 Residential Traffic Generation – Design Horizon (2026)

Period	Outbound	Inbound	Total
Daily	5,900 veh	5,900 veh	11,800 veh
AM Peak Hour	944 veh	236 veh	1180 veh
PM Peak Hour	236 veh	944 veh	1180 veh

Neighbourhood Centre

The New South Wales Roads and Traffic Authority's 2002 "Guide to Traffic Generating Developments" suggests a daily traffic generation rate for shopping centre based on GFA which is considered applicable to the Neighbourhood Centre. It is assumed 10% of the daily rate occurs during AM peak equating to:

- Five (5) trips / 100m^2 GFA during the morning peak hour.

Queensland Transport's 1995 "Transport Assessment Guide Draft Document" suggests trip attraction rate applicable to the Neighbourhood Centre during the PM peak is:

- Eight (8) trips / 100m^2 GFA during the evening peak hour.

It is assumed that the 80% of trips are inbound during the AM peak and 20% outbound with the 50% inbound and 50% outbound during the PM peak hour. Adopting the traffic generation rates above for the Neighbourhood Centre component of the Greater Ascot Northern Sector with GFA of 5,464m^2 the following traffic volumes are estimated:

Table 5.3 Neighbourhood Centre Traffic Generation

Period	Outbound	Inbound	Total
AM Peak Hour	55	219	273
PM Peak Hour	219	219	437

It should be noted that the above trip generation rate includes trips made by residents within the neighbourhood. By assuming the trips generated in Table 5.3 were all made externally from Greater Ascot, the estimated traffic volumes are considered conservative.

5.1.2 Network Distribution

Greater Ascot Northern Sector – Residential

It is assumed that this traffic will be distributed between Townsville trip attractors roughly as follows:

- 30% Greater Ascot Neighbourhood Centre;
- 28% east along Dalrymple Road (Townsville CBD, Hyde Park Centre, Aitkenvale Centre, Thuringowa Central, primary and secondary schools);
- 16% south along the Ring Road (James Cook University, Townsville Hospital, Lavarack Barracks);
- 15% north along Shaw Road (North Shore sub-regional centre and various industrial precincts; and
- 11% internal to Greater Ascot (local school and trips between residences).

With the exception the of town centre trips, it is assumed that the directional split for residential traffic is 80% outbound: 20% inbound during the morning peak hour and the reverse during the evening peak hour.

Neighbourhood Centre

With reference to the centres hierarchy (Section 2.3) and anticipated land use pattern (Section 0), it is estimated that the trips generated by the Greater Ascot Neighbourhood Centre will distributed roughly as follows:

- 20% within Greater Ascot master planned community;
- 32% residential development to the east;
- 32% residential development to the south; and
- 16% residential development to the north and north-west.

Figure 5.1 illustrates the trip distribution of traffic generated by the Neighbourhood Centre and residential components of the Greater Ascot Northern Sector on the road network.

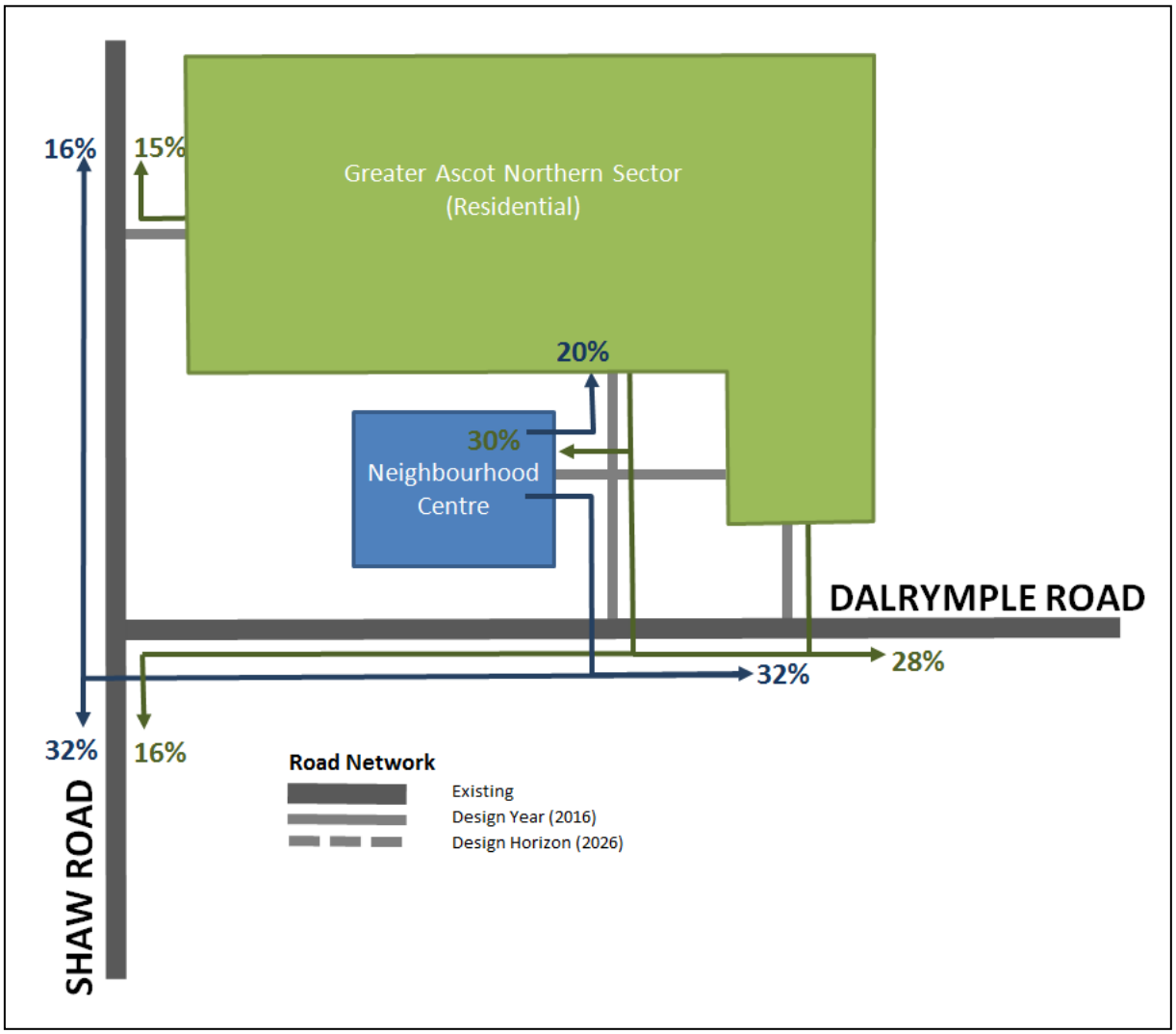


Figure 5.1 Trip Distribution – Greater Ascot Northern Sector

It is assumed that residential traffic travelling to / from Dalrymple Road will split evenly between connecting road between Dalrymple Road and Greater Ascot Northern Sector.

It should be noted that the distribution of traffic on the road forming the intersection with the Neighbourhood Centre entry / exit is based on the proportion of allotments expected to use these approach roads.

UDPHT have been appointed by Parkside to undertake a traffic assessment of the Greater Ascot Northern Sector Masterplan which will determine traffic volumes at this intersection with a higher level of detail. Given that the results of the assessment of the Greater Ascot Masterplan are not available, for the purpose of this assessment, traffic distribution based on the proportion of allotments expected to use each approach is considered appropriate.

5.1.3 Network Assignment

Based on the trip generation and network distribution discussed in Section 5.1.1 and 5.1.2 Figure 5.2 and Figure 5.3 illustrates the traffic volumes assigned to the road network for the design year (2016) and design horizon (2026) respectively.

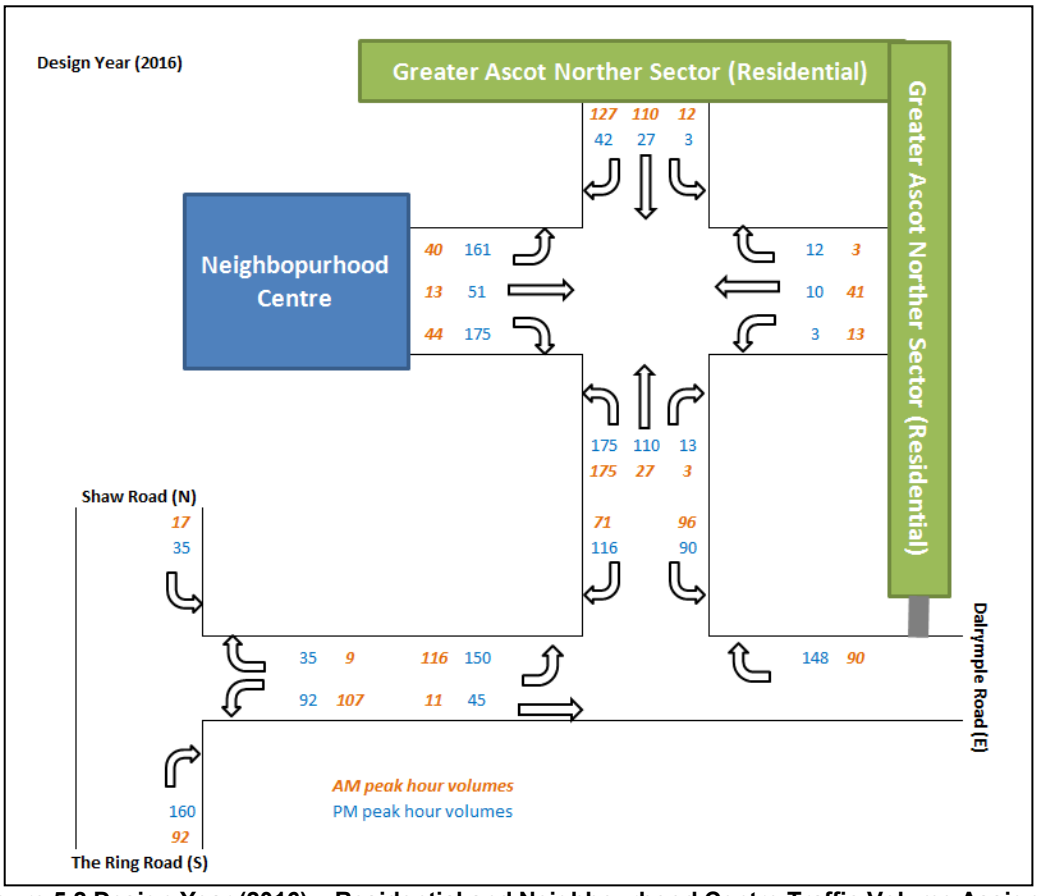


Figure 5.2 Design Year (2016) – Residential and Neighbourhood Centre Traffic Volume Assignment

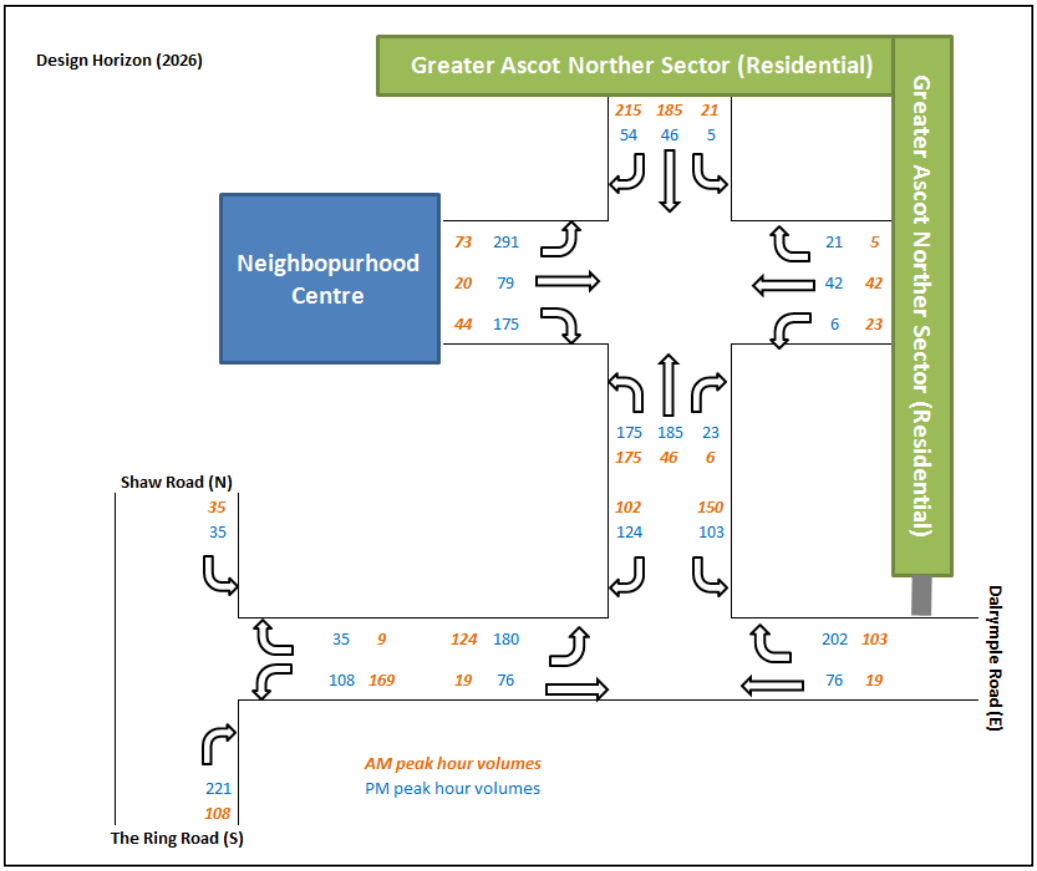


Figure 5.3 Design Horizon (2026) – Residential and Neighbourhood Centre Traffic Volume Assignment

5.2 Base Traffic

Existing traffic volumes are used as the foundation of the forecast base traffic volumes. A growth factor is generally applied to the existing traffic volumes to allow for general increase of traffic expected between the time the survey data was collected, the design year, and design horizon. In addition to existing traffic, the impacts of land use changes and the impact of road network changes have also been taken into consideration to determine the estimated base traffic volume in 2016 and 2026.

5.2.1 Existing Traffic Volumes

A turning movement traffic survey was undertaken at the intersection of Shaw Road / the Ring Road / Dalrymple Road on Thursday, 9 February 2012, during the following peak periods:

- AM peak period 6:30AM – 9:30AM
- PM peak period 3:00PM – 6:00PM

The peak hours were identified as:

- AM peak period 7:30AM – 8:30AM
- PM peak period 4:15PM – 5:15PM

The peak hour traffic movement volumes are summarised in Figure 5.4.

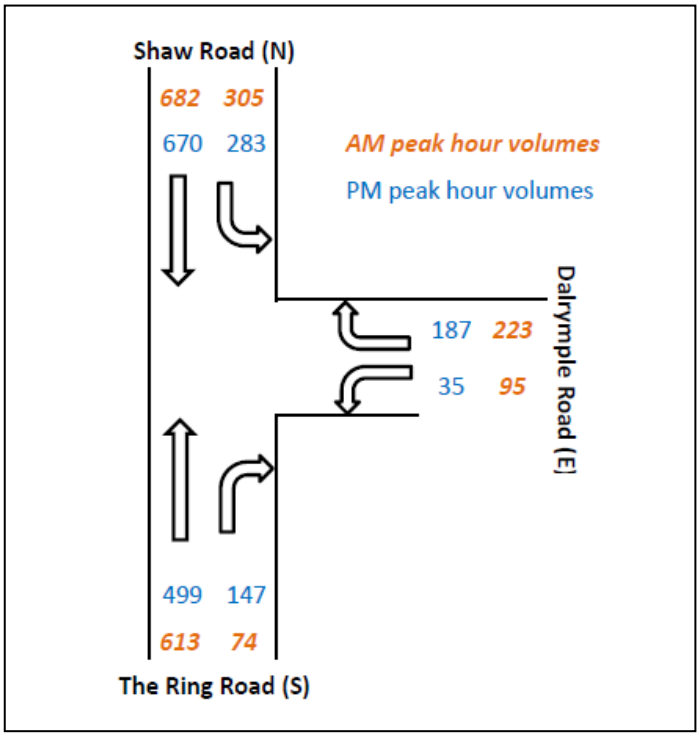


Figure 5.4 Existing Traffic Volumes

5.2.2 Growth

Based on traffic growth data provided in the report "Household and Dwelling Projections Queensland Local Government Areas" published in May 2010 by the Queensland Government, it is generally accepted that 2.3% traffic growth annually applies to the Townsville region. Traffic volumes at the intersection of Shaw Road / the Ring Road / Dalrymple Road for the design year (2016), the design horizon (2026) are summarised in Figure 5.5 below.

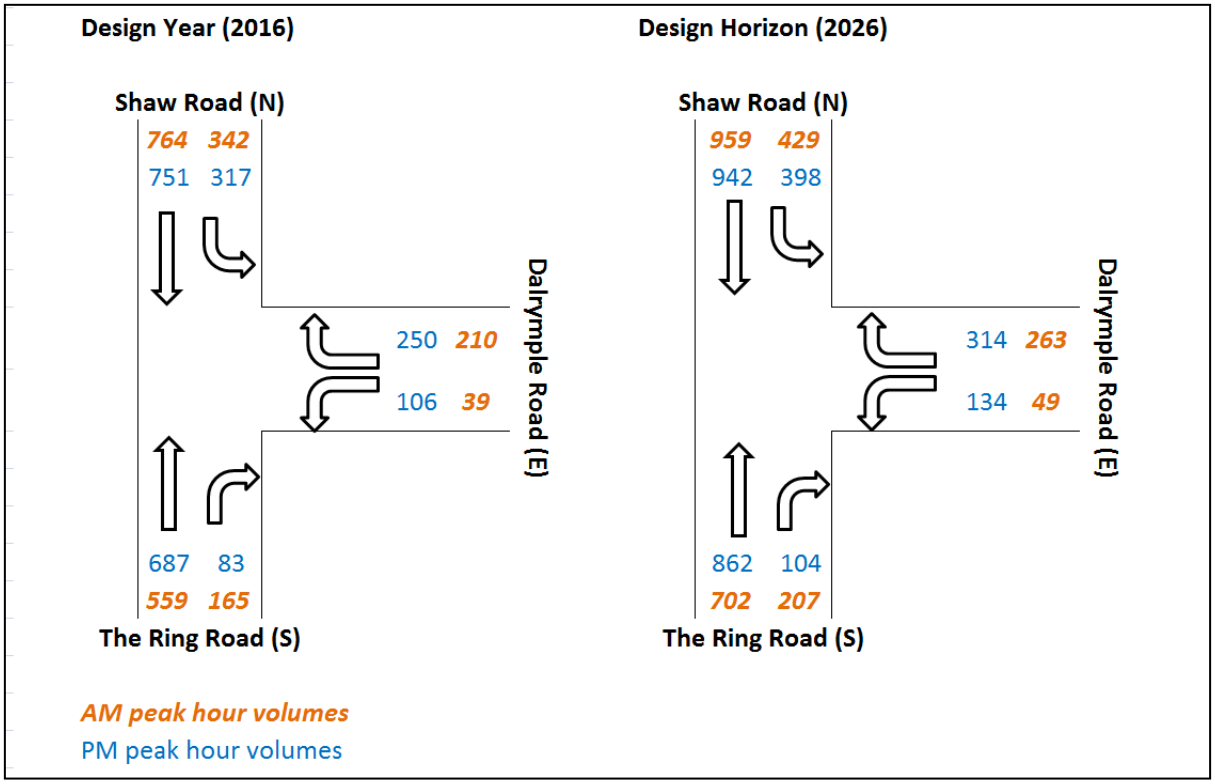


Figure 5.5 Existing Intersection Arrangement - Growth Traffic Volumes

5.2.3 Impact of Road Network Changes

Dalrymple Road

TMR and TCC have advised that there are currently no plans for changes to Dalrymple Road.

Shaw Road

TMR also advised that there are no short term plans to upgrade Shaw Road due to the due to the construction of Townsville Ring Road Section 4. Section 4 of the Townsville Ring Road is expected to take pressure of Shaw Road therefore delaying the need to upgrade Shaw Road in the immediate future. It is currently unknown when upgrade works will be required.

Townsville Ring Road - Section 4

It proposed to extend Townsville Ring Road from where it currently terminates at the intersection of Shaw Road and Dalrymple Road to the connect with the Woolcock Street (Bruce Highway) to the west of Shaw Road as shown in Figure 5.6.

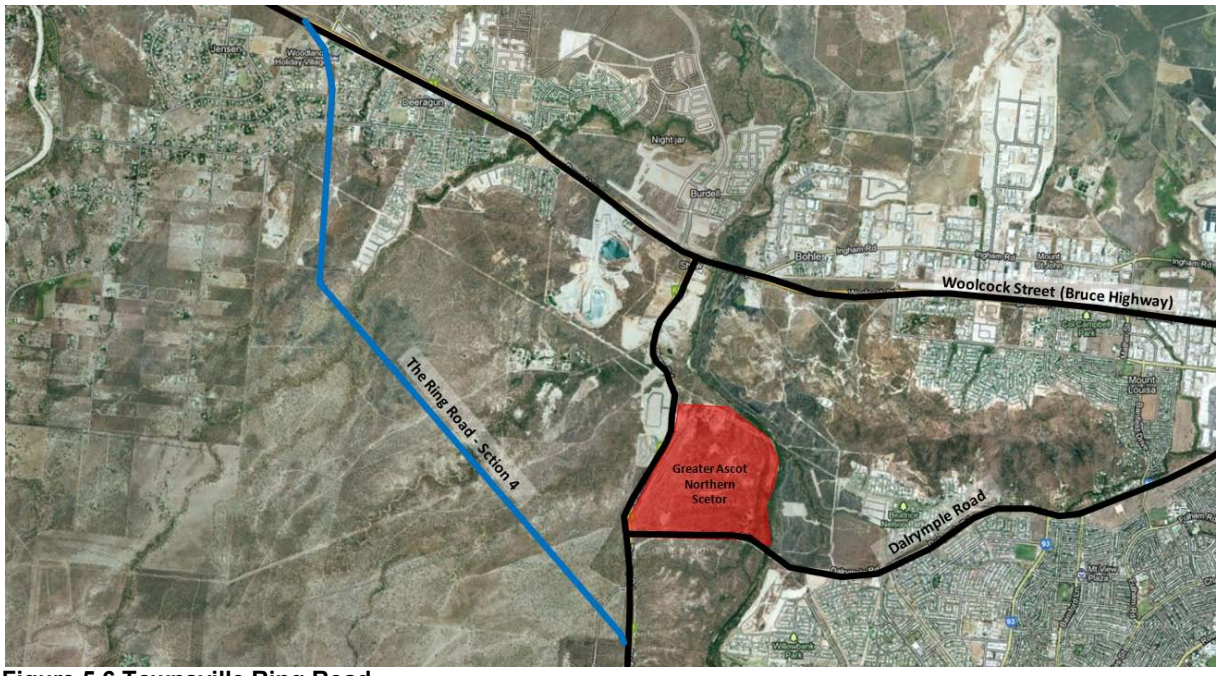


Figure 5.6 Townsville Ring Road

TMR advised that construction of Section 4 of Townsville Ring Road has been moved forward (at the time of writing this report) to commence mid to late 2013 or early 2014. The road is expected to be opened to traffic in late 2016 to early 2017.

The intersection at Shaw Road / Dalrymple Road is yet to be designed to accommodate Section 4 of the Ring Road however it is envisaged that the Ring Road will be aligned to the west of Shaw Road where Dalrymple Road will be extended to provide connection via an interchange. It is assumed the interchange will provide for all movements.

It is expected that the distribution of traffic at the intersection of Shaw Road / Dalrymple Road will alter to take advantage of the direct connection with Woolcock Street (Bruce Highway) via the Ring Road rather than Shaw Road. It is therefore assumed that each of the existing movements contributing to Shaw Road traffic will redistribute 50% of the traffic volume to the Ring Road as shown in Figure 5.7 where the road network is shown schematically.

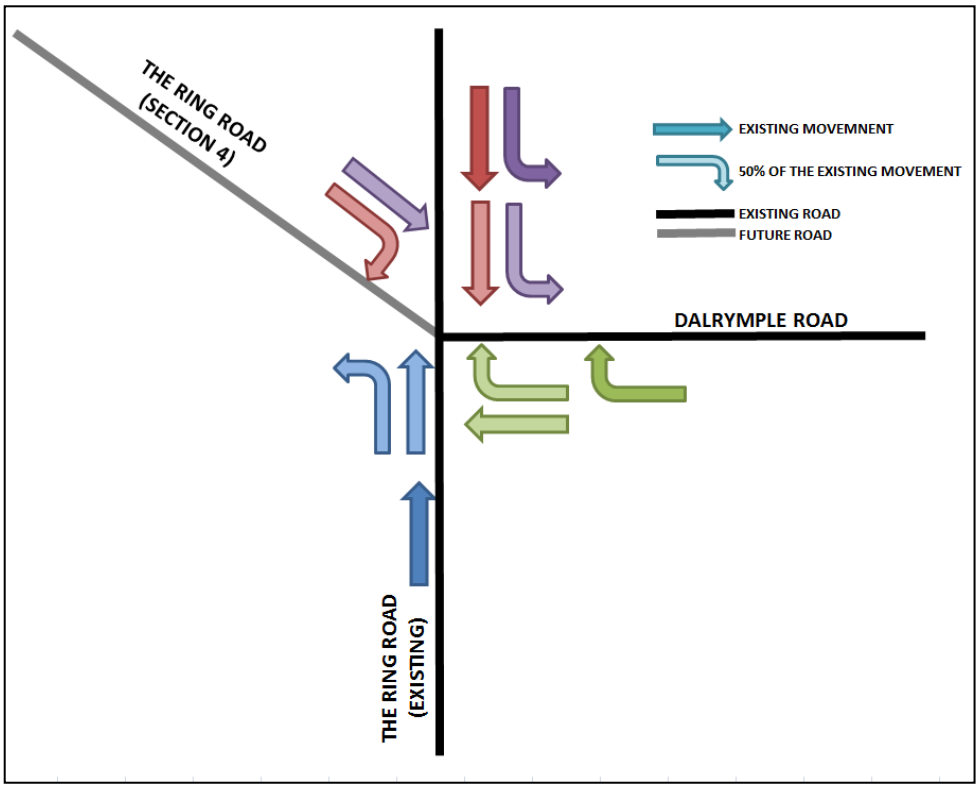


Figure 5.7 Impact of Road Network Changes – The Ring Road Section 4

Since Section 4 of the Ring Road is scheduled for completion about the same time as the Neighbourhood Centre, the above redistribution of traffic at the intersection of Shaw Road / Dalrymple Road / the Ring Road applies to the design year (2016), the design horizon (2026), and the design of the Greater Ascot development. Redistributed traffic volumes at the intersection of Shaw Road / Dalrymple Road are shown in Figure 5.8.

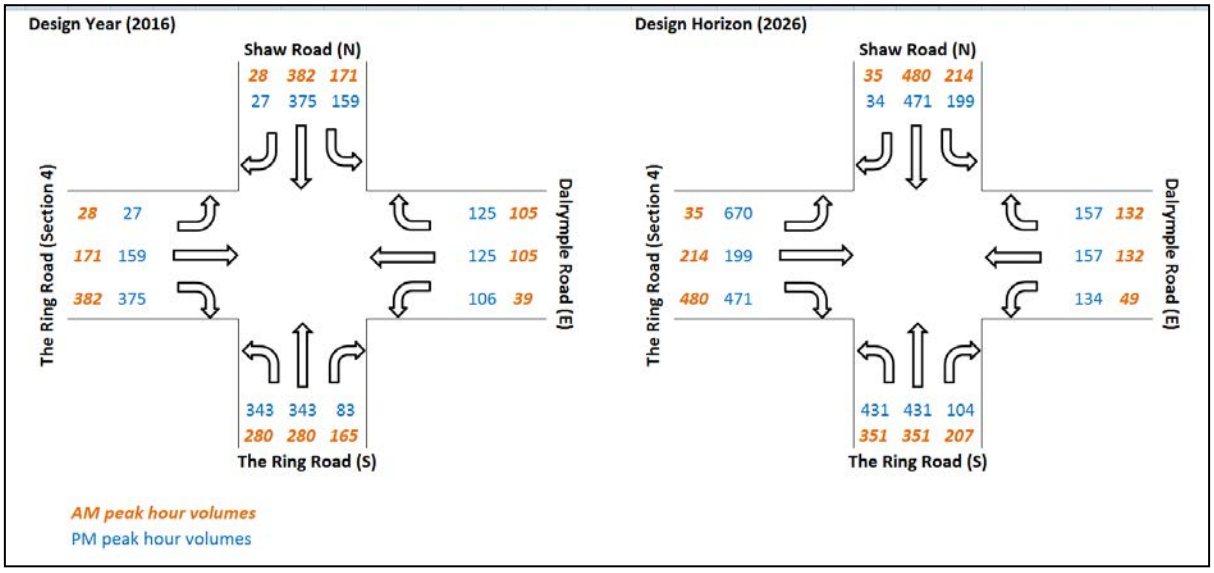


Figure 5.8 Future Intersection Arrangements – Growth Traffic Volumes

5.2.4 Impact of Land Use Changes

Greater Ascot is located on the fringe of urban growth and as such a number of other developments have been identified for future development of the surrounding land. There developments are shown in Figure 5.9.

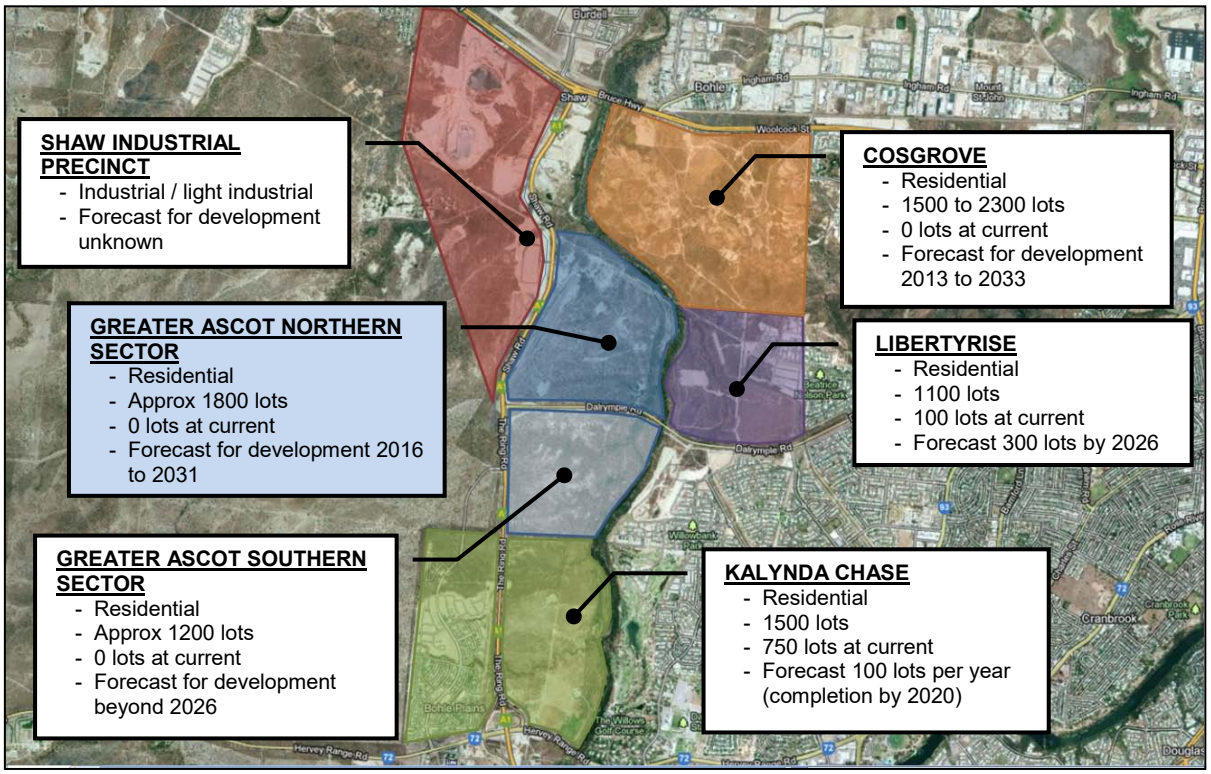


Figure 5.9 Land Use Changes

It is anticipated that by the design year (2016), development of Cosgrove, Libertyrise and Kalynda Chase will have commenced with only Kalynda Chase forecast for completion by the design horizon for Greater Ascot Neighbourhood Centre by 2026.

It is estimated the surrounding residential developments will contribute approximately 2560 lots by the design horizon in 2026. It is therefore estimated that these allotments will generate an approximately 25,600 additional trips per day within the area by 2026 of which 2,560 trips per hour are expected to occur in peaks.

Applying the same direction split of trips as per Greater Ascot residential development, the estimated number of trips by direction for each of the residential developments to be developed during the design horizon for the Neighbourhood Centre, are shown in Table 5.4. It is noted that 11% of trips are made internally within the respective development. Traffic volumes shown in **bold** in Table 5.1 is expected to contribute to the Shaw Road / Dalrymple Road intersection given the location of the respective development in relation to Greater Ascot.

Table 5.1 Land Use Change – Forecast additional residential trip generation per estate

	North (15%)	South (16%)	East (28%)	Greater Ascot (30%)
Cosgrove	242	**258**	451	97
Libertyrise	**30**	**32**	56	54
Kalynda	**113**	120	**210***	**113**
Volumes contributing to Shaw Road / Dalrymple Road Intersection	**143**	**290**	**105**	**113**

*it is assumed only 50% of the volume is attributed to Shaw Road / Dalrymple Road intersection

It is estimated that a total of 650 trips can be attributed to Shaw Road / Dalrymple Road intersection as a result of land use change by 2026.

Existing traffic volumes with a growth factor applied annually assumes an additional 531 movements will occur in the AM peak and 560 in the PM peak. Traffic volumes generated by the Greater Ascot Neighbourhood Centre are estimated to contribute 141 movements to the Shaw Road / Dalrymple Road intersection in the AM peak and 225 in the PM peak. The sum of these volumes assumes 661 additional movements in the AM peak and 768 movements in the PM peak.

It should be noted that the 650 movements estimated, based on land use change, is less than that estimated by applying a 2.3% growth factor to existing traffic volumes. Therefore, no additional traffic volumes are assumed as a result of land use change.

Given that the timeline for the development of Shaw Road Industrial precinct is unknown at this stage, no specific consideration for traffic generated by the industrial estate has been made.

5.2.5 Forecast Base Traffic Volumes

Base traffic volumes adopted for the design year (2016) and design horizon (2026) are shown in Figure 5.8.

5.3 Total Traffic Volumes

Total traffic volumes include base traffic (see Figure 5.8) and Greater Ascot development traffic (see Figure 5.2 and Figure 5.3) respectively for expected traffic volumes in the design year (2016) and the design horizon (2026). Greater Ascot development traffic at the intersection of Shaw Road / Dalrymple Road has been converted to accommodate Section 4 of The Ring Road. Figure 5.10 and Figure 5.11 show the total traffic volumes derived at the intersection of Shaw Road / Dalrymple Road and at the proposed intersection, Dalrymple Road / Neighbourhood Centre, for the design year (2016) and design horizon (2026).

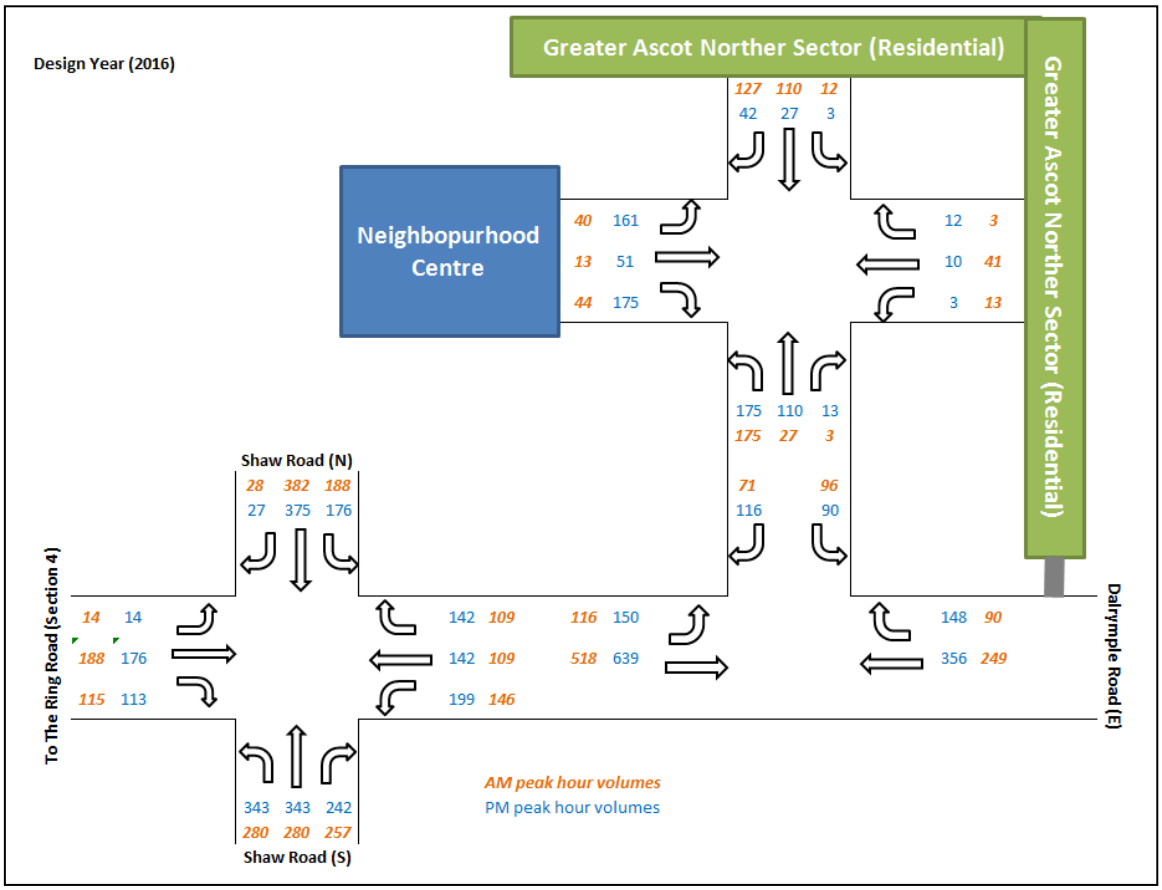


Figure 5.10 Total Volumes – Design Year (2016)

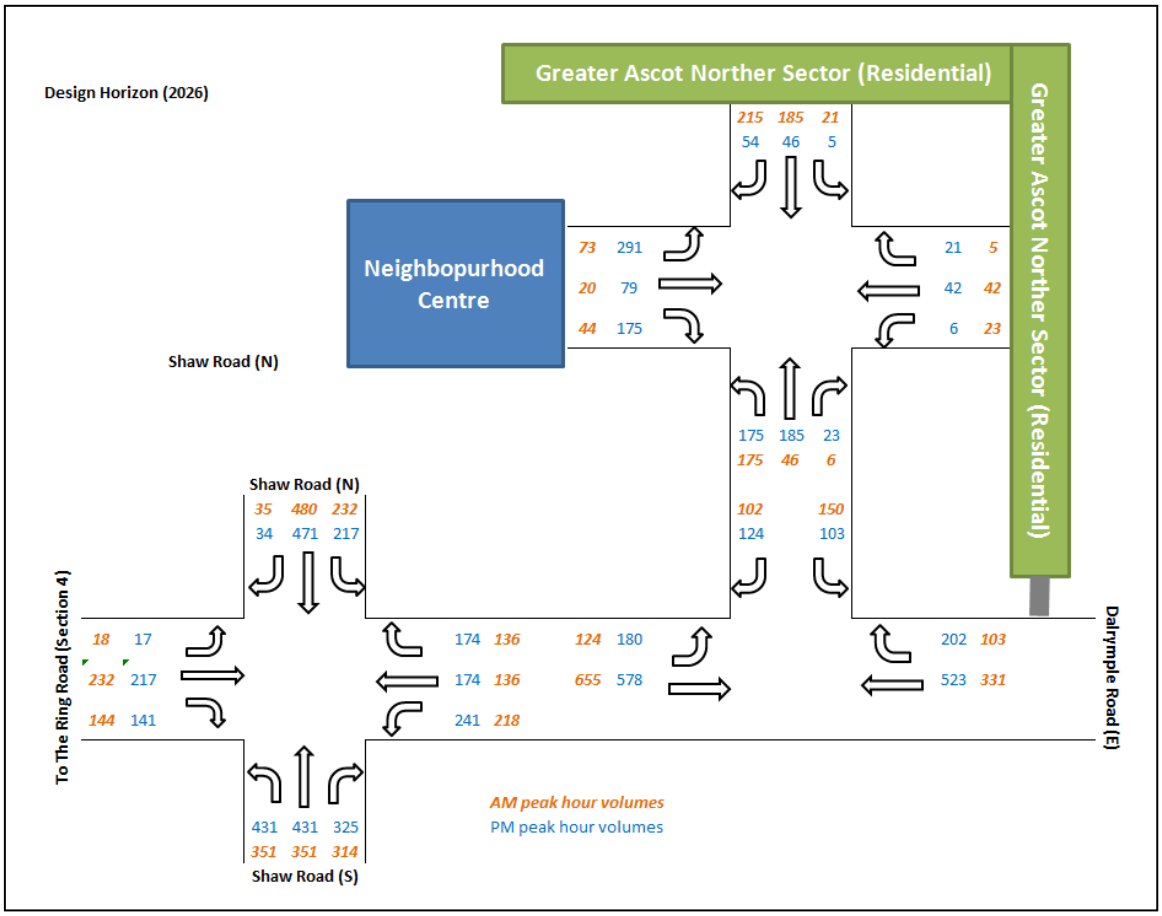


Figure 5.11 Total Volumes – Design Horizon (2026)

6. TRAFFIC OPERATION ASSESSMENT

The operation of the following intersection were analysed using SIDRA Intersection V5.1 for the design year (2016) and the design horizon (2026) using the total traffic volumes shown in Figure 5.10 and Figure 5.11 respectively:

- Shaw Road / Dalrymple Road;
- Dalrymple Road / Greater Ascot Development;
- Neighbourhood Centre / Greater Ascot Development; and
- Neighbourhood Centre truck egress / Dalrymple Road.

6.1 SIDRA Intersection Analysis

SIDRA is a computer package which provides information about the capacity of an intersection in term of a range of parameters, as described below.

Degree of Saturation (DoS) is the ratio of the volume of traffic observed making a particular movement compared to the theoretical capacity for that movement. A DoS of up to 0.6 is rated as excellent where at the other end of the scale a Dos of one (1) or higher is rated as very poor.

GARID specified the maximum DoS accepted to provide a practical capacity for the following intersection types shown in Table 6.1.

Table 6.1 GARID practical capacity by intersection type

Intersection Type	DoS
Priority Junction	0.8
Roundabout	0.85
Signals	0.9

The 95th Percentile (95%ile) Queue represents the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour.

Average Delay is the delay time, in seconds, which can be expected over all vehicles making a particular movement in the peak hour.

Level of Service (LoS) provides a measure to describe delay experience by vehicles at an intersection where LoS A is the highest and LoS E is the lowest. GARID specified LoS E as the limit of acceptable in an urban area.

The results of SIDRA Intersection analysis are summarised in the following sections. All SIDRA results including intersection layouts, movement summaries, and signal phasing are included in Appendix E.

6.1.1 Shaw Road / Dalrymple Road

The existing intersection layout was analysed using the existing traffic volumes to assess the current capacity of the intersection. During both the AM and PM peaks, Shaw Road southbound through movements has a DoS greater than 0.9 resulting in a DoS for the leg greater the 0.9 which in accordance with GARID for signalised intersection which suggests the need for duplication of Shaw Road may be required in the near future.

Table 6.2 SIDRA Summary – Existing Layout and Volumes

Intersection of Dalrymple Road / Shaw Road	AM Peak Existing				PM Peak Existing			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
The Ring Road (S)	0.84	25.9	LOS C	117.6	0.73	21.9	LOS C	151.0
Dalrymple Road (E)	0.49	37.8	LOS D	49.8	0.57	34.8	LOS C	59.1
Shaw Road (N)	0.83	21.0	LOS D	210.8	0.80	19.2	LOS B	189.3

The construction of Section 4 of The Ring Road is expected to divert traffic from Shaw Road delaying the need for duplication however traffic generated by the Neighbourhood Centre and Greater Ascot is expected to increase traffic. Completion of Section 4 of The Ring Road is expected to coincide with the Neighbourhood Centre design year in 2016, therefore the existing intersection layout has not been analysed with the Neighbourhood Centre and Greater Ascot traffic.

It is assumed Section 4 of the Ring Road will require the intersection of Dalrymple Road and Shaw Road to be upgraded to a four way approach however this intersection is yet to be designed. SIDRA intersection analysis was performed to demonstrate a possible solution based on the assumptions made in regards to the redistribution of traffic volumes at the proposed intersection detailed in Section 5.2.3 of this report. The intersection capacity for the proposed intersection layouts were also tested with pedestrian movements on all legs of the intersection.

Adopting the existing intersection layout and adding the west approach leg, the proposed intersection layout for the design year in 2016 is shown in Figure 6.1.

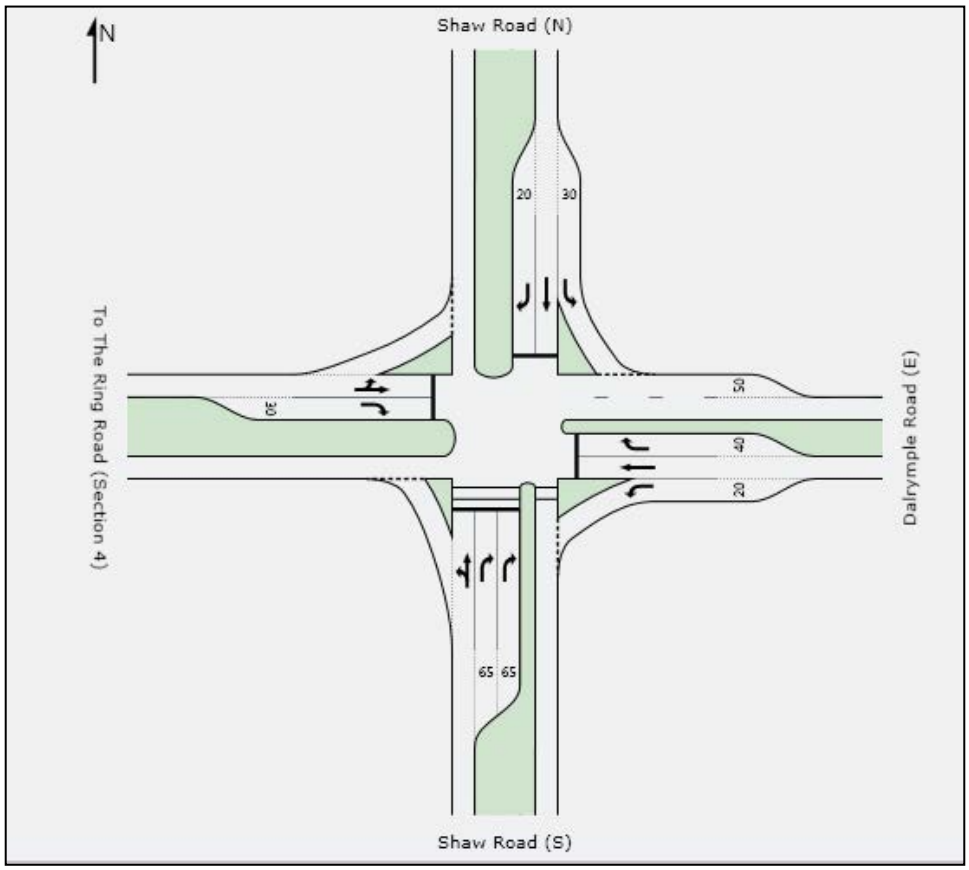


Figure 6.1 2016 Proposed Intersection Layout – Dalrymple Road / Shaw Road / The Ring Road

SIDRA intersection analysis based on the intersection layout shown in Figure 6.1 indicates that duplication of Shaw Road is required to accommodate the 2026 traffic volumes as shown in the Table 6.4.

Table 6.3 SIDRA Summary – 2016 Proposed Layout (No duplication of Shaw Road)

Intersection of Dalrymple Road / Shaw Road	2016 AM Peak				2016 PM Peak			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
Shaw Road (S)	0.71	32.1	LOS C	136.4	0.76	32.4	LOS C	192.9
Dalrymple Road (E)	0.53	27.7	LOS C	31.7	0.75	34.8	LOS C	48.1
Shaw Road North (N)	0.71	27.1	LOS C	116.3	0.59	26.0	LOS C	114.7
To The Ring Road (W)	0.56	37.2	LOS D	61.0	0.61	43.4	LOS D	65.0

Table 6.4 SIDRA Summary – 2026 Proposed Layout (No duplication of Shaw Road)

Intersection of Dalrymple Road / Shaw Road	2026 AM Peak				2026 PM Peak			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
Shaw Road (S)	1.00	79.9	LOS E	520.9	1.00	53.4	LOS D	504.6
Dalrymple Road (E)	1.00	50.5	LOS D	109.6	1.10	115.7	LOS F	329.5
Shaw Road North (N)	0.85	48.3	LOS D	276.3	0.81	37.2	LOS D	208.0
To The Ring Road (W)	1.00	76.5	LOS E	168.7	1.00	71.8	LOS E	152.1

The proposed intersection layout for 2026 including the duplication of Shaw Road is shown in Figure 6.2 below:

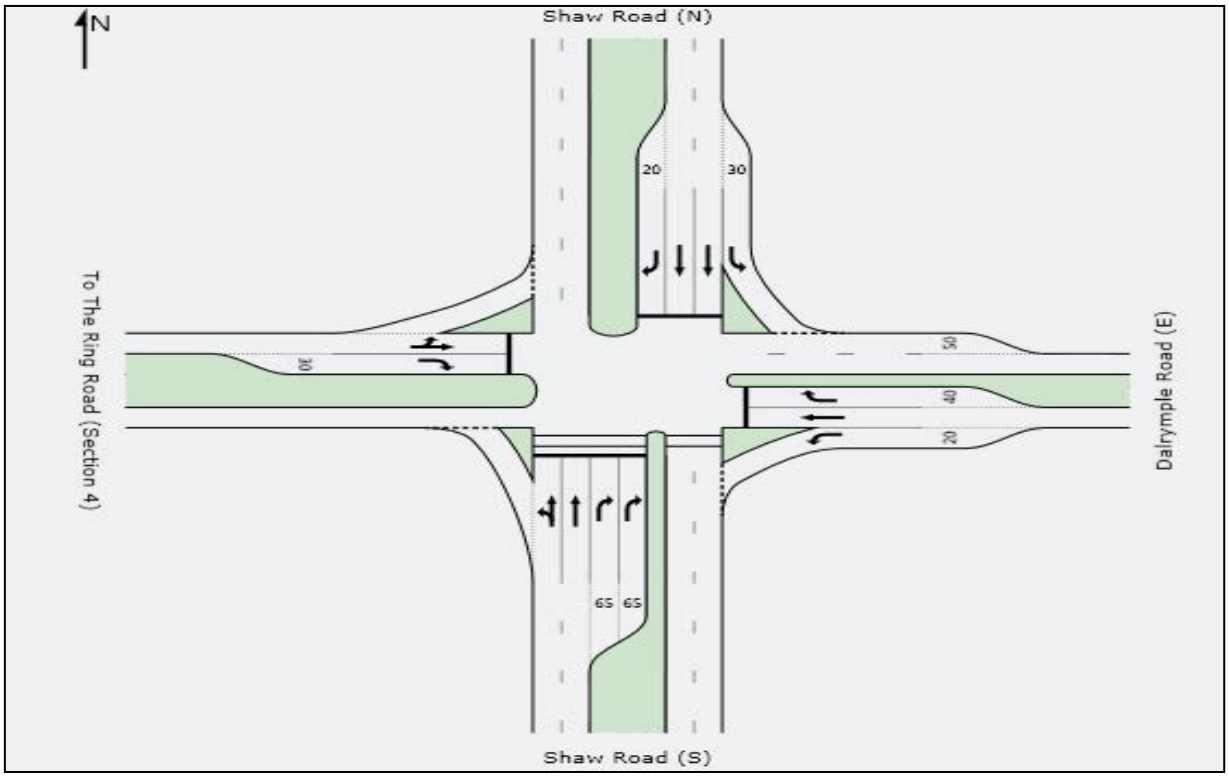


Figure 6.2 2026 Proposed Intersection Layout – Dalrymple Road / Shaw Road / The Ring Road

SIDRA results based on the proposed design layout for 2026 are shown in the table below.

Table 6.5 SIDRA Summary – 2026 Proposed Layout (Duplication of Shaw Road)

Intersection of Dalrymple Road / Shaw Road	2026 AM Peak				2026 PM Peak			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
Shaw Road (S)	0.84	30.0	LOS C	77.5	0.74	26.5	LOS C	95.6
Dalrymple Road (E)	0.69	23.0	LOS C	32.1	0.72	28.2	LOS C	70.4
Shaw Road North (N)	0.84	34.5	LOS C	82.4	0.73	34.0	LOS C	79.6
To The Ring Road (W)	0.53	28.4	LOS C	62.1	0.61	34.4	LOS C	66.5

6.1.2 Dalrymple Road / Greater Ascot Development

The following intersection treatments were investigated using SIDRA Intersection analysis for the proposed intersection on Dalrymple Road servicing Greater Ascot and the Neighbourhood Centre:

- Give-Way;
- Staged Give-Way; and
- Signalised.

The give-way intersection layout used in SIDRA analysis shown in Figure 6.3.

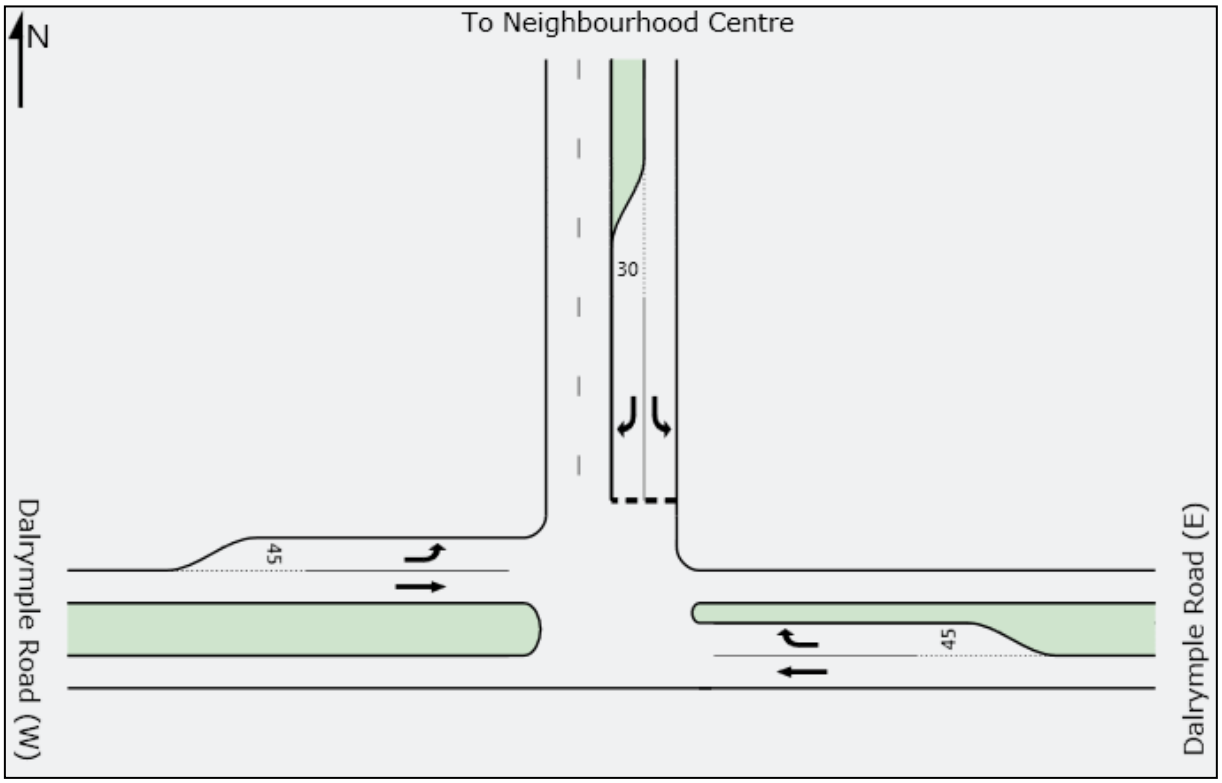


Figure 6.3 2016 Proposed Intersection Layout – Dalrymple Road / To Neighbourhood Centre

The results of the SIDRA analysis indicates that intersection performs with a DoS less than 0.8 in accordance with GARID in 2016 for the AM as can be seen from the results shown in in Table 6.6.

Table 6.6 SIDRA Summary – 2016 Give-Way treatment type

Intersection of Dalrymple Road / Neighbourhood Centre	2016 AM Peak				2016 PM Peak			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
Dalrymple Road (E)	0.138	3.2	LOS	3.7	0.275	4.3	NA	8.5
To Neighbourhood Centre	0.427	22.3	LOS	12.5	1.06	96.0	LOS F	73.6
Dalrymple Road (W)	0.287	1.5	LOS	0.0	0.354	1.6	NA	0.0

Given the above signalisation of the intersection is considered appropriate. The intersection layout shown in Figure 6.2 is proposed with pedestrian crossing facilities provided on the north and east legs of the intersection.

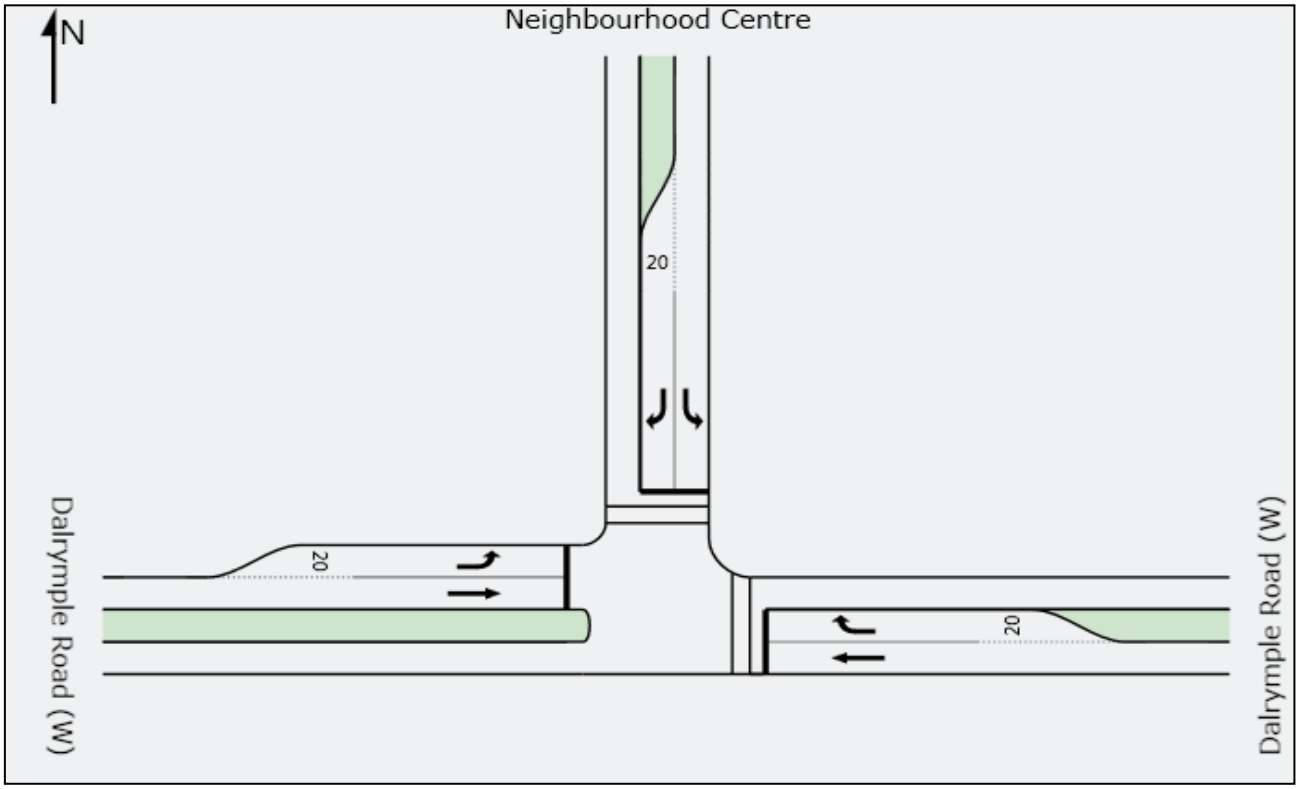


Figure 6.4 Proposed Intersection Layout – Dalrymple Road / Greater Ascot Development

SIDRA results for the signalisation of the intersection are summarised in below.

Table 6.6 SIDRA Summary – 2016 Signalised treatment type

Intersection of Dalrymple Road / Shaw Road	2016 Existing				2016 Existing			
	DoS v/c	Delay (s)	LoS	Q (m)	DoS v/c	Delay (s)	LoS	Q (m)
Dalrymple Road (E)	0.41	14.8	LOS B	27.9	0.64	14.6	LOS B	0.66
To Neighbourhood Centre	0.19	19.0	LOS B	10.6	0.58	25.0	LOS C	0.78
Dalrymple Road (W)	0.77	15.4	LOS B	78.7	0.71	12.1	LOS B	0.76

6.1.3 Neighbourhood Centre / Greater Ascot Internal Road Network

The following intersection treatments were investigated using SIDRA Intersection Analysis for the proposed intersection where the Neighbourhood Centre car park entry / exit forms the west leg of the intersection with Greater Ascot:

- Give-Way; and
- Signalised.

It was determined that both a give-way or signalised intersection treatments would be considered appropriate in accordance with SIDRA movement summaries located in Appendix E based on the proposed layouts shown below. The layout of the give-way and signalised intersection used in the SIDRA analysis is show in Figures 6.5 and 6.6 respectively.

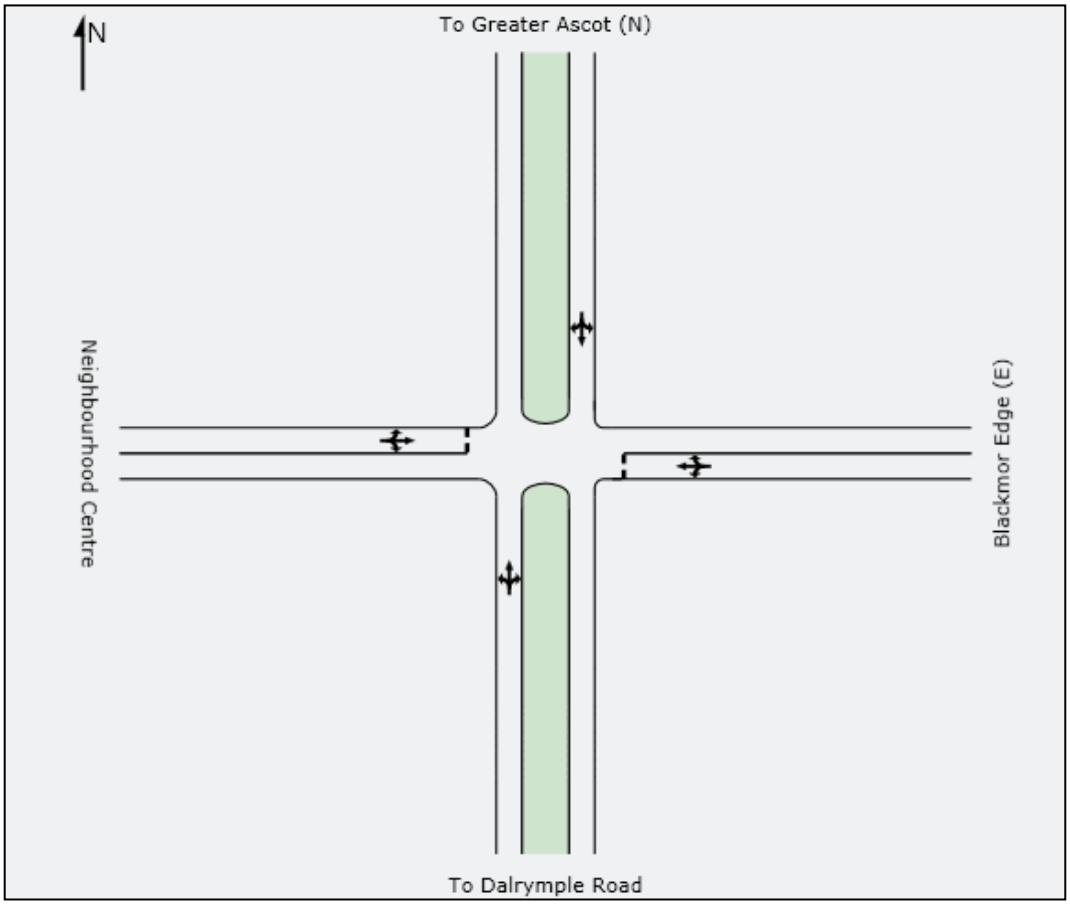


Figure 6.5 Proposed Give-Way Intersection Layout – Neighbourhood Centre / Greater Ascot

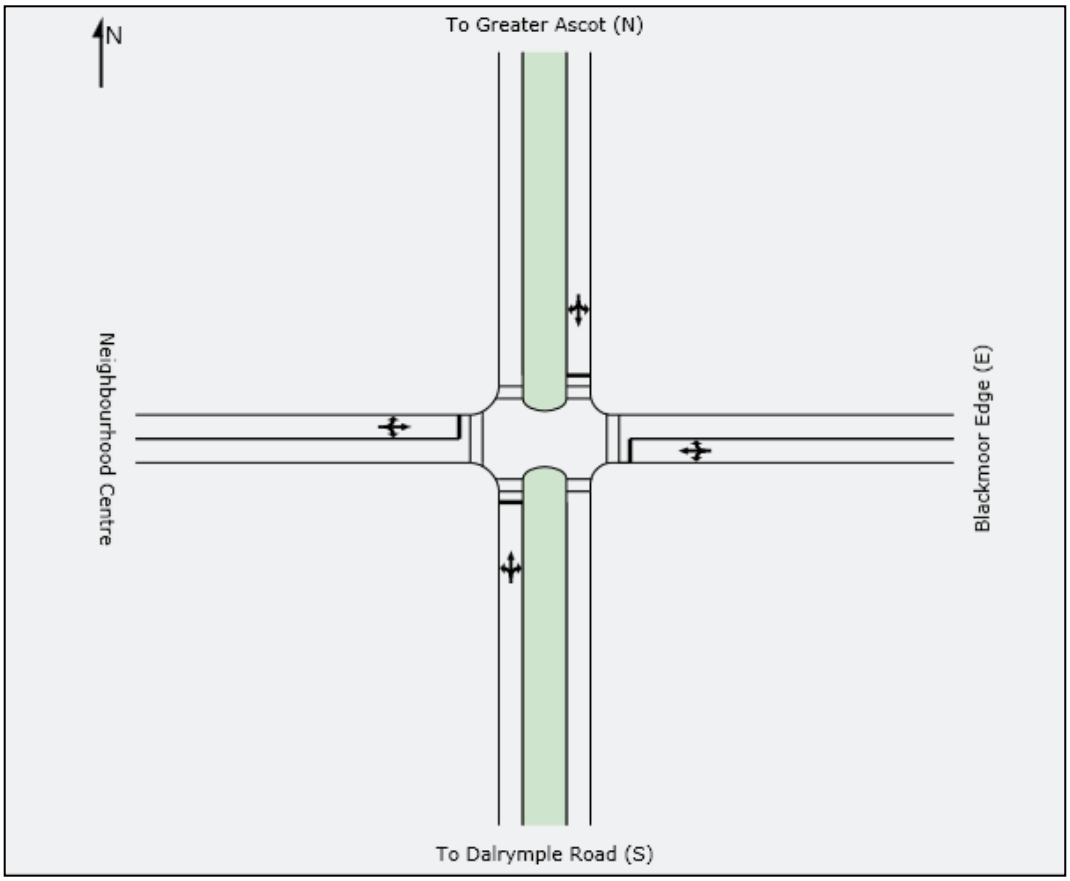


Figure 6.6 Proposed Signalised Intersection Layout – Neighbourhood Centre / Greater Ascot

It should be noted that the traffic volumes used in this analysis for the residential component are based on preliminary assumptions and will be assessed in greater detail as part of the Greater Ascot Northern Sector traffic investigation study to be undertaken by UDPHT.

6.1.4 Neighbourhood Centre Truck Egress / Dalrymple Road

The truck egress from the Neighbourhood Centre eastbound on Dalrymple Road was assessed to determine the capacity of the egress. The egress was modelled in SIDRA using a single give-way slip as shown in Figure 6.7. It was assumed all vehicles from the loading zone are trucks. Bunching of 10% was applied to eastbound traffic on Dalrymple Road taking into account the signalised intersection at Shaw Road.

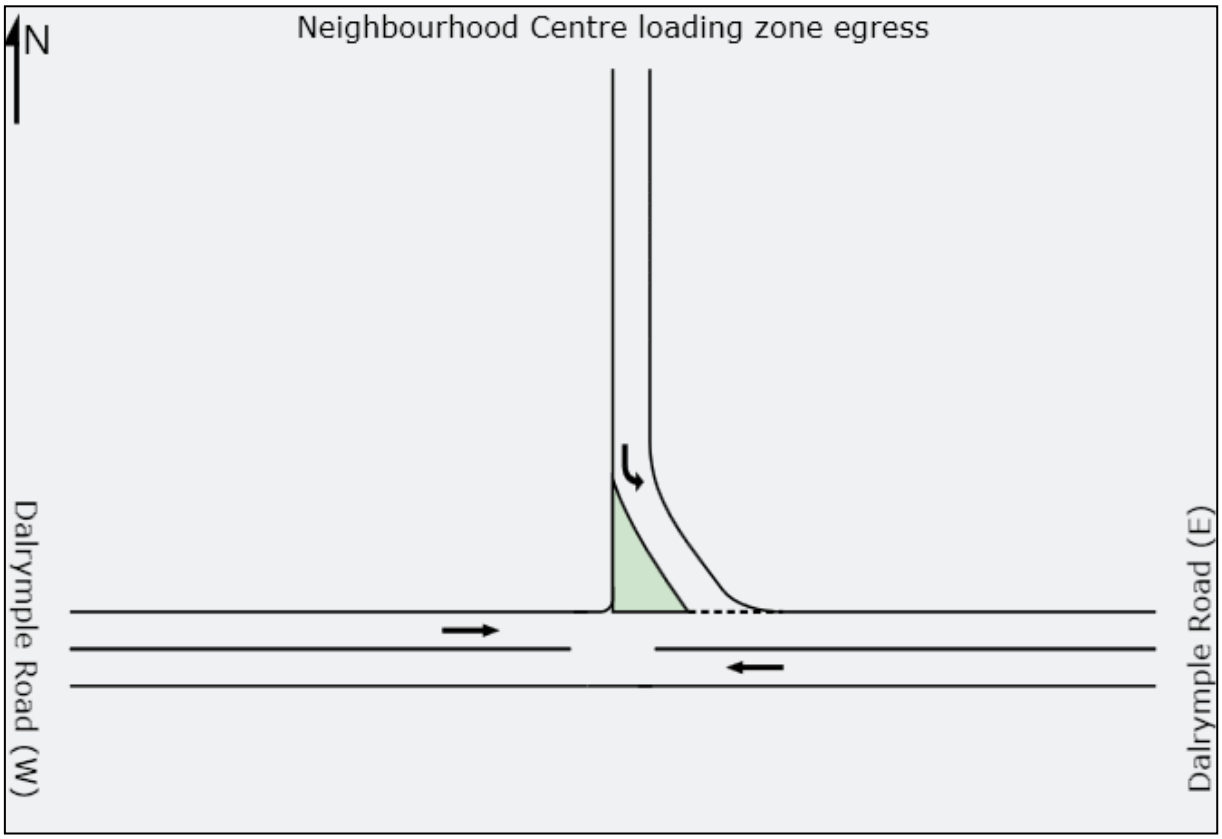


Figure 6.7 Proposed Give-Way Slip – Neighbourhood Centre Loading Zone Egress

It is expected that a supermarket will generally generate one (1) delivery per day however since the loading zone has capacity to accommodate two (2) trucks at any one time, it is conservatively assumed that both these deliveries will occur during the peak

The worst case scenario occurs during the 2026 AM peak when the Dalrymple Road eastbound volumes is highest resulting in an average delay of 41 seconds to trucks exiting the loading zone.

A delay of 41 seconds equates to a level of service E which is lower than that specified as acceptable in GARID however, the 95% back of queue is 0.1 indicating that less than one (1) truck is queued for 95% of the time.

Given the above, level of service E is considered acceptable.

7. SAFETY REVIEW

7.1 Road Network

The road network associated with the Neighbourhood have been reviewed in terms of operation and swept paths, demonstrate the road network can accommodate the appropriate size vehicle.

Proposed intersection layouts have been developed using SIDRA Intersection and analysed in accordance with the minimum operation requirements specified in GARID.

7.2 Pedestrians

The Neighbourhood Centre is expected to generate additional pedestrian volumes within the Greater Ascot development as well as from future residential estates within the immediate vicinity including Libertyrise and Greater Ascot Southern Sector. It is therefore recommended that pedestrian facilities be considered within the design of the signalised intersections proposed.

At the intersection of the Neighbourhood Centre car park entry / exit with Greater Ascot, where traffic volumes permit either a give-way or signalised intersection treatment, pedestrian movements should be considered. The Neighbourhood Centre has the potential to be expanded resulting in further increase in traffic and typically a decrease in opportunity for pedestrians to cross safely at un-signalised intersections. Furthermore, given the location of this intersection and its environs it is considered preferable for this intersection to be signalised.

Pedestrian facilities to encourage safe pedestrian movements between the residential component of Greater Ascot and the Neighbourhood Centre will be developed in accordance with the Masterplan and approved development code to provide connection with the Neighbourhood Centre.

7.3 Cyclists

It is recommended to provide bicycle lanes through each intersection, along Dalrymple Road, and along the main access road to the Neighbourhood Centre to support cycling as a sustainable form of transport. Although on the fringe of development, providing bicycle facilities at an early stage of development will ensure bicycle network connectivity with future bicycle trip attractors including school sporting facilities and employment centres as well as the Neighbourhood Centre as part of this TIA.

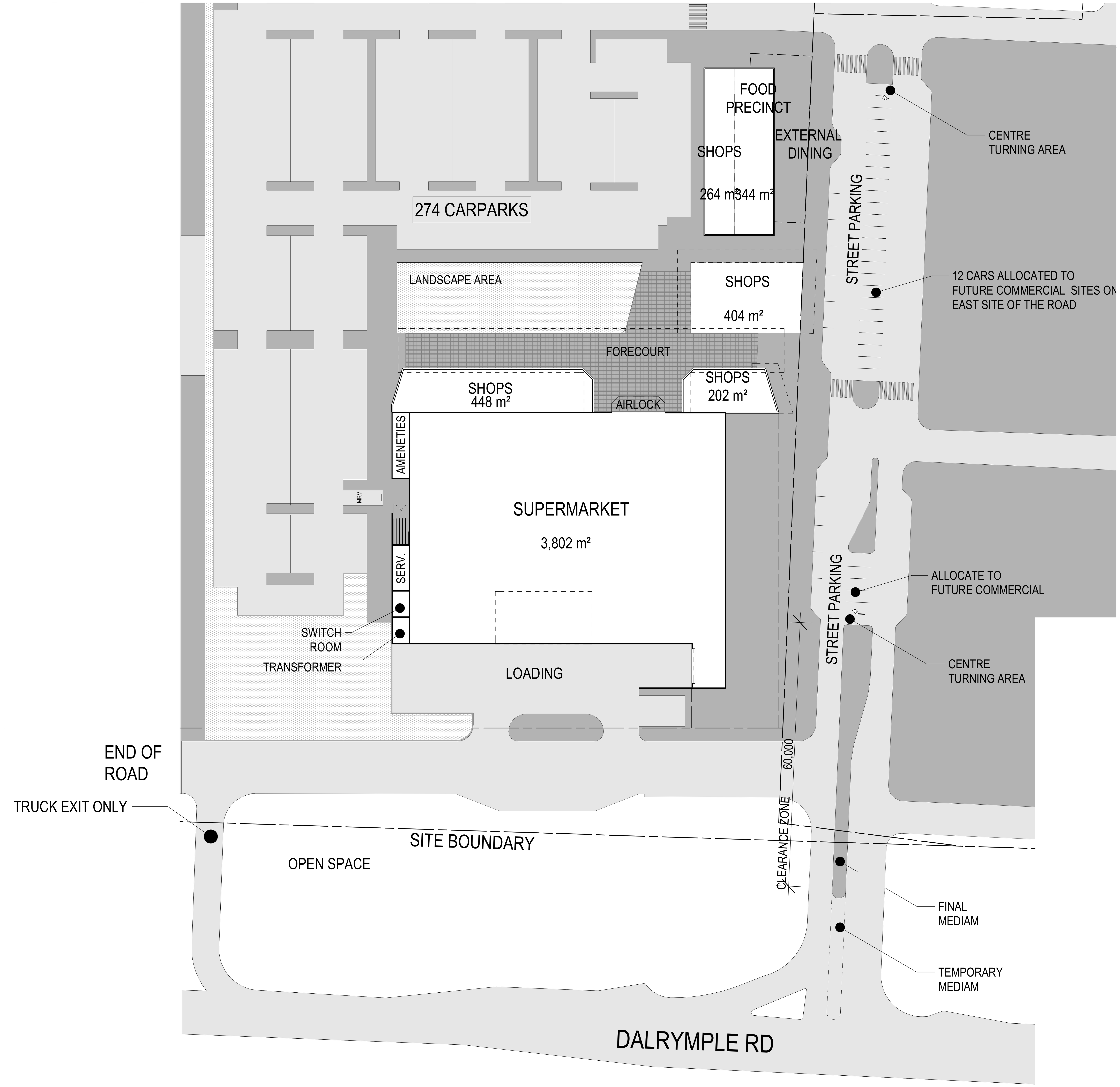
Bicycle facilities to provide a safe network to encourage cycling between the residential component of Greater Ascot and the Neighbourhood Centre will be developed in accordance with the Masterplan and approved development code to provide connection with the Neighbourhood Centre.

8. CONCLUSION

Based on the forgoing analysis it is concluded that:

- The proposed Dalrymple Road / Shaw Road layout is based on a four (4) leg intersection to reflect changes in the road network due to the construction of Section 4 of the Ring Road to be constructed by the Neighbourhood Centre design horizon in 2026;
- Shaw Road will required duplication by the Neighbourhood design horizon in 2026 due to the growth in base traffic volumes in addition to Neighbourhood Centre traffic generation despite the construction of Section 4 of the Ring Road;
- The proposed signalised intersection at Shaw Road and Dalrymple Road has the capacity to include signalised pedestrian crossing on each leg of the intersection;
- The proposed all movements intersection on Dalrymple Road to service the Neighbourhood Centre will require signalisation;
- The proposed intersection on Dalrymple Road to service the Neighbourhood Centre has the capacity to include pedestrian crossing facilities on the eastern and northern leg of the intersection;
- It was determined that proposed all movements intersection where the Neighbourhood Centre car park entry / exit forms the west leg of the intersection with Greater Ascot can function as a give-way where the north-south direction forms the major road or as a signalised intersection including pedestrian crossing facilities on each leg of the intersection;
- It is recommend that the intersection where the Neighbourhood Centre car park entry / exit forms the west legs of the intersection with Greater Ascot is signalised to provide a safe passage for pedestrians in addition to providing additional capacity to expand the Neighbourhood Centre in the future;
- Trucks are expected to experience a delay of 41 seconds using the egress to Dalrymple Road from the loading zone resulting in a level of service E. Level of service E although below that required in accordance with GARID is considered acceptable given that one (1) trip is expected to be generated per day by the supermarket and that the capacity of the loading zone is two (2);
- The location of bus facilities, proposed on the main access road to the Neighbourhood Centre, is considered appropriate to service the Neighbourhood Centre and provides a flexible arrangement through the removal of on-street kerb side parking as required to accommodate expansion of the bus stop facilities in the future;
- Swept paths produced by UDP Consulting Engineers demonstrate the functionality of the proposed road network for the appropriate vehicles; and
- The extent of road network as part of the Neighbourhood Centre was defined to ensure internal network connectivity with the Greater Ascot residential development.

APPENDIX A
MASTERPLANS



DEVELOPMENT SCHEDULE	
TOTAL AREA	= 5464 m2
No OF CARS REQUIRED	= 274 CARS
No OF CARS PROVIDED	= 300 CARS (INCLUDES 23 STREET PARKING)

1 - NEIGHBOURHOOD CENTRE
SCALE 1:500 @ A1
SCALE 1:1000@ A3

0 5 10 15 20 25 30 35 40 45 50 metres

Schematic

GREATER ASCOT NEIGHBOURHOOD CENTRE

Document Set ID: 26515272
Version: 1, Version Date: 18/11/2024

PARKSIDE DEVELOPMENT

N

Issue	Revision	Date	In.
J	AMENDED MASTERPLAN	05.07.12	LM
I	FOR CLIENT REVIEW	26.06.12	LM
H	AMENDED MASTERPLAN (DA DRAFT)	13.06.12	LM
G	AMENDED MASTERPLAN (TRAFFIC)	12.04.26	LM

Amendments

Client
PARKSIDE DEVELOPMENTS

Project Name and Location
GREATER ASCOT NEIGHBOURHOOD CENTRE, THURINGOWA, TOWNSVILLE

Drawing Title
SITE PLAN - NEIGHBOURHOOD CENTRE

Scale	Date	Job no.
As Shown	JUNE 2012	10004067
Drawn	**Checked**	**Approved**
TVR/LM/CW	LM	MC
Drawing no.		**Issue**
SD 1003		J

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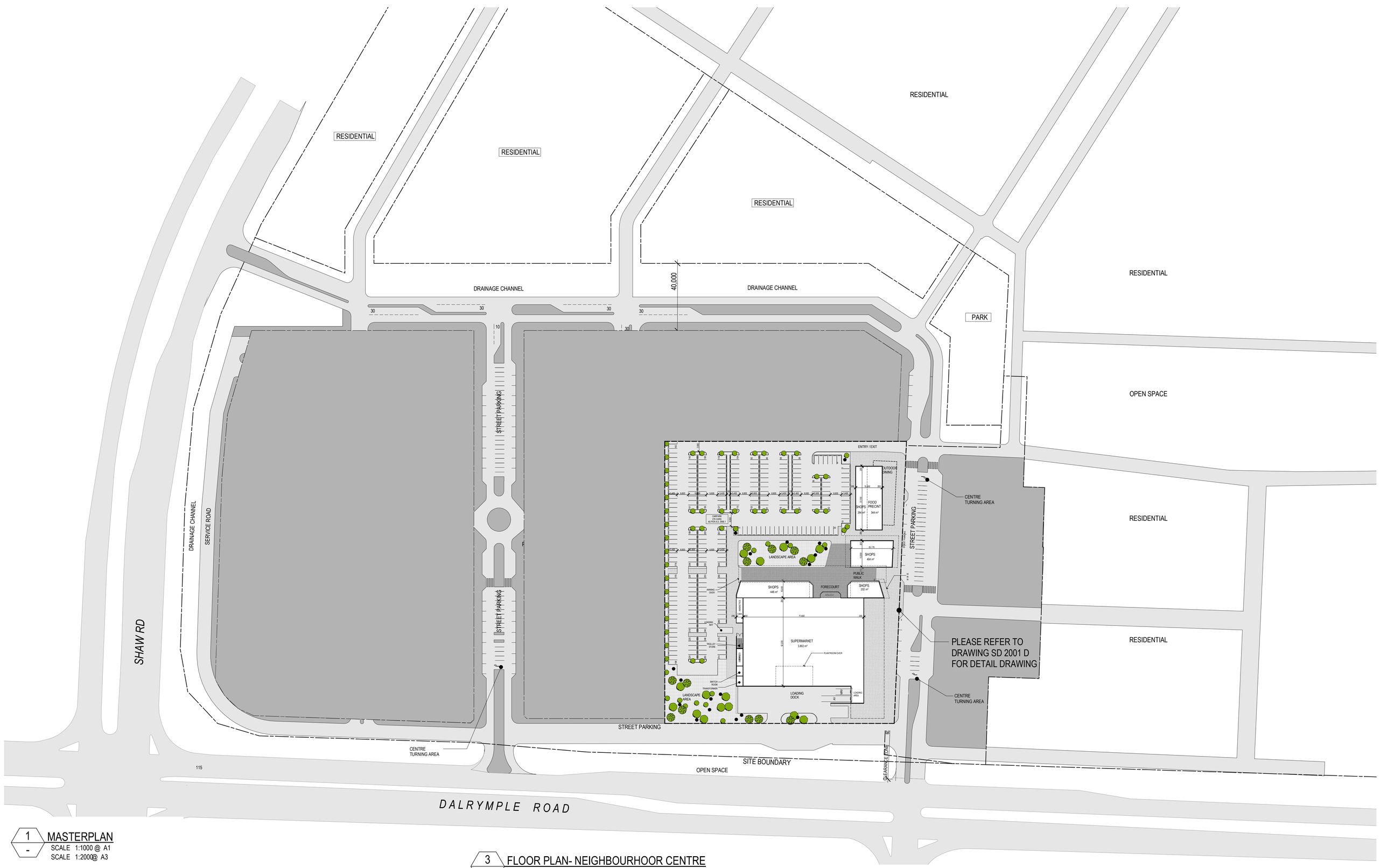

1 / - MASTERPLAN
SCALE 1:1000 @ A1
SCALE 1:2000@ A3

3 / - FLOOR PLAN- NEIGHBOURHOOR CENTRE
SCALE 1:1000 @ A1
SCALE 1:2000@ A3

0 10 20 30 40 50 60 70 80 90 100metres

Schematic

GREATER ASCOT NEIGHBOURHOOD CENTRE

PARKSIDE DEVELOPMENT

N

Issue	Revision	Date	In.
J	AMENDED MASTERPLAN	05.07.12	LM
I	AMENDED MASTERPLAN	05.07.12	LM
H	FOR CLIENT REVIEW	26.06.12	LM
G	AMENDED MASTERPLAN (DA DRAFT)	13.05.12	LM

Amendments

0 10 20 30 40 50 60 70 80 90 100metres

Client
PARKSIDE DEVELOPMENTS

Project Name and Location
GREATER ASCOT NEIGHBOURHOOD CENTRE, THURINGOWA, TOWNSVILLE

Drawing Title
SITE PLAN: MASTERPLAN

Scale	Date	Job no.
As Shown	JUNE 2012	10004067
Drawn	**Checked**	**Approved**
TVR/LM/CW	LM	MC
Drawing no.		**Issue**
SD 1002		J

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