PLANNING PROPOSAL REQUEST

No. 33 Morshead Road, Mount Annan

(Camden Council)

Prepared For:
City Wide LPI
Prepared By:

PPS PASCOE PLANNING SOLUTIONS

Volume 2: Annexures

October 2018

Amended December 2019

This Report has been prepared exclusively for submission to Camden Council as an initial report in the land rezoning process. It is not to be relied upon by any other person/party.

The information contained in this Report has been compiled largely from both principal and secondary information sources and does not purport to be exhaustive. It is, however, considered to be sufficiently rigorous to engender initial Council and community support to advancing a relevant Planning Proposal amendment to the prevailing LEP.

PPS gives no warranty that these information sources are current and accepts no responsibility for any errors or damage or loss, however caused, suffered by any individual or corporation.

Project Author: Graham G. Pascoe J.P. (Registered Planner)
B. Ec (Hons), M. Litt, Grad. Dip. Urb. Reg. Plan, Grad, Dip. Local Govt. Mgt, Assoc. Dip. Bus., (Valuation), Ad. Cert. Prop. Agency; Grad. Dip. Ed. Stud. RPIA, FIAG

Report Compilation Date: October 2018
Amended December 2019

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graham@pascoeplanning.com.au
0431 519 128

Annexures

A: Subject Land Holding (Deposited Plan)
B: Indicative Development Scheme
C: Suite of draft Mapping Amendments to Camden Local Environmental Plan, 2010
D: Overview of State Environmental Planning Policies
E: Overview of Section 9.1 Directions (EP&A Act)
F: Stage 1 – Preliminary Environmental Investigation
G: Ecological Constraints Assessment
H: Traffic Impact Assessment
I: Urban Design Report and Development (Indicative Scheme No. 2) Overview
J: Overview of Past Neighbourhood Consultation
K Miscellaneous Supporting Documents

Annexure “A”

Subject Land Holding (Deposited Plan)

PLAN FORM 2

Plan Drawing only to appear in this space

OFFICE USE ONLY

D. P. 702819

Registered 30-4-1984

S.A.: 3/84 of 17-2-1984

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: U7330-8

Last Plan: D. P. 210326

PLAN OF SUBDIVISION OF LOT 7, D.P. 210326

Reduction Ratio 1:1000

Lengths are in metres

Shire: CAMDEN

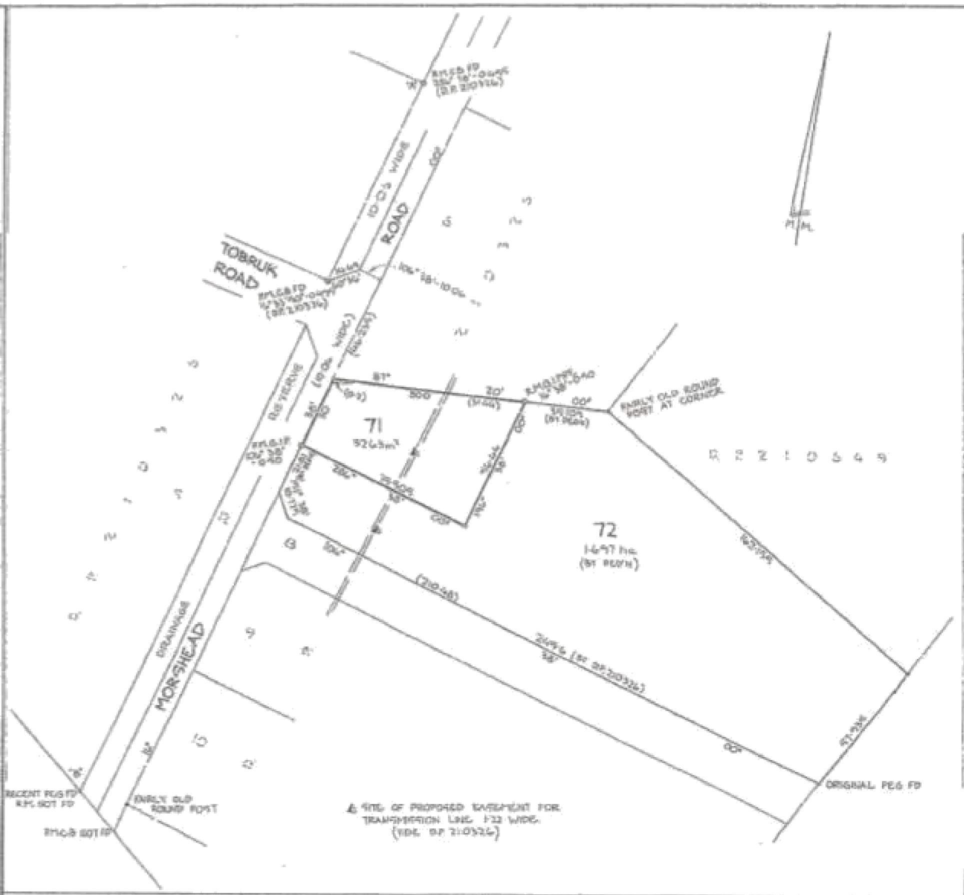
Locality: NARELLAN VALE

Parish: NARELLAN

County: CUMBERLAND

I, JOHN MAX DYER, of ... a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan ... 10th MAY 1983.

Signature: J.M. Dyer



Signatures and seals:

A.K. Pearle

ALLEN CRAWFORD

SIGNED in my presence by the Attorneys for the Mortgagee who are personally known to me.

J. VICKERS

A JUSTICE OF THE PEACE

Council Clerk's Certificate

M.P.D.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

65150

I, Bevan Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

1st May, 1986

D.P. 702819

Annexure “B”

Indicative Development Scheme

Version 1

REZONING APPLICATION AT 33 MORSHEAD ROAD, MOUNT ANNAN NSW 2567

DWG. NO.	DRAWING CONTENTS	REV
A-00	Cover Sheet	C
A-01	Site Plan	C
A-02	Subdivision Plan	C
B-01	Block A - Floor Plans	C
B-02	Block B - Floor Plans	C
B-03	Block C - Floor Plans	C
B-04	Block D - Floor Plans	C
B-05	Block Plan	C
C-01	Block A - Elevations	C
C-02	Block B - Elevations	C
C-03	Block C - Elevations	C
C-04	Block D - Elevations (West & North)	C
C-05	Block D - Elevations (East & South)	C
D-01	3D AERIAL 1	C
D-02	3D AERIAL 2	C
D-03	3D AERIAL 3	C
D-04	3D AERIAL 4	C
D-05	3D PERSPECTIVE 1	C
D-06	3D PERSPECTIVE 2	C
D-07	3D PERSPECTIVE 3	C
E-01	SHADOW PLANS MARCH	C
E-02	SHADOW PLANS JUNE	C
E-03	SHADOW PLANS SEPTEMBER	C
E-04	SHADOW PLANS DECEMBER	C

BJC DESIGN

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(email) info@bjcdesign.com.au
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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

33 MORSHEAD RD, MOUNT ANNAN LOT 71 OP 702319

RODNY GHALIE

COVER SHEET

A-00

C


EASEMENT TO DRAIN WATER 1.5m WIDE (DP 1028892)
MORSHEAD
ROAD
1 SITE PLAN
A-01 SCALE 1:250@A2
BJC DESIGN
SITE PLAN
A-01
C


LOT 9 271m²
LOT 8 261.3m²
LOT 7 298.8m²
LOT 6 250.3m²
LOT 10 288.9m²
LOT 5 250.4m²
LOT 4 250m²
LOT 3 290.7m²
LOT LOT 2 250m²
LOT 1 250.3m²
proposed carriageway min width 6m
SUBDIVISION PLAN
SCALE 1:200
BJC DESIGN
BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
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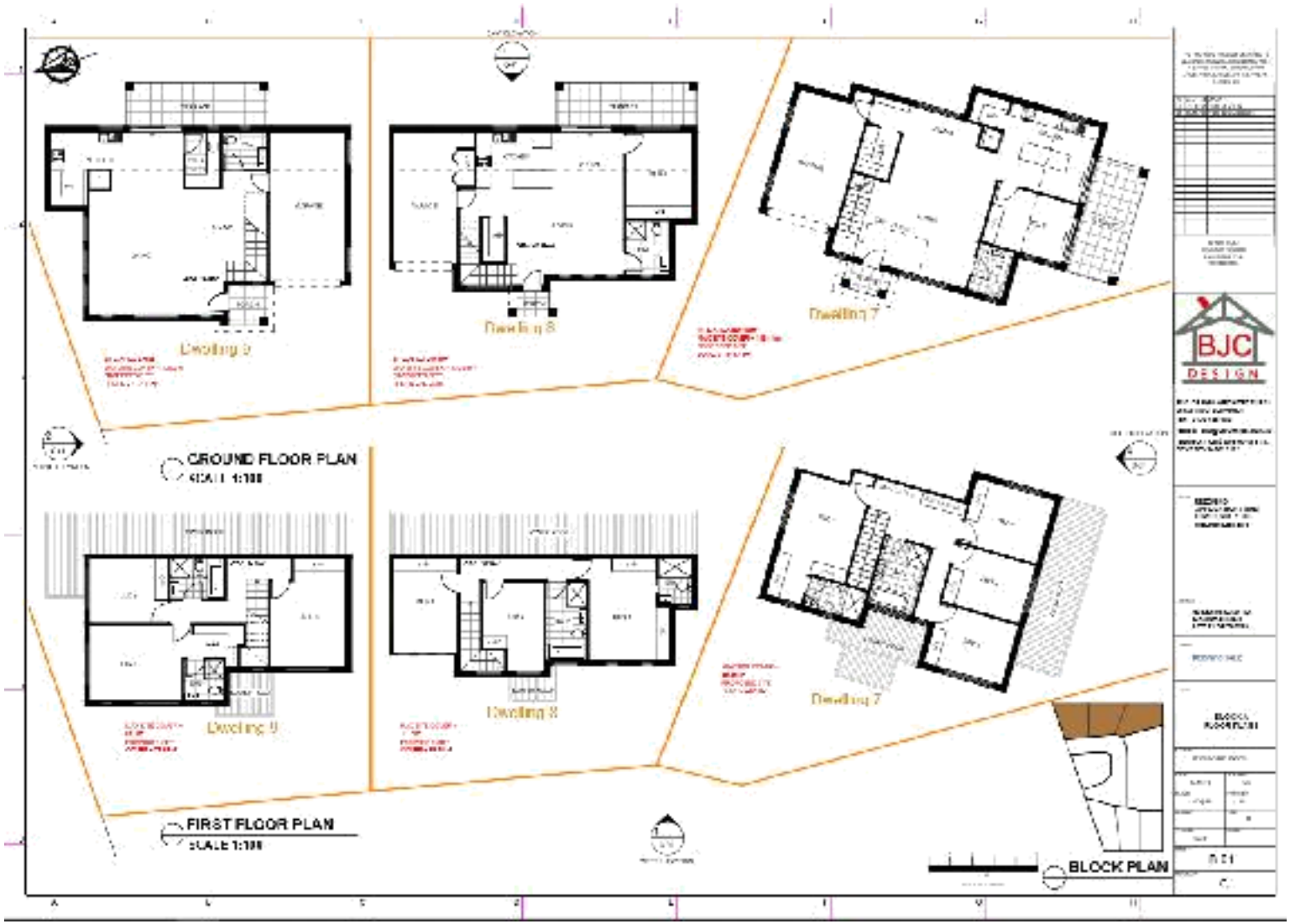
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
22 MOIR SHEAD RD, MOUNT ANNAN LOT 71 DP 702819
RODNY GHALIE
SUBDIVISION PLAN
A-02
C


Dwelling 9
Dwelling 8
Dwelling 7
GROUND FLOOR PLAN
Dwelling 9
Dwelling 8
Dwelling 7
FIRST FLOOR PLAN
BLOCK PLAN
BJC
DESIGN

EAST ELEVATION
NORTH ELEVATION
WEST ELEVATION
SOUTH ELEVATION
Dwelling 10
GARAGE
WC
STORE
STORAGE
PANTRY
STUDY NOOK
KITCHEN
GF FFL 106.80
GFA 76.4m²
DINING
FAMILY
PORCH
TERRACE
L'DRY
GROUND FLOOR PLAN
SCALE 1:100
Dwelling 10
ENS
BED 1
LOWER ROOF
VOID
BED 2
ROBE
GFA 78.0m²
BATH
BED 3
FIRST FLOOR PLAN
SCALE 1:100
BLOCK PLAN
BJC DESIGN
BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
BLOCK B FLOOR PLANS
B-02
C


GROUND FLOOR PLAN
SCALE 1:100
FIRST FLOOR PLAN
SCALE 1:100
BLOCK PLAN
SOUTH ELEVATION
WEST ELEVATION
EAST ELEVATION
NORTH ELEVATION
Dwelling 4
Dwelling 5
Dwelling 6
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
53 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702819
RODNY GHALIE
BLOCK C FLOOR PLANS
B-03
C


GROUND FLOOR PLAN
SCALE 1:100
FIRST FLOOR PLAN
SCALE 1:100
BLOCK PLAN
Dwelling 3
Dwelling 2
Dwelling 1
TERRACE
LIVING
KITCHEN
DINING
BEDROOM
GARAGE
ENTRY
PORCH
LAUNDRY
BATH
LOWER ROOF
BED 1
BED 2
BED 3
ROBE
MASTER
WIR
EAST ELEVATION
SOUTH ELEVATION
NORTH ELEVATION
WEST ELEVATION
BLOCK D
BJC DESIGN
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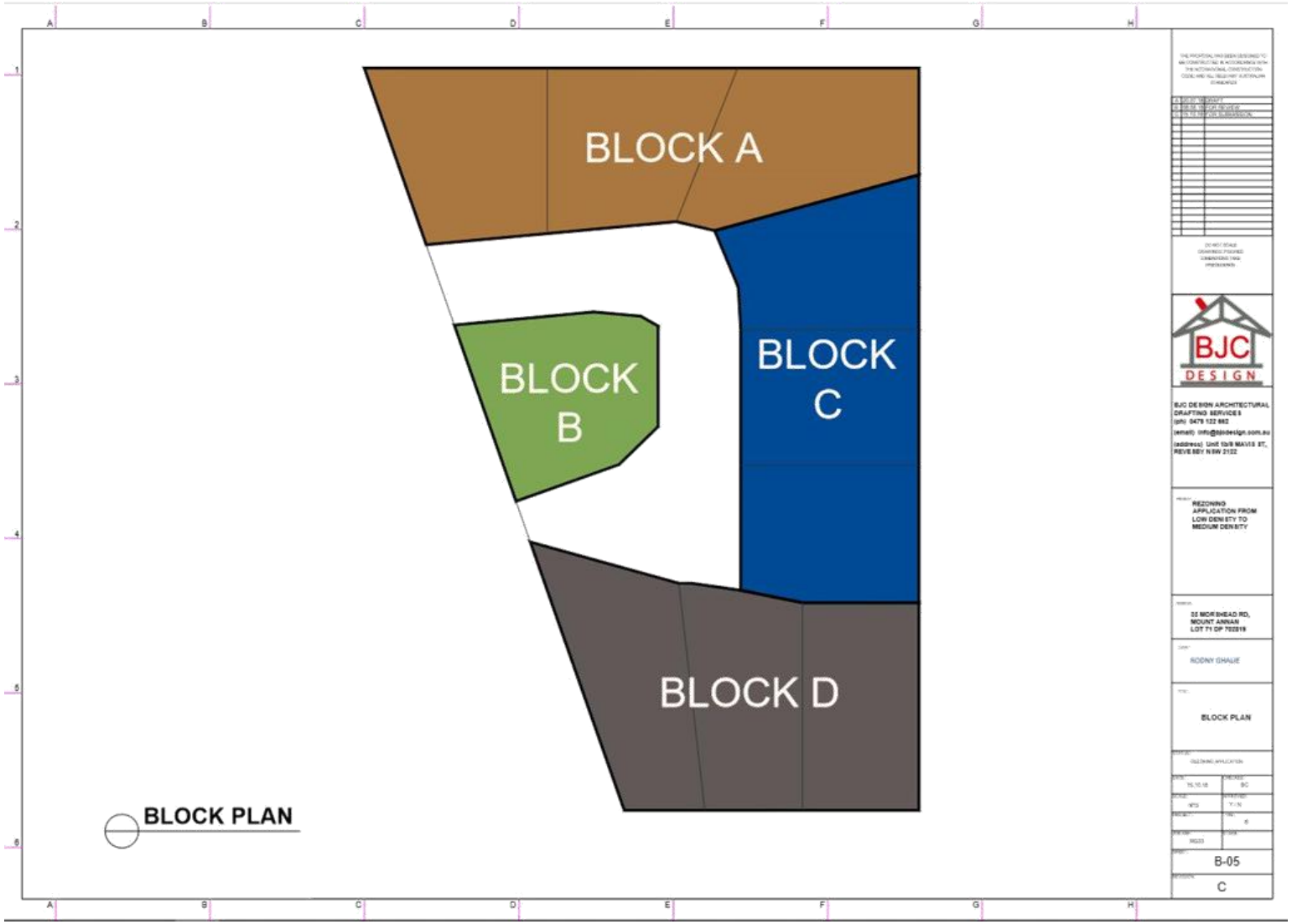
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
55 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 702019
RODNY GHALE
BLOCK D FLOOR PLANS
B-04
C


BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK PLAN
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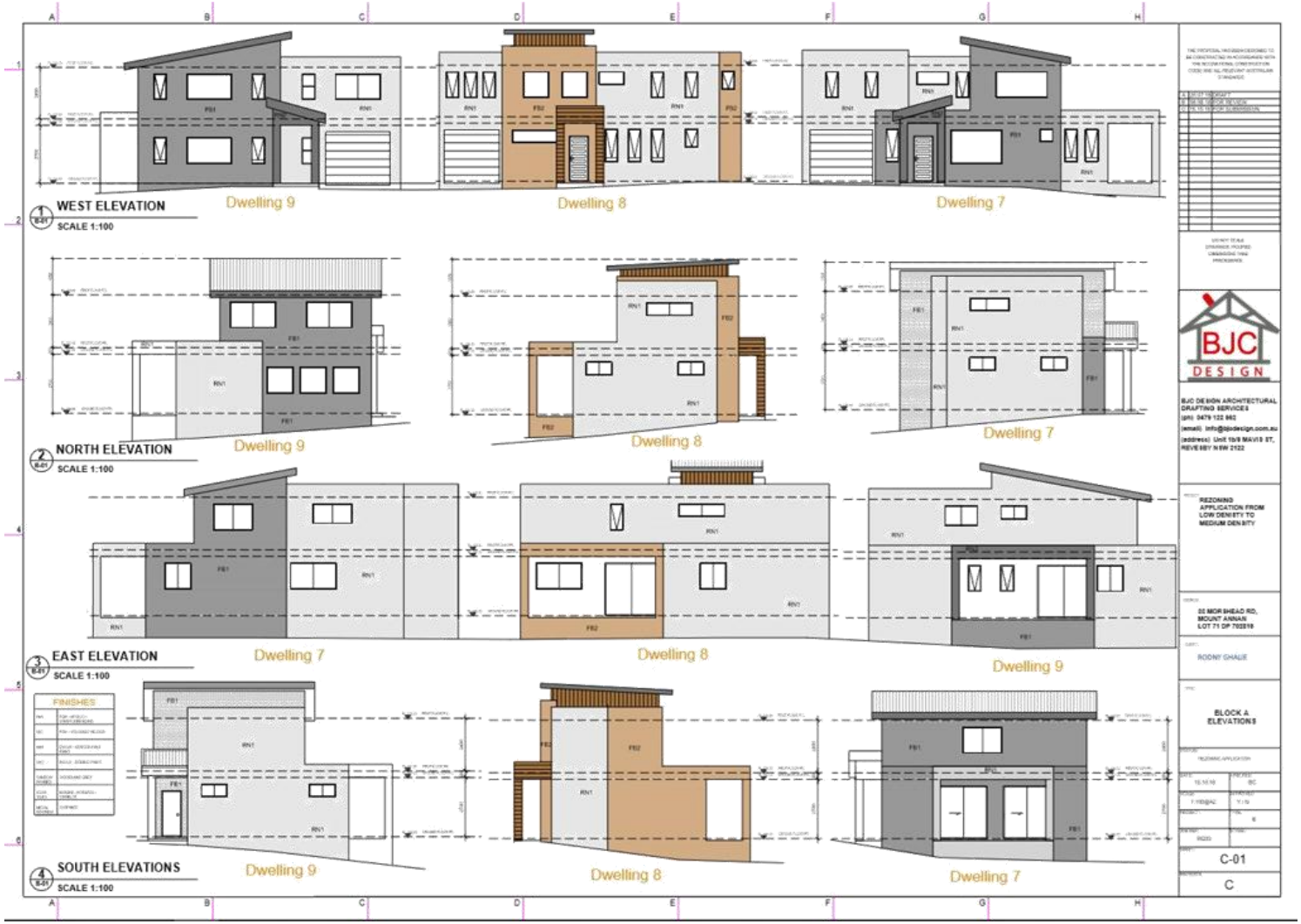
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
32 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702819
RODNY GHALIE
BLOCK PLAN
B-05
C


WEST ELEVATION
SCALE 1:100
Dwelling 9
Dwelling 8
Dwelling 7
NORTH ELEVATION
SCALE 1:100
Dwelling 9
Dwelling 8
Dwelling 7
EAST ELEVATION
SCALE 1:100
Dwelling 7
Dwelling 8
Dwelling 9
SOUTH ELEVATIONS
SCALE 1:100
Dwelling 9
Dwelling 8
Dwelling 7
FINISHES
BJC DESIGN
BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
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(email): info@bjcdesign.com.au
(address): Unit 19/8 MAVIS ST, REVESBY NSW 2212
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
55 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 702819
RODNY GHALIE
BLOCK A ELEVATIONS
C-01
C

1 WEST ELEVATION
SCALE 1:100

2 NORTH ELEVATION
SCALE 1:100

3 EAST ELEVATION
SCALE 1:100

4 SOUTH ELEVATIONS
SCALE 1:100

FINISHES

FB1	PGH - APOLLO - STRETCHER BOND
FB2	PGH - VOLCANIC VELOUR
RN1	DULUX - LEXICON HALF PAINT
RN2	DULUX - DOMINO PAINT
WINDOW FRAMES	WOODLAND GREY
ROOF TILES	MONIER - HORIZON - CAMELOT
METAL ROOFING	SURFMIST

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PROJECT: REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

ADDRESS: 33 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702219

CLIENT: RODNY GHALIE

TITLE: BLOCK B ELEVATIONS

STATUS: REZONING APPLICATION

DATE: 15.10.18

SCALE: 1:100@A2

SHEET: C-02

REVISION: C


WEST ELEVATION
SCALE 1:100
UNIT 6
UNIT 5
UNIT 4
NORTH ELEVATION
SCALE 1:100
UNIT 6
UNIT 5
UNIT 4
EAST ELEVATION
SCALE 1:100
UNIT 4
UNIT 5
UNIT 6
SOUTH ELEVATIONS
SCALE 1:100
FINISHES
UNIT 4
UNIT 5
UNIT 6
BJC DESIGN
BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
55 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 792016
RODNY GHALIE
BLOCK C ELEVATIONS
C-03
C


UNIT 3
UNIT 2
UNIT 1
WEST ELEVATION
SCALE 1:100
UNIT 3
NORTH ELEVATION
SCALE 1:100
FINISHES
UNIT 2
UNIT 1
NORTH ELEVATION
SCALE 1:100
BJC
DESIGN
BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
BLOCK D
WEST & NORTH ELEVATIONS
C-04
C


EAST ELEVATION
SCALE 1:100
UNIT 1
UNIT 2
UNIT 3
SOUTH ELEVATIONS
SCALE 1:100
UNIT 1
SOUTH ELEVATIONS
SCALE 1:100
UNIT 2
UNIT 3
FINISHES
FB1
FB2
RN1
A 03.07.19 DRAFT
C 15.10.19 FOR SUBMISSION
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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY
55 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 752018
RODNY GHALIE
BLOCK D EAST & SOUTH ELEVATIONS
REZONING APPLICATION
15.10.19
BC
1:100@A2
C-05
C

AERIAL 01

3D AERIAL 1

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

55 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 792819

RODNY GHALIE

3D AERIAL 1

REZONING APPLICATION

D-01

C

AERIAL 02

3D AERIAL 2

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

53 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 792218

RODNY GHALIE

3D AERIAL 2

REZONING APPLICATION

15.10.19 | BC
HPS | Y / N

D-02

C

AERIAL 03

3D AERIAL 3

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

53 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 792019

RODNY GHALE

3D AERIAL 3

REZONING APPLICATION

15.10.19 | DC

NTS | Y / N

RG35

D-03

C

AERIAL 04

3D AERIAL 4

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

33 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 792819

RODNY GHALIE

3D AERIAL 4

REZONING APPLICATION

15.10.19 | BG

NTS | Y/N

D-04

C

PERSPECTIVE 01

3D PERSPECTIVE 1

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

52 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702319

RODNY GHALIE

3D PERSPECTIVE 1

D-05

C

PERSPECTIVE 02

3D PERSPECTIVE 2

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

55 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 792819

ROONY GHALIE

3D PERSPECTIVE 2

D-06

C

PERSPECTIVE 03

3D PERSPECTIVE 3

BJC DESIGN

BJC DESIGN ARCHITECTURAL DRAFTING SERVICES

REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

55 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702518

RODNY GHALIE

3D PERSPECTIVE 3

D-07

C

9 am

12 pm

3 pm

SHADOW PLANS MARCH

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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

55 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 702819

RODNY GHALIE

SHADOW PLANS MARCH

REZONING APPLICATION

E-01

C

9 am

12 pm

3 pm

SHADOW PLANS JUNE

BJC DESIGN

BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

33 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 702019

RODNY GHALIE

SHADOW PLANS JUNE

REZONING APPLICATION

15.10.19	BC
NTS	Y / N
	B
8020	

E-02

C

9 am

12 pm

3 pm

SHADOW PLANS SEPTEMBER

BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
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(email) info@bjcdesign.com.au
(address) Unit 19/9 MAVIS ST, REVESBY N SW 2122

REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

55 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 792819

RODNY GHALIE

SHADOW PLANS SEPTEMBER

REZONING APPLICATION

15.10.18 | SC

NTS | Y / N

A

19203

E-03

C

9 am

12 pm

3 pm

SHADOW PLANS DECEMBER

BJC DESIGN

BJC DESIGN ARCHITECTURAL DRAFTING SERVICES
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REZONING APPLICATION FROM LOW DENSITY TO MEDIUM DENSITY

33 MORSHEAD RD, MOUNT ANNAN
LOT 71 DP 702519

RODNY GHALIE

SHADOW PLANS DECEMBER

REZONING APPLICATION

16.10.18 | BC

NTS | Y / N

E-04

C

Version 2

6.2 Indicative Concept Plan

6.2.1 Envelope Plan

Figure 16 illustrates an indicative concept for the site showing:

- 10 proposed lots, each comprising a two storey residential dwelling. A detailed breakdown of each lot is shown in **Table 1** below:

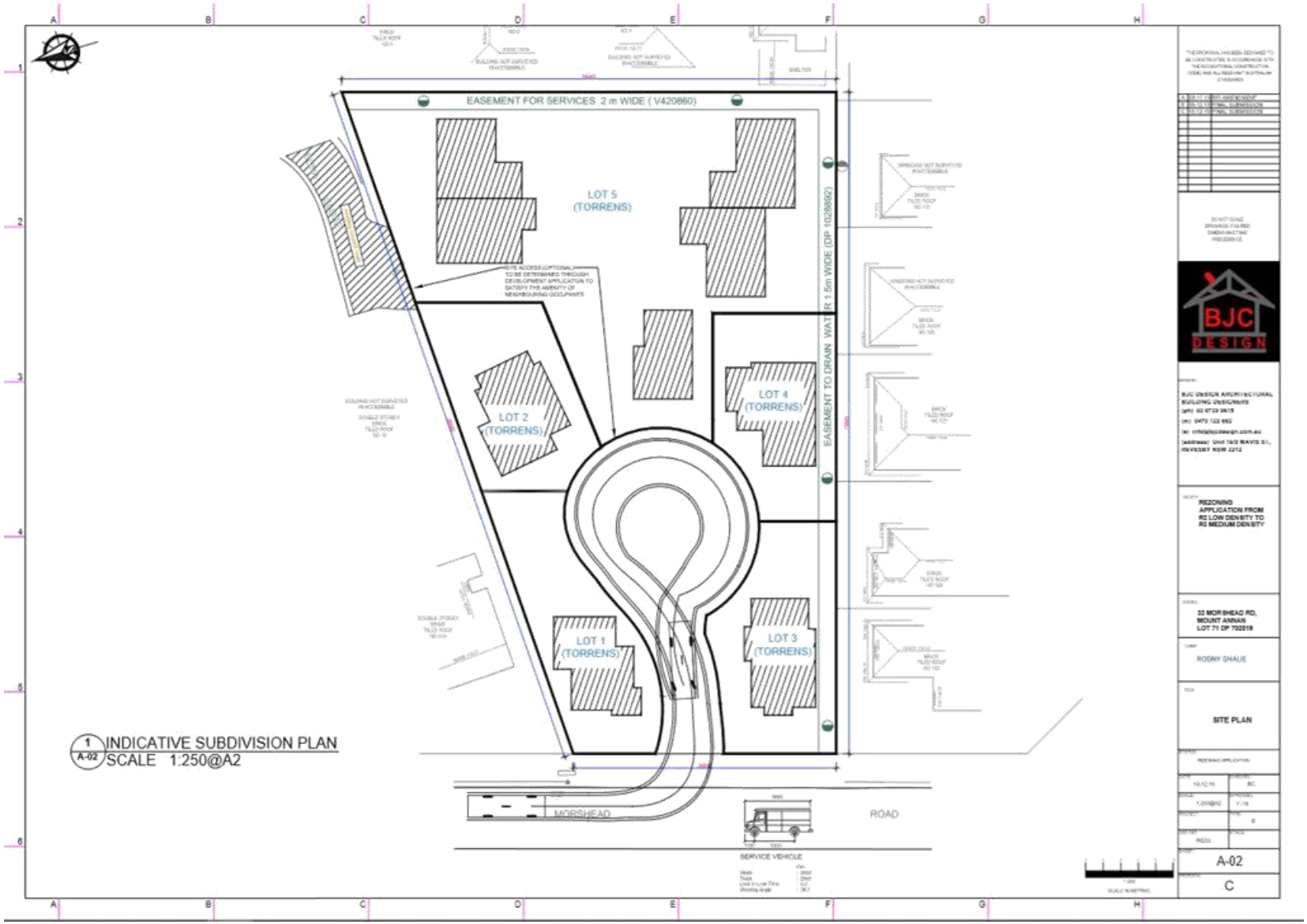
Table 1 Proposed Lot Areas.

Lot Number	Area (m²)
1	254
2	254
3	311
4	380
5	287
6	252
7	252
8	309
9	273
10	270

- Vehicular access off:
  - Morshead Road for Lot 1 to Lot 3;
  - Buna Close for Lot 9; and
  - Proposed extension of Buna Close to be dedicated to Council for remaining 6 lots.
- Grass verge;
- 2 on-street visitor car parking;
- Capacity for 4 new street trees within the site to for offset loss of existing vegetation on the site for proposed development
- Potential for 4 new street trees to be planted along the road verge along Morshead Road.
- Developable area consistent with DCP setbacks shown in a dashed red line;
- Minimum private open space consistent with DCP requirements; and
- Indicative driveway access into lots.

Figure 16. Proposed Setback Envelopes

Version 3



1 A-02 INDICATIVE SUBDIVISION PLAN
SCALE 1:250@A2

Overview of "Evolution" of Indicative Development Scheme

Version 1

Endeavour to:

- Optimise Torrens title lot yield consistent with prevailing adjoining 250sq.m minimum lot standard.
- Minimise number of road intersections on Morshead Road within close proximity
- Leverage off Buna Close infrastructure
- Respect adjoining Morshead Road development
- Respect prevailing character and density generally

Version 2 (Subject of specialist A.E Design Urban Design Analysis – Refer to Annexure "I")

Endeavour to:

- Optimise Torrens title lot yield consistent with prevailing adjoining 250sq.m minimum lot standard.
- Minimise impact of on-site road and turning manoeuvres.
- Leverage off Buna Close infrastructure
- More fully respect adjoining Morshead Road development
- Optimise compatibility with existing character generally
- Optimise utility of private open space, including solar access
- Reflect desired future character

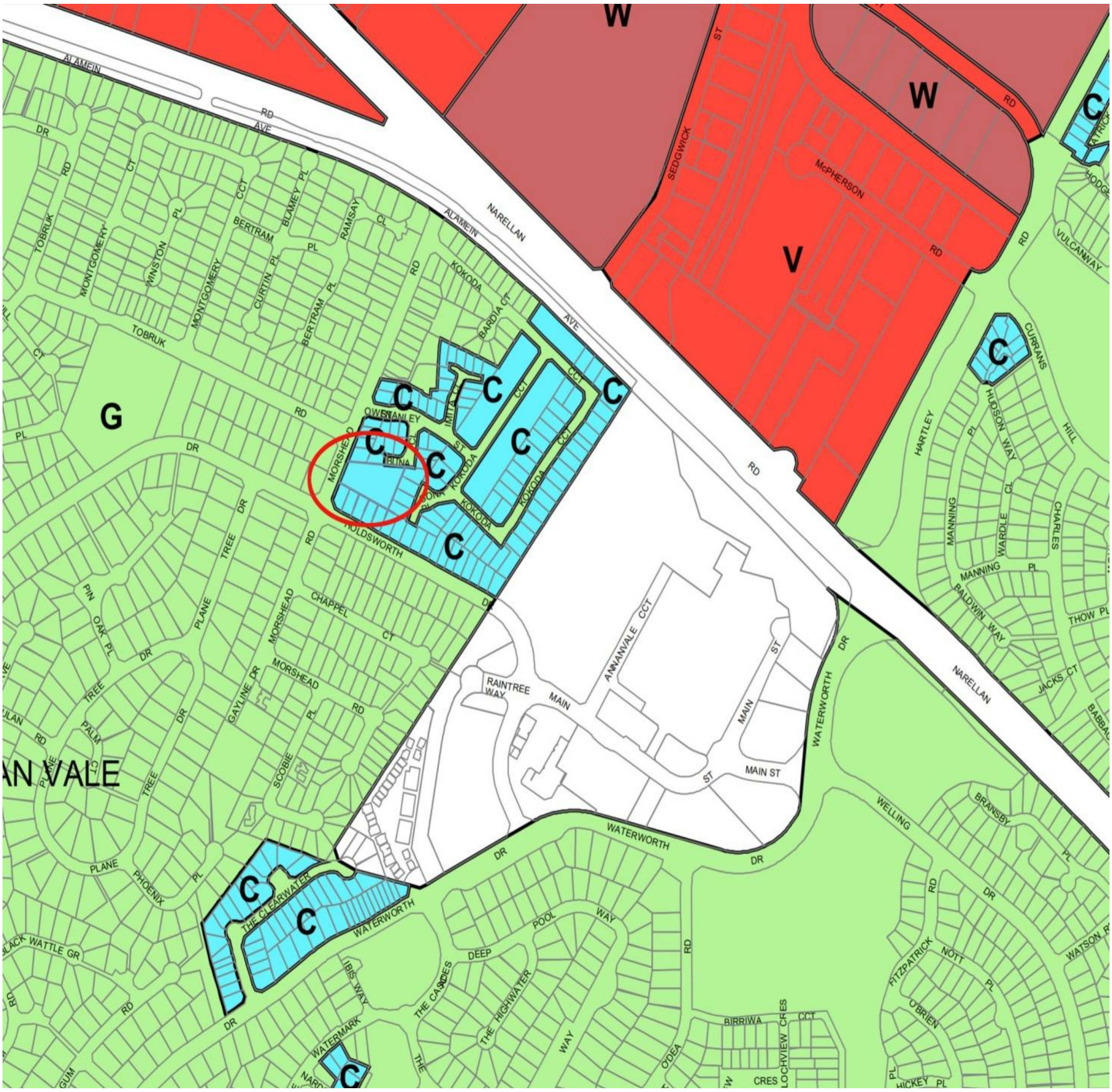
Version 3 (Response to Council design prompts)

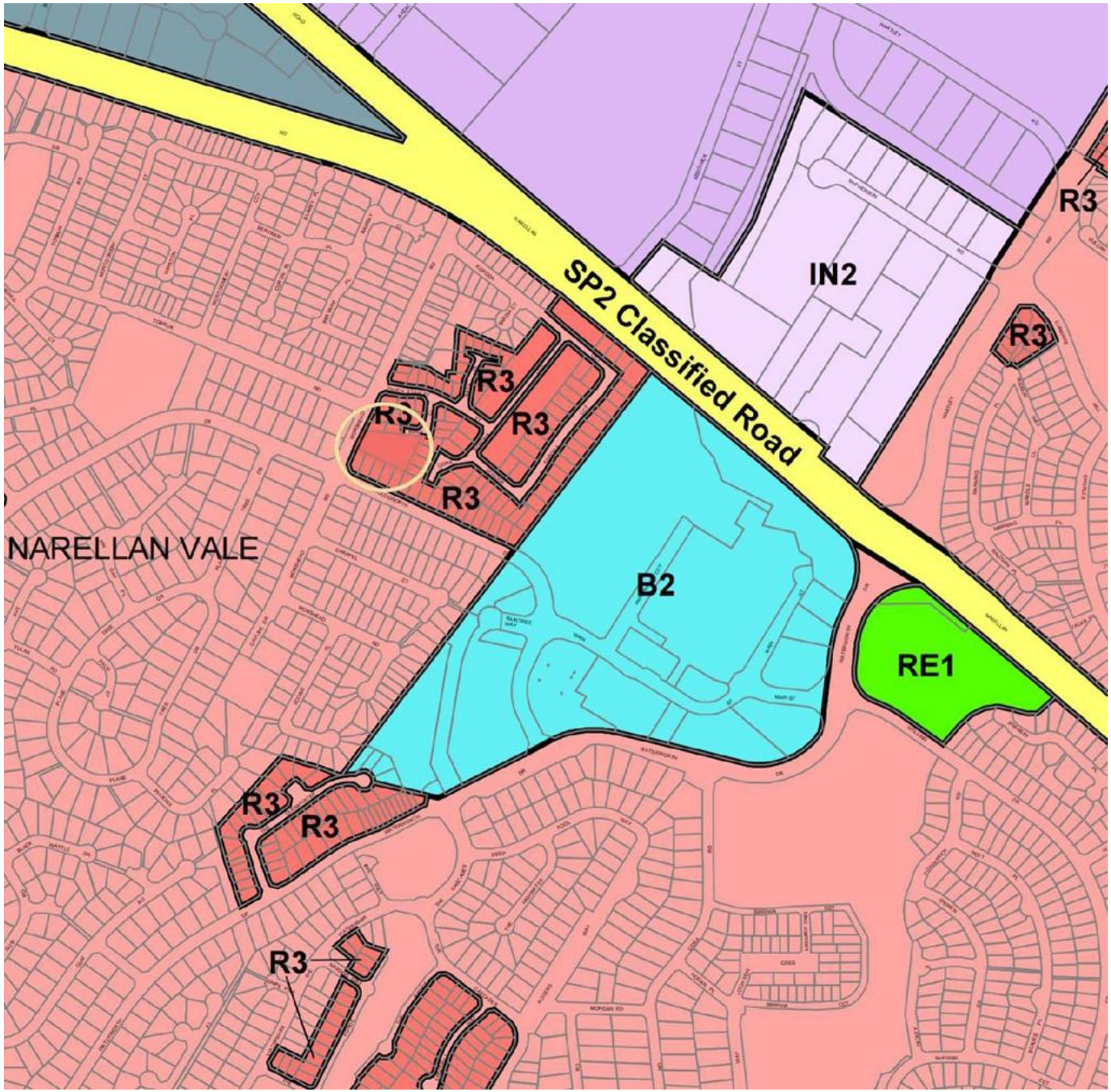
Endeavour to:

- Minimise vehicle movements in Buna Close
- Optimise on-site waste management/servicing
- Ensure minimum lot size of 250sq.m is achieved
- Increase diversity of housing form (small lot Torrens Title and multi-dwelling potential Strata Title)
- More accurately reflect desired future character
- Potentially more fully respond to limited neighbour concerns

Annexure “C”

Suite of Draft Mapping Amendments to Camden Local Environmental Plan, 2010


W
W
V
G
C
C
C
C
C
C
C
C
C
C
C
AN VALE
NARELLAN RD
ALAMEIN AVE
SEDGWICK ST
McPHERSON RD
TOBRUK RD
MONTGOMERY CCT
WINSTON PL
BERTRAM
CURTIN PL
BLAMEY PL
RAMSAY CL
KOKODA
BARDIA CT
OWEN
STANLEY
MORSHEAD DR
HOLDSWORTH DR
CHAPPEL CT
MORSHEAD RD
GAYLINE DR
SCOOBIE PL
PLANE TREE DR
PIN OAK PL
PALM TREE DR
PHOENIX PL
THE CLEARWATER
WATERWORTH DR
BLACK WATTLE GR
IBIS WAY
WATERMARK
DEEP POOL WAY
THE HIGHWATER WAY
ODEA
BIRRIWA CRES
LOCHVIEW CRES
CCT
ANNANVALE CCT
RAINTREE WAY
MAIN ST
WELLING DR
BRANSBY PL
FITZPATRICK RD
NOTT PL
O'BRIEN
HICKEY PL
WATSON RD
HARTLEY HILL
HUDSON WAY
MANNING
WARDLE CL
CHARLES
MANNING PL
BALDWIN WAY
THOW PL
JACKS CT
CURRANS
VULCAN WAY
HODGE


SP2 Classified Road
IN2
R3
R3
R3
R3
R3
R3
R3
R3
R3
NARELLAN VALE
B2
RE1

Annexure “D”

Overview of State
Environmental Planning Policies

Note

The following State Environmental Planning Policies have been deleted in response to a Property Report generated from the NSW Government planning portal and analogous Planning Proposals recently prepared by Camden Council.

SEPP No. 4 – Development Without Consent and Miscellaneous

Complying Development SEPP No. 6 – Number of Storeys in a Building

SEPP No. 22 – Shops and Commercial Premises

SEPP No. 30 – Intensive Agriculture

SEPP No. 47 – Moore Park Showground

SEPP No. 52 – Farm Dams and other Works in Land and Water

Management Plan Areas SEPP No. 59 – Central Western Sydney Economic

and Employment Area SEPP No. 60 – Exempt and Complying Development

SEPP No. 62 – Sustainable Aquaculture

SEPP No. 71 Coastal Protection

SEPP (Kurnell Peninsula) 1989

SEPP Sydney Region Growth Centres, 2006

SEPP Temporary Structure and Places of Public

Entertainment SEPP Kosciuszko National Park –

Alpine Resorts, 2007 SEPP Rural Lands, 2008

SEPP Western Sydney Parklands

SEPP Western Sydney Employment Lands, 2009

SEPP Sydney Drinking Water Catchment, 2011

SREP Drinking Water Catchments No. 1

State Environmental Planning Policies (SEPPs)	Consistency	Comments
SEPP No 1 Development Standards	N/A	CLEP 2010 is a Standard Instrument Local Environmental Plan. It incorporates Clause 4.6 Exceptions to Development Standards, which negates the need for consistency with SEPP 1.
SEPP No. 14 - Coastal Wetlands	N/A	Not applicable in the Camden LGA.
SEPP No. 19 - Bushland in Urban Areas	N/A	The Vegetation on-site does not constitute urban bushland. Accordingly there is no adverse impact.
SEPP No. 21 - Caravan Parks	N/A	Not applicable to this PPR.
SEPP No. 26 - Littoral Rainforests	N/A	Not applicable in the Camden LGA.
SEPP No. 33 - Hazardous and Offensive Development	N/A	Not applicable to this PPR, given the nature of the land.
SEPP No. 36 - Manufactured Home Estates	N/A	Not applicable to this PPR.
SEPP No. 44 - Koala Habitat Protection	N/A	Not applicable in the Camden LGA.
SEPP No. 50 - Canal Estates	N/A	Not applicable to this PPR.
SEPP No. 55 – Remediation of land	Yes	Phase 1 Contamination Report established risk at the site to be low.

SEPP No. 64 - Advertising and Signage	N/A	Not applicable to this PPR.
SEPP No. 65 - Design Quality of Residential Flat Development	Yes	The PPR does not apply to zones where residential flat buildings are permissible.
SEPP No. 70 - Affordable Housing (Revised Schemes)	Yes	The PPR does not mitigate against the application of the SEPP.
SEPP (Affordable Rental Housing) 2009	Yes	The PPR will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP (Housing for Seniors or People with a Disability)	Yes	The PPR does not contain provisions that will contradict or would hinder a future application for SEPP (HSPD) housing.
SEPP (Building Sustainability Index: BASIX) 2004	Yes	The PPR will not contain provisions that will contradict or would hinder the application of the SEPP. Future development applications for dwellings will need to comply with this policy.
SEPP (Major Development) 2005	N/A	Not applicable to this PPR.
SEPP (Mining, Petroleum Production and Extractive (Industries) 2007	Yes	This Planning Proposal does not contain provisions which would contradict or hinder the application of this SEPP.
SEPP (Infrastructure) 2007	Yes	Certain infrastructure required to service residential development would be permissible in accordance with this SEPP.

SEPP (Exempt and Complying Development Codes) 2008	Yes	The PPR does not contain Provisions that will contradict or would hinder the Application of the SEPP at future stages, post rezoning.
SEPP (Concurrences) 2018	Yes	The PPR does not constrain the application of the Planning Strategy's Concurrence Function.
SEPP (Miscellaneous Consent Provisions) 2007: Land Application	Yes	The application of the Miscellaneous Consent Provisions are not compromised by the PPR.
SEPP (Primary Production and Rural Development) 2019: Land Application	N/A	The PPR does not apply to land deemed to be rural and/or devoted to primary production.
SEPP (Vegetation in Non-Rural Areas) 2017: Subject Land	Yes	Vegetation retention has been adequately addressed in the accompanying ecological report.
SEPP (Educational Establishments and Child Care Facilities) 2017: Land Application	Yes	The PPR does not compromise the application of the SEPP.
Deemed State Environmental Planning Policies (Formerly Regional Environmental Plans)	**Consistency**	**Comments**
SREP No.9 - Extractive Industry (No 2)	N/A	Not applicable to this PPR.
SREP No.20 - Hawkesbury-Nepean River (No 2 1997)	Yes	The general planning considerations and specific planning policies and strategies will be observed. Further, the relevant development controls will be addressed in future development.

Annexure “E”

Overview of Section 9.1 Directions (EP&A Act)

Notes

The following Section 9.1 Directions have been deleted from the compliance table due to its revocation.

Direction 5.8 Second Sydney Airport Badgerys Creek.

It is also noted that the following Directions do not apply to the Camden Local Government Area.

3.7 Reduction in non-hosted short-term rental accommodation period

7.3 Paramatta Road Corridor Urban Transformation Strategy

7.4 Implementation of North West Priority Growth Area Land Use and Infrastructure Implementation Plan

7.5 Implementation of Greater Paramatta Priority Growth Area Interim Land Use and Infrastructure Implementation Plan

7.6 Implementation of Wilton Priority Growth Area Interim Land Use and Infrastructure Implementation Plan

7.7 Implementation of Glenfield to Macarthur Urban Renewal Corridor

7.8 Implementation of Western Sydney Aerotropolis Interim Land Use and Infrastructure Implementation Plan

7.9 Implementation of Bayside West Precincts 2036 Plan

7.10 Implementation of Planning Principles for the Cooks Cove Precinct

Ministerial Direction	Applicable to LEP	Consistency of LEP with Direction	Assessment
1. Employment and Resources			
1.1 Business and industrial Zones	No	N/A	N/A
1.2 Rural Zones	No	N/A	N/A
1.3 Mining, Petroleum Production and Extractive Industries	No	Yes	The PPR does not propose the extraction of minerals specified.
1.4 Oyster Production	No	N/A	N/A
1.5 Rural Lands	No	N/A	N/A
2. Environment and Heritage			
2.1 Environmental Protection Zones	Yes	Yes	The site does not comprise environmentally sensitive lands (Refer to Annexure "G").
2.2 Coastal Protection	No	N/A	N/A
2.3 Heritage Conservation	Yes	Yes	The site is not listed or proximate to a heritage item or Conservation Area
2.4 Recreation Vehicle Area (RVA)	No	N/A	The PPR does not propose development of a RVA.
3. Housing, Infrastructure and Urban Development			
3.1 Residential Zones	Yes	Yes	The proposal is entirely consistent in seeking to provide increased housing diversity, leveraging off an optimising use of infrastructure, whilst not impacting adversely environmental and resource lands.
3.2 Caravan Parks and Manufactured Home Estates	Yes	Yes	Caravan Parks are currently precluded in all proposed residential zones. Further, it is intended to prohibit them in the proposed R3 zone.

3.3 Home Occupations	Yes	Yes	"Home occupations" are permissible without consent in all relevant zones.
3.4 Integrating Land Use and transport	Yes	Yes	The PPR seeks to increase the density of residential development in a location with access to reasonable public transport and services./facilities.
3.5 Development Near Licensed Aerodromes	Yes	Yes	The PPR does not compromise the operation of the Camden Airport.
3.6 Shooting Ranges	No	N/A	There are no licensed shooting ranges in the locality.
4. Hazard and Risk			
4.1 Acid Sulphate Soils	No	N/A	Land not known to exhibit acid sulphate qualities. Accordingly, the Direction does not apply.
4.2 Mine Subsidence and Unstable Land	Yes	Yes	The land is in the South Campbelltown Subsidence District and can be readily developed in accordance with standard subsidence parameters.
4.3 Flood Prone Land	Yes	Yes	The lands are not designated to be flood prone.
4.4 Planning for Bushfire Protection	Yes	Yes	The PPR is not impacted by fire prone land.
5. Regional Planning			
5.1 Implementation of Regional Strategies	No	N/A	Not applicable in the Camden LGA
5.2 Sydney Drinking Water Catchments	No	N/A	Not applicable in the Camden LGA
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	No	N/A	Not applicable in the Camden LGA.
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	No	N/A	Not applicable in the Camden LGA.
5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)	No	N/A	Revoked.
5.6 Sydney to Canberra Corridor	No	N/A	Revoked.

5.7 Central Coast	No	N/A	Revoked.
5.9 North West Rail Link Corridor Strategy	No	N/A	Not applicable in the Camden LGA.
5.10 Implementation of Regional Plans	Yes	Yes	No relevant Regional Plan applies. The PPR is, however, consistent where relevant with the Greater Sydney Region Outline Plan and Western City District Plan.
5.11 Development of Aboriginal Land Council land	Yes	N/A	The subject land is not impacted.
Local Plan Making			
6.1 Approval and Referral Requirements	Yes	Yes	The proposal is consistent with this direction because it does not alter the provisions relating to approval and referral requirements.
6.2 Reserving Land for Public Purposes	Yes	Yes	The PPR does not propose any addition to public open space (or reduction)
6.3 Site Specific Provisions	Yes	Yes	No site specific requirements are proposed.
7. Metropolitan Planning			
7.1 Implementation of A Plan for Growing Sydney	Yes	Yes	Consistent – Seeks to increase housing supply and diversity at a local scale in a location which is generally consistent with the locational commentary of the Plan.
7.2 Implementation of Greater Macarthur Land Release Investigation	N/A	N/A	The land is not in the subject investigation area.

Annexure “F”

Stage 1 – Preliminary Environmental Investigation

STAGE 1 PRELIMINARY ENVIRONMENTAL INVESTIGATION

ADDRESS : 33 Morshead Rd Mt Annan NSW 2567

CLIENT : BJC Design

REPORT No. : NE255-18

DATE : 28 January 2018

GEOTESTA

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EXECUTIVE SUMMARY

Geotesta was engaged by BJC Design Pty Ltd to conduct a Stage 1 Preliminary Investigation (Stage 1 PI) on the property known as 33 Morshead Rd Mt Annan, NSW. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, no further investigations are required; and
- the site is suitable for the proposed use.

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation).

1. INTRODUCTION

Geotesta was engaged by EJC Design Pty Ltd to conduct a Stage 1 Preliminary Investigation (stage 1 PI) on the property known as 33 Morshead Rd Mt Annan, NSW 2567. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

The property covers an area of approximately 3,263 m^2 and is currently occupied with a single storey dwelling with grass and scarce tree cover. The site slopes from west to east.

2. PLANNING GUIDELINES

It is understood that the land will be subdivided for the purpose of low density residential development. This Preliminary Investigation was conducted in general accordance with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998.*

Land contamination is most often the result of past uses. It can arise from activities that took place on or adjacent to a site and be the result of improper chemical handling or disposal practices, or accidental spillages or leakages of chemicals during manufacturing or storage. Activities not directly related to the site may also cause contamination; for example, from diffuse sources such as polluted groundwater migrating under a site or dust settling out from industrial emissions.

When carrying out planning functions under the EP&A Act, a planning authority must consider the possibility that a previous land use has caused contamination of the site as well as the potential risk to health or the environment from that contamination. Decisions must then be made as to whether the land should be remediated, or its use of the land restricted, in order to reduce the risk. Failure to consider the possibility of contamination at appropriate stages of the planning decision process may result in:

- inappropriate land use decisions
- increased risk to human health
- detrimental effects on the biophysical environment
- impacts on the safety of existing and new structures
- delay in realising developments
- substantial fall in the land value and the passing on of unanticipated development costs to other parties

When an authority carries out a planning function, the history of land use needs to be considered as an indicator of potential contamination. Where there is no reason to suspect contamination after acting substantially in accordance with these Guidelines, the proposal may be processed in the usual way. However, where there is an indication that the land is, or may be, contaminated, the appropriate procedures outlined in these Guidelines should be followed.

Essentially, the Guidelines recommend that rezonings, development control plans and development applications (DAs) are backed up by information demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or by the way the land is used.

3. OBJECTIVES AND SCOPE

The objective of the work is to comply with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998* and gain a better understanding of the environmental risks associated with the site by conducting a Stage 1 PI.

The Stage 1 PI was conducted in general accordance and consideration of the Planning Guidelines and the Australian Standard AS 4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil - Part 1: Non volatile and semi-volatile compounds, the Australian Standard AS 4482.2-1999 Guide to the sampling and investigation of potentially contaminated soil - Part 2: Volatile substances, the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (amended 2013), and other relevant NSW guidelines and legislation. The Stage 1 PI consisted of a desktop historical review. The works included the following:

- site inspection;
- aerial photograph, public record search;
- geological review
- review of available environmental and planning reports in the area; and
- production of this report including recommendations and associated environmental risk.

Activities undertaken to achieve the above objectives are reported and discussed in the following sections.

4. SITE DESCRIPTIONS

4.1. *Site Details*

The site under investigation is located to the west of Morshead Road, approximately 7.5km northwest of Campbelltown and 59km southwest of Sydney. The site is currently covered by one title.

Street address: 33 Morshead Rd

Coordinates: Latitude: -34.046739, Longitude: 150.754182

Suburb: Mt Annan 2567

State: NSW

Council: Cmaden Council

Folio: 71/702819

Total Surface area: (approximately) 3,263 m²

4.2. *Site, Surrounding Area and Topography*

The site is a residential property with scarce trees and grass cover. There was no sign of intensive agriculture, such as market gardens; there were no stockyards of livestock dipping facilities on the property. There was no indication on the site of imported filling or major earthworks. A separate investigation was conducted by Geotesta for salinity assessment consisting of 2 boreholes across the site and no fill material was encountered during this investigation.

The surrounding area consists of low density urban residential with no commercial or industrial activities observed. Warehouses are located to a few hundred metres to the north with commercial and entertainment activities. A kindergarten is located 500m to the southeast of the site.

The proposed site at 33 Morshead Rd Mt Annan slopes from west to east with an overall slope of 4.0%. The ground elevation ranges between RL106m and RL103m.

4.3. *Site Geology*

The geological origin of the soil profile was identified from our visual examination of the soil samples, geotechnical experience, and reference to geological maps of the area. The geological map of the area indicates that the site is underlain by siltstone, sandstone and shale of Wianamatta Group.

5. SITE HISTORY

5.1. *Historical Background*

The area now known as Mount Annan was originally home to the Dharawal people, based in the Illawarra region, although the Western Sydney-based Darug people and the Southern Highlands-based Gandangara people were also known to have inhabited the greater Camden area. Very early relations with British settlers were cordial but as farmers started clearing and fencing the land, affecting food resources in the area. In 1805, wool pioneer John Macarthur was granted 5,000 acres (20 km^2) at Cowpastures (now Camden). After the land was cleared, it was used for farming for most of the next 200 years until Sydney's suburban sprawl reached the town of Camden and modern suburbs like Mount Annan were subdivided into housing blocks. Between 1882 and 1962 Camden was connected to Campbelltown and Sydney by the Camden railway line. Camden is served by Camden Airport, which is mostly used by trainee pilots for flying schools, the Australian Air League, and other forms of general aviation.

5.2. *Satellite Photograph Review*

A review of satellite photographs was conducted on the site and the local area. The images indicate that the surrounding area was not developed for residential purpose at least until 1984. Most of land clearance seems to be occurring in early 1990s.

5.3. *EPA Records and other Reports*

The site is not on any contaminated registry held by the NSW EPA.

5.4. *Summary*

Based on the desk study assessment conducted most of the site can be considered as a greenfield site with the existing house as brownfield. There were no past activities identified on the site that may have impacted on the soil or groundwater on the site. There are no surrounding activities such as landfilling and intensive farming (piggery and poultry sheds), or mining that would impact on the site.

6. POTENTIAL FOR CONTAMINATION

The site can be considered to be mainly a green field site with a low potential for onsite sourced contamination. The surrounding activities do not have a potential to impact to site.

7. ACID SULFATE AND SALINITY ASSESSMENT

Reference to the EPA website indicates the site is unlikely to have acid sulfate potential with also low potential for salinity as shown in the maps below.

Acid Sulfate Map

Salinity Map

8. DISCUSSION OF RESULTS

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

9. CONCLUSIONS

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* no further investigations are required; and
- the site is suitable for the proposed use.

10. RECOMMENDATIONS

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation).

Should you require any further information regarding this report, please do not hesitate to contact the undersigned.

For and on behalf of

GEOTESTA PTY LTD

Amir Farazmand

Senior Consultant

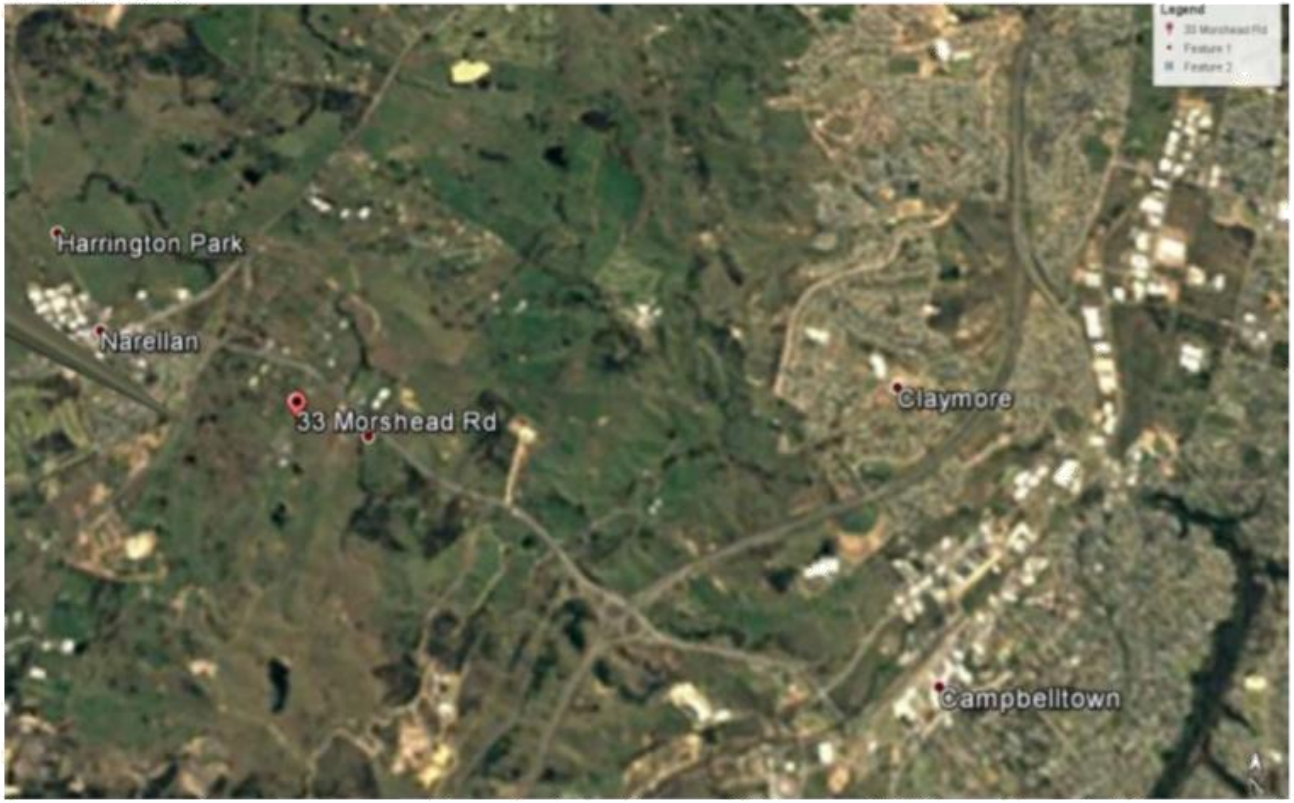
References

- Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998*
- National Environment Protection Council, December 1999. National Environment Protection (Assessment of Site Contamination) Measure.
- NSW Environment Protection Authority, December 1994. Guidelines for Assessing Service Station Sites
- Standards Australia, 2005. Guide to the sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile compounds. AS 4482.1

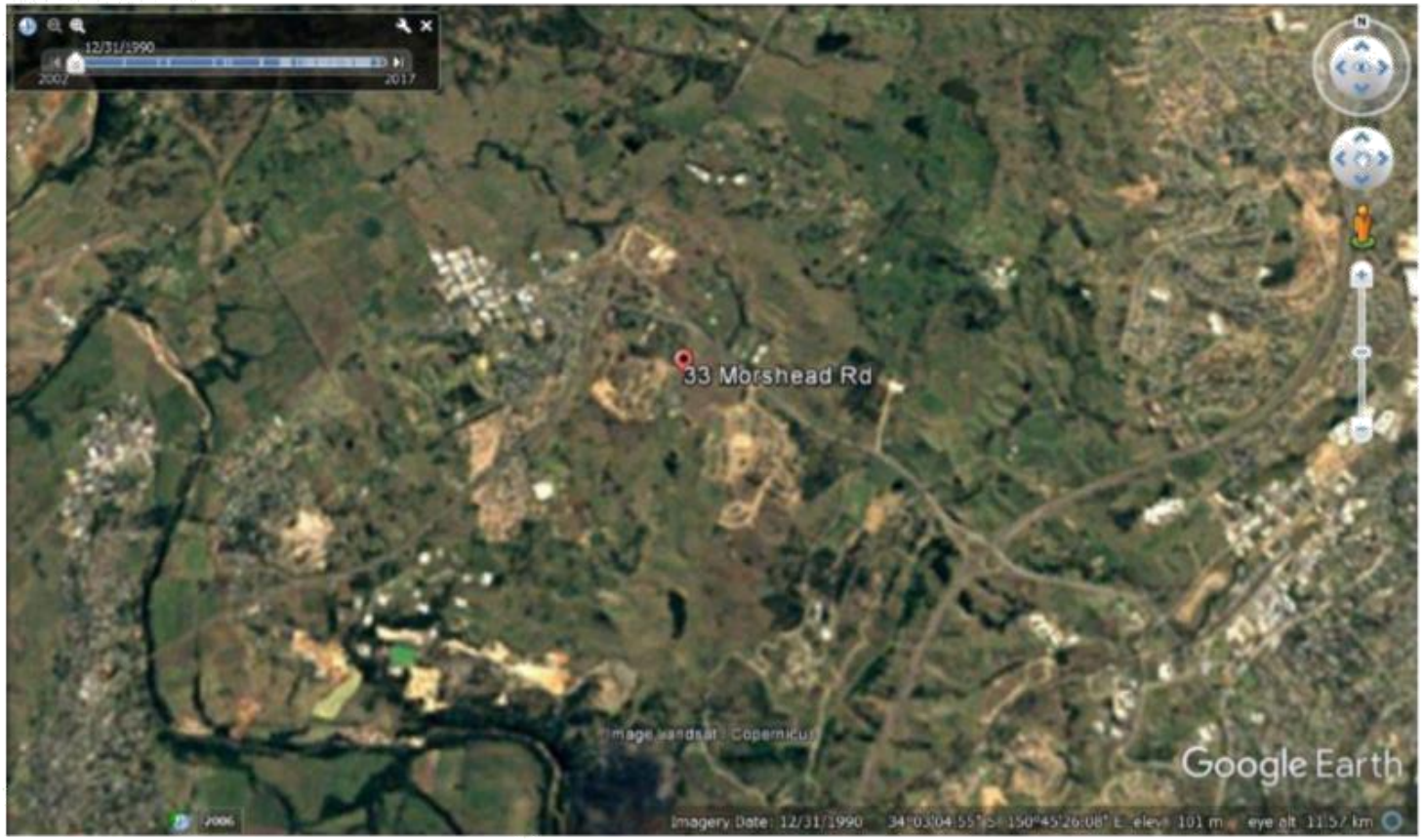
Appendix A

Aerial Photographs

Aerial Photo 1984



Aerial Photo 1990



Aerial Photo 2002

Aerial Photo 2010

Aerial Photo 2017

Annexure “G”

Ecological Constraints Assessment

Ecological Constraints Assessment

33 Morshead Road, Mt Annan NSW

Report prepared by Narla Environmental Pty Ltd

for BJC Design Pty Ltd

June 2018

NARLA

environmental

Report:	Ecological Constraints Assessment
Prepared for:	BJC Design Pty Ltd
Prepared by:	Narla Environmental Pty Ltd
Project no:	bjca1
Date:	June 2019
Version:	1.1

Narla Environmental Pty Ltd
www.narla.com.au

Report Certification

Works for this report were undertaken by:

Staff Name	Position	Role
Kurtis Lindsay BSc (Hons)	Narla Environmental – Principal Ecologist	Project Management, Review
Nathan Banks BZool	Narla Environmental – Field Ecologist	Field Ecologist
Emily Benn BSc (Hons)	Narla Environmental - Ecologist	Report Preparation, Mapping.
Dean Sugden BEnvSc & Mngt	Narla Environmental - Ecologist	Report Preparation

As the Manager and Principal Ecologist of Narla Environmental Pty Ltd, I certify that:

- This Flora and Fauna Assessment has been prepared in accordance with the brief provided by the client.
- The information presented in this report is a true and accurate record of the study findings in the opinion of the authors.

Kurtis Lindsay
Principal Ecologist and Manager
Narla Environmental Pty ltd
02 9986 1295
0414 314 859
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Table of Contents

1.Introduction

1.1 Project Proposal

Narla Environmental Pty Ltd (Narla) was engaged by BJC Design Pty Ltd on behalf of the proponent to prepare an Ecological Constraints Assessment (ECA) for 33 Morshead Road, Mt Annan, NSW (the 'Subject Site') (Lot 71, DP702819) (**Figure 1**).

The proponent intends to utilise the Subject Site for subdivision and further residential development and are interested in establishing how much of the property they can utilise.

Narla have produced this report in order to identify any potential ecological impacts associated with the development of the site, and recommend appropriate measures to mitigate any potential ecological impacts in line with the requirements of the consent authority, Camden Council.

The main purpose of this Ecological Constraints Assessment was to determine the presence of any threatened fauna, flora or ecological community on the Subject Site that are listed under the *Biodiversity Conservation Act 2016 (BC Act)* or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 Site Description and Location

The area of the Subject Site is 3,292 m^2 (approximately 0.33 ha) and is bordered by Morshead Road on the western boundary, and residential properties on all other surrounding borders (**Figure 1**). The site is located within an urban environment in Mt Annan NSW. The surrounding blocks of land adjoining the Subject Site comprise of medium and low density residential development.

1.1 Topography, geology and soils

The Subject Site is situated on the Blacktown Soil Landscape, which is characterised by gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry sclerophyll forest).

The underlying geology of the Blacktown Soil Landscape consists of shales from the Wianamatta Group—Ashfield Shale consisting of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone.

Soils are generally shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines (Chapman and Murphy 1989).

Figure 1. Location of the Subject Site at 33 Morshead Road, Mount Annan NSW

1.2 Camden Local Environmental Plan 2010

1.2.1 Preservation of Trees or Vegetation

The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation.

This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council.

Note. A development control plan may prescribe the trees or other vegetation to which this clause applies by reference to species, size, location or other manner.

A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation to which any such development control plan applies without the authority conferred by:

- development consent, or
- a permit granted by the Council.

The refusal by the Council to grant a permit to a person who has duly applied for the grant of the permit is taken for the purposes of the Act to be a refusal by the Council to grant consent for the carrying out of the activity for which a permit was sought.

This clause does not apply to a tree or other vegetation that the Council is satisfied is dying or dead and is not required as the habitat of native fauna.

This clause does not apply to a tree or other vegetation that the Council is satisfied is a risk to human life or property.

A permit under this clause cannot allow any ringbarking, cutting down, topping, lopping, removal, injuring or destruction of a tree or other vegetation:

- that is or forms part of a heritage item or that is within a heritage conservation area, or
- that is or forms part of an Aboriginal object or that is within an Aboriginal place of heritage significance, unless the Council is satisfied that the proposed activity:
    - is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area, and
    - would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area.

Note. As a consequence of this subclause, the activities concerned will require development consent. The heritage provisions of clause 5.10 will be applicable to any such consent.

This clause does not apply to or in respect of:

- the clearing of native vegetation:
    - that is authorised by a development consent or property vegetation plan under the Native Vegetation Act 2003, or
    - that is otherwise permitted under Division 2 or 3 of Part 3 of that Act, or
- the clearing of vegetation on State protected land (within the meaning of clause 4 of Schedule 3 to the Native Vegetation Act 2003) that is authorised by a development consent under the provisions of the Native Vegetation Conservation Act 1997 as continued in force by that clause, or
- trees or other vegetation within a State forest, or land reserved from sale as a timber or forest reserve under the Forestry Act 1916, or

- action required or authorised to be done by or under the Electricity Supply Act 1995, the Roads Act 1993 or the Surveying and Spatial Information Act 2002, or
- plants declared to be noxious weeds under the Noxious Weeds Act 1993.

1.2.2 Zoning

The Subject Site is zoned 'R2 – Low Density Residential'. The Camden Local Environmental Plan (2010) requires that development satisfies the objectives of the LEP in relation to the designated zoning. These include:

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To allow for educational, recreational, community and religious activities that support the wellbeing of the community.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To ensure the single dwelling character, landscaped character, neighbourhood character and streetscapes of the zone are maintained over time and not diminished by the cumulative impact of multi dwelling housing or seniors housing.

The Subject Site does not hold any of the following constraints that are relevant to this ECA report including;

- Bushfire Prone Land;
- Riparian or Watercourses;
- Terrestrial Biodiversity; or,
- Vegetation Protection.

1.2.3 Camden Development Control Plan (2011)

Clause 2 'General Subdivision Requirements' of Part C of the Camden DCP (2010) outlines a number of objectives relevant to subdivision in the Camden Local Government Area (LGA). These include:

- Manage subdivision throughout the Camden LGA to ensure sense of place is maintained by ensuring that development density and scale are in harmony with the existing or planned character of places.
- Ensure equitable and easy access by everyone to all facilities, services and infrastructure in our community.
- Encourage variety in dwelling size and design to promote housing choice.
- Ensure minimal adverse impacts on environmental systems.
- Mitigate any access and traffic impacts and reinforces vehicle and pedestrian safety.
- Consider any building and/or land of heritage significance being present on or adjacent to the site.
- The layout of typical cross sections within the DCP prevails over other guides and specifications

Controls that apply to subdivision and development in the Camden LGA as outlined by the Camden DCP (2010) include:

- Any proposed subdivision must demonstrate how the proposed subdivision design has addressed the following as discussed throughout this DCP:
    - site planning
    - natural environment management
    - water management
    - land management
    - environmental heritage

- access and parking
- acoustic amenity
- infrastructure and services
- any other relevant parts of this DCP

1.3 Relevant Legislation and Policy

The following summary of relevant legislation and policy will likely need to be addressed as part of the DA.

Table 1. Relevant legislation and policy addressed in this report

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	All features	Yes	An Ecological Impact Assessment Report and all subsequent recommendations relevant to the DA (The planning process).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	No EPBC listed species were observed on the subject site. Suitable habitat for several EPBC Act (Commonwealth) threatened fauna and flora species is present.	Yes	An assessment of significance of impact from the proposed DA on Matters of National Environmental Significance (MNES) EPBC Act Assessment of Significant Impact Criteria
Biodiversity Conservation Act 2016 (BC Act)	No BC Act listed species were observed on the subject site. Suitable habitat for a small number of BC Act (NSW) listed threatened fauna and flora species is present.	Yes	Establish whether the proposed works will remove over 0.5 ha of native vegetation. Undertake a test of significance of impact from the proposed DA on potentially occurring threatened fauna.
Biosecurity Act 2015 (Bio Act)	Priority weeds identified on site (Weedwise2017). • *Asparagus aethiopicus;;* • *Olea europaea subsp. cuspidata;* and, • *Lycium ferocissimum.*	Yes	Prohibition on dealings[1]: Must not be imported into the State or sold. Regional Recommended Measure[2]: The plant or parts of the plant are not traded, carried, grown or released into the environment
SEPP Native Vegetation 2017	The subject site is located in Camden, an LGA to which this SEPP applies.	Yes	Further assessment of potential impacts and clearing of native vegetation.
State Environmental Planning Policy No 19 - Bushland in Urban Areas (SEPP 19)	The Subject Site does not directly border any Council Bushland or Reserves.	No	None
State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)	This SEPP does apply to the Camden Local Government Area; however, the Subject Site is <1ha in size. Therefore, this SEPP does not apply to the proposed development. One Schedule 2 Feed Tree (*Eucalyptus microcorys*) is situated within the subject site.	No	None

1.4 Scope of assessment

The objectives of this report were to assess all possible ecological constraints within the Subject Site that may arise pursuant to Part 3 (Rezoning) and Part 4 (Development Assessment) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the local planning provisions of Camden Council, including to:

- Establish the likelihood of occurrence of migratory species, threatened species, endangered populations and threatened ecological communities as listed under the New South Wales *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the Subject Site.
- Identify and map the distribution of vegetation communities in the subject area and discuss patch size and condition.
- Record presence and the extent of any priority weeds.
- Determine ecological impacts or risks that may result due to the proposed development(s).
- Recommend any controls or additional actions to be taken to see the proposed DA through while protecting or improving ecological / biodiversity values of the Subject Site.

2.Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Camden Local Government Area (LGA) was undertaken. Online databases were utilised to gain an understanding of the site and its surrounds to an area of approximately 10km². Searches utilising NSW Wildlife Atlas (Bionet) (OEH 2017b) and the Commonwealth Protected Matters Search Tool (PMST 2017) were conducted to identify any confirmed, historical local occurrences or modelled occurrence of threatened species, populations and communities as well as any migratory fauna within a 10km² search area centred on the Subject Site. This data was used to assist in establishing the presence or likelihood of any such ecological values as occurring on or adjacent the Subject Site, and helped inform our Ecologist on what to look for during the site assessment.

Soil landscape and geological mapping was examined to gain an understanding of the environment on the Subject Site and assist in determining whether any threatened flora or ecological communities may occur there.

The Native Vegetation of the Sydney Metropolitan Area (OEH 2013) was utilised during desktop assessment to gain an understanding of vegetation communities located on the property as well as in the local vicinity.

2.2 Ecological Site Assessment

A site assessment was undertaken by Narla Environmental Ecologist Nathan Banks on Wednesday 3rd of January 2018. The following processes were performed during the site assessment:

- Recording the identification and extent of vegetation communities on the Subject Site, with a particular focus on the presence of any endangered ecological communities (EEC)
- Recording a detailed list of flora species encountered on the Subject Site, with a focus on indigenous species including threatened species, species diagnostic of threatened ecological communities and priority weeds.
- Recording opportunistic sightings of any fauna species seen or heard on or immediately surrounding the Subject Site
- Assessment of the connectivity and quality of the vegetation within the Subject Site and surrounding area
- Identifying and recording the locations of notable fauna habitat such as important nesting, roosting or foraging microhabitats.
- Targeting the habitat of any threatened and regionally significant fauna including:
- Tree hollows (habitat for threatened large forest owls, parrots, cockatoos and arboreal mammals)
- Caves and crevices (habitat for threatened reptiles, small terrestrial mammals and microbats)
- Termite mounds (habitat for threatened reptiles and the echidna)
- Soaks (habitat for threatened frogs and dragonflies)
- Wetlands (habitat for threatened fish, frogs and water birds)
- Drainage lines (habitat for threatened fish and frogs)
- Fruiting trees (food for threatened frugivorous birds and mammals)
- Flowering trees (food for threatened nectarivorous mammals and birds)
- Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals), and
- Any other habitat features that may support fauna (particularly threatened) species.

Not all exotic and non-native indigenous plants (native cultivars) were identified within the domestic garden beds throughout the site. Flora surveys were focused on remnant vegetation particularly, shrubs and herbs trees native to the area. Focus was also given to identifying significant weed infestation and Priority Weeds.

2.3 Study Limitations

This study was undertaken to provide a broad identification of all relevant constraints to any future development within the Subject Site. This study was not meant to provide a complete inventory of all species with potential to occur on the Subject Site; rather it was to provide an assessment into the likelihood of the presence of any significant ecological features (migratory species, threatened species, communities and populations) on the Subject Site, and the potential for impact of the proposed works on those ecological features.

The species inventory provided for the site was restricted to what was observed during the single day field visit by the Narla Ecologist on 3rd of January 2018. The timing of the survey may not have coincided with emergence times of some species of flora and fauna, such as seasonally flowering ground orchids, seasonal migratory fauna or nocturnal fauna.

To account for those species that could not be identified during the field survey, detailed habitat assessments were combined with desktop research and local ecological knowledge to establish an accurate prediction of the potential for such species to occur on or adjacent the Subject Site.

In situations where the habitat on or around the Subject Site was deemed potentially suitable for certain species that could not have been surveyed for during the field assessment, the precautionary principle was applied and those species were assumed present.

This study is not an Ecological Impact Assessment; however, it may form the basis for an Ecological Impact Assessment to be compiled.

3. Results and Discussion

3.1 Flora

A total of 60 plant species identified within the Subject Site, of which 17 were native, and 43 were exotic/ non-native (**Appendix; Table 6**). Nomenclature follows PlantNet (2016).

3.1.1 Threatened Flora Species

Desktop analysis revealed one threatened flora species *Pimelea spicata* (Spiked-Rice Flower) as having the potential to occur on or within 10 km radius of the Subject Site.

Despite a thorough targeted search using the random meander method, no individual specimens of Spiked-Rice Flower were observed. However, this does not rule out the potential for some threatened species to still exist on the Subject Site in a state of dormancy within the soil seed bank in the Subject Site. However, the chances of this are considered low owing to the isolated and historically disturbed condition of the site.

3.1.2 Weeds

Of all the exotic plant species identified within the Subject Site, three are currently classified as Priority Weeds within the Camden LGA. These weeds must be managed in accordance with the *Biosecurity Act 2015*. These species include *Asparagus aethiopicus* (Ground Asparagus), *Olea europaea subsp. Cuspidata* (African Olive) and *Lycium ferocissimum* (African Boxthorn).

All priority weeds listed above with the exception of African Olive are listed as Weeds of National Significance (WoNS) (Weedwise, 2017). It is a requirement of all landowners and managers to ensure that the listed plants do not continue to spread and that the plants must not be sold, propagated or knowingly distributed.

Table 2. Control methodologies for priority weeds identified on the Subject Site

Scientific Name	Common Name	Control Methodology
Asparagus aethiopicus	Ground Asparagus	Manual Remove: Plants can be controlled by crowning - the practice of digging out the entire crown or corm (by severing the tough surrounding roots) that sits just below the surface of the soil and leaving the roots and watery tubers in situ.
Olea europaea subsp. Cuspidata	African Olive	This plant can be controlled by cut and paint methodology. The main stem should be cut 15cm above the ground surface and then a herbicide solution (1 part Glyphosate per 1.5 parts of water) should be generously applied to the cut stump with a paintbrush.
Lycium ferocissimum	African Boxthorn	This plant can be controlled by cut and paint methodology. The main stem should be cut 15cm above the ground surface and then a herbicide solution (1 part Glyphosate per 1.5 parts of water) should be generously applied to the cut stump with a paintbrush.

3.2 Vegetation Communities

At the time of ecological assessment, there were no vegetation communities mapped within the subject site. The closest mapped vegetation community to the subject site was Alluvial Woodland, which occurred in two small patches approximately 450m East of the subject site (OEH 2016b).

Ecological site assessment by the Narla Ecologist revealed that vegetation within the Subject Site comprised a majority of exotic garden beds and exotic fruit trees, with a number of native grasses and herbs amongst one locally indigenous native canopy species *Corymbia maculata* (Spotted Gum).

It is likely that the remnant Spotted Gum located in the centre of the property is remnant of Cumberland Plain Woodland (CPW) which is listed as an Endangered Ecological Community (EEC) under the BC Act (**Plate 1**). Within the subject site CPW is represented only by the single Spotted Gum.

Other areas within the subject site contained a native groundcover of herbs and grasses but lacked a distinct native canopy. Such areas were confirmed to be representative of CPW Derived Native Grassland (DNG), as classified under the CPW Final Determination (OEH 2009) (**Plate 2**). Dominant native grasses found within the CPW and DNG included *Dichelachne micrantha, Themeda australis, Austrodanthonia tenuior*. Scattered herbs including *Einadia nutans, Wahlenbergia graolis* and *Tricoryne elatior* were also found within the subject site.

The extent of the two potential Cumberland Plain Woodland EEC's identified within the Subject Site are comprised of a single Spotted Gum tree and a small patch of native groundcovers. The removal of these vegetation assemblages is considered a minor constraint to the proposed rezoning and development within the Subject Site. The subject site is highly isolated and is not considered to have a vegetation assemblage which is considered significant in the locality. An 'Assessment of Significance' will be required to accompany a Flora and Fauna Impact Assessment Report Flora pursuant of the rezoning and DA, which will outline the minor significance in removing the single Spotted Gum tree and small patch of native grassland within the Subject Site and provide specific recommendations to minimise this impact. These impacts would be expected to include replacement planting within soft landscaping areas within the Subject Site.

Figure 2. Historical Vegetation Mapping within close proximity to the subject site (OEH 2016b)

Plate 1. Remnant *Corymbia maculata* (Spotted Gum) within the subject site, which forms part of the Cumberland Plain Woodland EEC.

Plate 2. Derived Native Grassland (DNG) within the subject site

Plate 3. Example of escaped garden ornamentals within the subject site.

Figure 3. Cumberland Plain Woodland and Derived Native Grassland mapped within the Subject Site by Narla Environmental.

3.1 Fauna

A total of eleven (11) fauna species were encountered on the day of the field survey (**Table 3**). All native species encountered are listed as 'protected' under the *NSW Biodiversity Conservation Act 2016*. None were listed threatened under either the BC Act or EPBC Act. One introduced species, *Passer domesticus* (House Sparrow) was encountered during the site assessment.

The list of fauna recorded during the site visit was produced opportunistically and thus only represented a subset of the fauna species that may occur on the Subject Site at any one time. For this reason, a thorough assessment of fauna habitat availability was conducted as a priority during the site visit. This provided a better understanding of the fauna species that may potentially occur on the Subject Site during some part of their lifecycle.

Table 3. List of fauna species identified during the site visit on 3rd January 2018

Class	Scientific Name	Common Name	Status
Aves	*Anthochaera carunculata*	Red Wattlebird	Protected
Aves	*Corvus coronoides*	Australian Raven	Protected
Aves	*Dacelo novaeguineae*	Laughing Kookaburra	Protected
Aves	*Gymnorhina tibicen*	Australian Magpie	Protected
Aves	*Hirundo neoxena*	Welcome Swallow	Protected
Aves	*Manorina melanocephala*	Noisy Miner	Protected
Aves	*Passer domesticus*	House Sparrow	Introduced
Aves	*Strepera graculina*	Pied Currawong	Protected
Aves	*Trichoglossus moluccanus*	Rainbow Lorikeet	Protected
Aves	*Turdus merula*	European Blackbird	Introduced
Gastropoda	*Cornu aspersum*	Garden Snail	Introduced
Reptilia	*Eulamprus quoyii*	Eastern Water Skink	Protected

3.1.1 Fauna Habitat

Whilst the Subject Site provided some potential foraging, nesting and roosting habitat for a suite of fauna, much of the subject site was weed infested with a majority of the property containing manicured exotic grasses. To this extent, the subject site was considered to hold sub-optimal fauna habitat, owing to the historical disturbance and clearing of the property for development and domestic garden beds.

The most significant fauna habitat feature within the Subject Site were the three Eucalypts, including one *Corymbia maculata* (Spotted Gum), one *Eucalyptus microcorys* (Tallowwood) and one *Eucalyptus elata* (River Peppermint) that provide foraging habitat for a number of threatened nectariviorous birds. When in flower, native *Eucalyptus microcorys, Corymbia maculata* and *Eucalyptus Elata* are likely to provide foraging resources for nectivorous birds and flying-foxes such as the threatened vulnerable *Pteropus poliocephalus* (Grey-Headed Flying Fox). All of the canopy trees on the Subject Site have potential to contain 'lerp', leaf-psyllid insects that exude a sugary coating that is often consumed by nectivorous birds.

There were no tree hollows observed within trees located on the subject site, nor was there any bushrock or crevices suitable for fauna habitat.

3.1.2 Threatened Fauna Species

Following Desktop and Site Ecological Assessment, a list of six (6) threatened fauna species) were identified as having the potential to utilise habitat on and around the Subject Site for foraging or sheltering purposes. The total list of threatened species deemed as having potential to occur in the subject site is presented (**Table 4**).

Table 4. Threatened fauna deemed as having potential to occur on the subject site during part of their lifecycles

Species	BC Act	EPBC Act	Likelihood	Potential Habitat Utilised
Pteropus poliocephalus (Grey-headed Flying Fox)	Vulnerable	Vulnerable	High	Flowering and fruiting trees and shrubs for foraging. No roosting.
Glossopsitta pusilla (Little Lorikeet)	Vulnerable	-	Low - Moderate	Flowering trees for foraging.
Anthochaera Phrygia (Regent Honeyeater)	Critically Endangered	Critically Endangered	Low	Flowering trees for foraging.
Lathamus discolor (Swift Parrot)	Endangered	Critically Endangered	Low	Flowering trees for foraging.
Daphoensitta chrysoptera (Varied Sittella)	Vulnerable	-	Low	Rough-barked trees for foraging and nesting
Meridolum corneovirens (Cumberland Land Snail)	Endangered	-	Low	Limited bark and leaf litter at the base of canopy trees such as Spotted Gum, Tallowwood and River Peppermint.

A Flora and Fauna Impact Assessment Report will be required to assess the potential for the proposed development to have any significant effect on any of the potentially occurring threatened fauna under the relevant Commonwealth 'EPBC Act Significant Guidelines' and State (Section 5AA of the EP&A Act) 'Assessment of Significance'. This report should be submitted as part of an application for any clearing of native vegetation of the Subject Site.

The extent of threatened fauna habitat within the Subject Site includes three (3) flowering trees. The removal of such habitat is considered a minor constraint to the proposed rezoning and development of the Subject Site. It is likely that these three trees provide suboptimal, intermittent habitat for the threatened species mentioned above. An 'Assessment of Significance' will be required to accompany a Flora and Fauna Impact Assessment Report pursuant of the rezoning and DA, which will outline the low significance of removing intermittent suboptimal threatened species habitat and provide specific recommendations to minimise this impact. Impact mitigation recommendations are likely to include revegetation with habitat trees similar to those being cleared, within soft landscaping areas around the Subject Site.

3.1.3 Grey Headed Flying Fox Camps in the Camden LGA

Camden is home to one grey-headed flying-fox camp, which is located in Brownlow Hill.

4.Recommendations

Narla Environmental have extensive experience with similar rezoning and development applications in the Camden LGA and believe that the proposed application will have an increased likelihood of approval if the recommendations and mitigation measures outlined within this report are addressed and adhered to.

4.1 Development Application Phase

Narla propose the following recommendations regarding the management of biodiversity on the property. Implementation of these recommendations will help see the rezoning and development application proposed for the Subject Site approved by Camden Council.

4.1.1 Avoidance of Impacts

Minimising the removal of native vegetation will reduce the overall impact of the proposed development and improve likelihood of obtaining rezoning and DA approval. Where possible, mature native trees should be retained and protected. However, in the case that native vegetation including the mature native trees are required for removal, replacement planting can be undertaken in soft landscaping areas around the proposed development to offset this small impact.

4.1.2 Clearing of Trees and Vegetation

<u>If DA is lodged prior to 24th November 2018</u>

Should the proponent desire to remove any native trees or undertake clearing within the areas mapped as containing remnant canopy trees belonging to Cumberland Plain Woodland, it is considered likely that Camden Council will require the proponent to submit a Flora and Fauna (Ecological) Impact Assessment including Assessments of Significance on all potentially occurring threatened species under the Biodiversity Conservation Act 2016. This report should be delivered by a suitably qualified Ecologist.

<u>If DA is lodged post 24th November 2018</u>

The requirements of the BC Act 2016 and Biodiversity Conservation Regulation 2017 are mandatory for all development applications submitted after the 24th November 2018 within the Camden LGA. This new legislation and regulation stipulates clearing 'area threshold' values that determine whether a development is required to be assessed in accordance with the 'Biodiversity Offset Scheme' (BOS). Minimum entry thresholds for vegetation clearing depend on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

Table 5. Biodiversity Offset Scheme Entry Thresholds

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	**0.25 ha or more**
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

If vegetation clearing exceeds the minimum threshold, the BOS applies to the proposed development including biodiversity impacts prescribed by clause 6.1 of the Biodiversity Regulation 2017. In this instance the proponent will be required to prepare a Biodiversity Development Assessment Report (BDAR) to assess impact and calculate the required offsets to continue to DA approval.

The vegetation mapped as CPW and DNG by the Narla Ecologist (**Figure 3**) makes up a total area of approximately 78.8m² (0.0078ha). The vegetation within these areas is considered to hold moderately to highly quality DNG, whilst the CPW consists of only the canopy stratum for this community, which in this instance is one Spotted Gum (**Figure 2**).

Since less than 0.25 ha of native vegetation will be cleared to allow for the proposed development, the proponent will not be required to enter the BOS. No offset credits are expected to offset impacts from the vegetation loss. Instead, it is considered likely that proponent will be granted rezoning and DA approval allowing submission of an Assessment of Significance only.

4.1.3 Tree Removal and Replacement Plantings

Camden Council may require the proponent to retain the Spotted Gum and design a development that does not impact it. However, this tree is highly isolated and does not provide significant habitat for threatened fauna within the locality. If this tree is required for removal, Camden Council will most likely require replacement plantings of at least two new Spotted Gum trees or a tree species of a greater ecological value (e.g. 4S1 advanced stock) to replace the individual removed. These should be planted within the property bounds or on the properties road verge.

It is also expected that council will wish to see landscaping made up of at least 50% - 80% plant species native to CPW SEC, such as *Themeda australis*, *Dichondra repens* and *Eriadia rotata*. An experienced Ecologist and local provenance nursery will be able to provide advice on where to source replacement plants to meet the requirements of council.

4.2 Post Development Application Approval

Once the development application has been approved, Camden council will issue with a set of 'Conditions' of approval of your DA. All Conditions of Approval will be required to be implemented prior to obtaining your construction certificate.

Conditions are likely to include the requirement to implement the recommendations put forward in the Ecological Impact Assessment Report.

4.2.1 Pre-Clearing Assessment

Owing to the possibility of trees supporting nesting birds, and hollow bearing trees potentially supporting threatened arboreal mammals, birds and Microbats, Camden Council may request a Pre-Clearing Assessment of the property undertaken by a qualified ecologist within the proposed area of impact. The assessment will involve checking of all

- trees, shrubbery and tussocks for nesting native birds
- all logs and other debris thoroughly checked for sheltering reptiles or small mammals
- all other habitat features

4.2.2 Vegetation Clearing

Camden Council may require that a qualified ecologist is present on site during vegetation clearing to supervise felling of all trees. Each tree should be felled using the 'slow drop technique' which involves the use of ropes and pulleys, or an excavator fitted with a 'grab' attachment which can slowly push the trees to the ground.

Once trees have been felled an ecologist should be on site to inspect the tree for any potential hollows and fauna. Any fauna captured must be relocated offsite into suitable habitat, or taken by the ecologist to a registered wildlife carer.

All proposed construction, machinery operation, excavation, vehicle movement and other works that occur on the Subject Site must be prevented from impacting on any hollow-bearing trees, logs/woody debris, and other native vegetation that are to be retained outside the activity footprint.

4.2.3 Demolition of Existing Structure

Microbats often utilise man-made structures including sheds and houses for roosting habitat. Small cavities that provide similar protection to tree hollows will be utilised by microbats where shortages of natural roosting habitat exists, or may even be used in preference (ABS 2017).

Owing to the potential roosting habitat within any existing unoccupied dwellings, Camden Council may request that certain crevices and cavities of the building are inspected by an Ecologist for roosting microbats, prior to demolition taking place. If microbats are found, they will be captured and relocated to suitable nearby habitat by the Ecologist.

4.2.4 Tree Protection

The protection of existing trees desired to be retained on site or immediately surrounding the site should be undertaken prior to clearing, ancillary works, excavation or machinery works. Protection must remain around trees for the entire duration of construction, ancillary works, excavation or machinery works.

4.2.5 Erosion Management

Ensure that adequate erosion and sediment mitigation measures are in place at all times during construction activity. Refer to the 'Blue Book' (Landcom 2004) for best practice erosion and sedimentation control methods.

4.2.6 Storage, Stockpiling and Laydown Areas

Position all storage, stockpiling and laydown areas away from any areas of native vegetation.

5. Conclusion

Subject to the recommendations of this Ecological Constraints Assessment and all relevant controls in the Camden Council DCP 2011 outlined in this report, it is considered that the clearing of vegetation and preparation of the subject site for rezoning and development could be achieved.

Threatened fauna habitat and potential Endangered Ecological Communities within the Subject Site is majorly comprised of a single Spotted Gum Tree and a small patch of native grassland. This vegetation is considered a minor constraint to the rezoning and development of the Subject Site due to it being highly isolated and situated within a highly urbanised environment. The removal of such would not cause a significant impact on threatened fauna or EEC's within the locality. To reduce the impact of this native vegetation clearing it is likely that the proponent will be required to conduct replacement planting for the native species removed to retain the biodiversity value of the Subject Site.

Narla Environmental support the future subdivision and/or development of this site.

6.References

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7. Appendix

Table 6. Flora species identified on the subject site during the site assessment conducted by Narla Environmental on 3rd January 2017

Scientific Name	Exotic/Non-indigenous	Canopy	Mid Strata	Groundcover
Acacia parramattensis			x	
Agave americana	x			x
Aloe vera	x		x	
Araujia sericifera	x			x
Asparagus aethiopicus	x			x
Austrodanthonia tenuior				x
Avena sativa	x			x
Bidens pilosa	x			x
Briza minor	x			x
Bromus catharticus	x			x
Bryophyllum delagoensis	x			x
Callistemon viminalis	x		x	
Centaurium tenuiflorum	x			x
Conyza sp	x			x
Corymbia maculata		x		
Cupressocyparis x leylanaii	x	x		
Cynodon dactylon				x
Cyperus eragrostis	x			x
Dichelachne micrantha				x
Ehrharta erecta	x			x
Einadia hastata				x
Einadia trigonos				x
Eucalyptus elata		x		
Eucalyptus microcorys	x			
Glycine microphylla				x
Glycine tabacina				x
Gnaphalium polycaulon	x			x
Gomphrena celosioides	x			x
Hypochaeris radicata	x			x
Rhaphiolepis indica	x		x	
Jasminum polyanthum	x			x
Ligustrum sinense	x		x	
Lycium ferocissimum	x		x	
Malus sp.	x		x	
Microlaena stipoides				x
Morus sp.	x		x	
Nerium oleander	x		x	
Ochna serrulata	x		x	
Olea europaea subsp. cuspidata	x		x	

Scientific Name	Exotic/Non-indigenous	Canopy	Mid Strata	Groundcover
Onopordum acanthium	x			x
Paspalum dilatatum	x			x
Passiflora sp.	x			x
Pennisetum clandestinum	x			x
Photinia sp.	x		x	
Pinus radiata	x	x		
Plantago lanceolata	x			x
Plumeria sp.	x		x	
Prunus persica	x		x	
Romulea rosea var reflexa	x			x
Rumex brownii	x			x
Setaria sp	x			x
Sida rhombifolia	x			x
Sporobolus africanus	x			x
Themeda australis				x
Trachelospermum jasminoides	x			x
Tricoryne elatior				x
Verbena bonariensis	x			x
Wahlenbergia communis				x
Wahlenbergia gracilis				x
Wisteria sp.	x		x	

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Annexure “H”

Traffic Impact Assessment

33 MORSHEAD ROAD, MOUNT ANNAN

PROPOSED REZONING AND SUBDIVISION

LOT 71, DP 702819

UPDATED TRAFFIC IMPACT ASSESSMENT

DECEMBER 2019

HEMANOTE CONSULTANTS PTY LTD

TRAFFIC ENGINEERING & DESIGN CONSULTANTS

PO BOX 743, MOOREBANK NSW 1875

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UPDATED TRAFFIC IMPACT ASSESSMENT

LOT 71, DP 702819

33 MORSHEAD ROAD, MOUNT ANNAN

PROPOSED REZONING & SUBDIVISION

DATE: 19 DECEMBER 2019

DISCLAIMER

Document Tittle Updated Traffic Impact Assessment – 33 Morshead Road, Mount Annan

Doc. Revision	Prepared by	Reviewed by	Issued by	Issued date
Draft 1 (internally)	Ngoc Dang	Hany Takla	Hany Takla	10/072018
Final report (to client)	Ramy Selim	Hany Takla	Ramy Selim	10/09/2018
Updated Final report (to client)	Ramy Selim	Hany Takla	Ramy Selim	26/09/2018
Updated Final report (to client)	J. Payet	H. Takla	H. Takla	19/12/2019

Table of Contents

1 INTRODUCTION

This report has been prepared by Hemanote Consultants to assess the traffic implications of the proposed rezoning and subdivision application for the site legally known as Lot 71 in DP702819 and located at 33 Morshead Road, Mount Annan.

This report is to be read in conjunction with the design layout plans prepared by BJC Design and submitted to Camden Council as part of a Rezoning Development Application from low density to medium density residential.

This report is set as follows:

- *Section 2:* Description of the existing site location and it use;
- *Section 3:* Description of existing road network, traffic conditions & transportation services in the vicinity of the site;
- *Section 4:* Description of the proposed rezoning residential development, road layout and impacts on traffic; and
- *Section 5:* Outlines Conclusion.

2 EXISTING SITE DESCRIPTION

➢ ***Site Location***

The subject site is located on the eastern side of Morshead Road, north of its intersection with Holdsworth Drive and at property No. 33 Morshead Road, within the suburb of Mount Annan. Refer to Figure 1 for a site locality map.

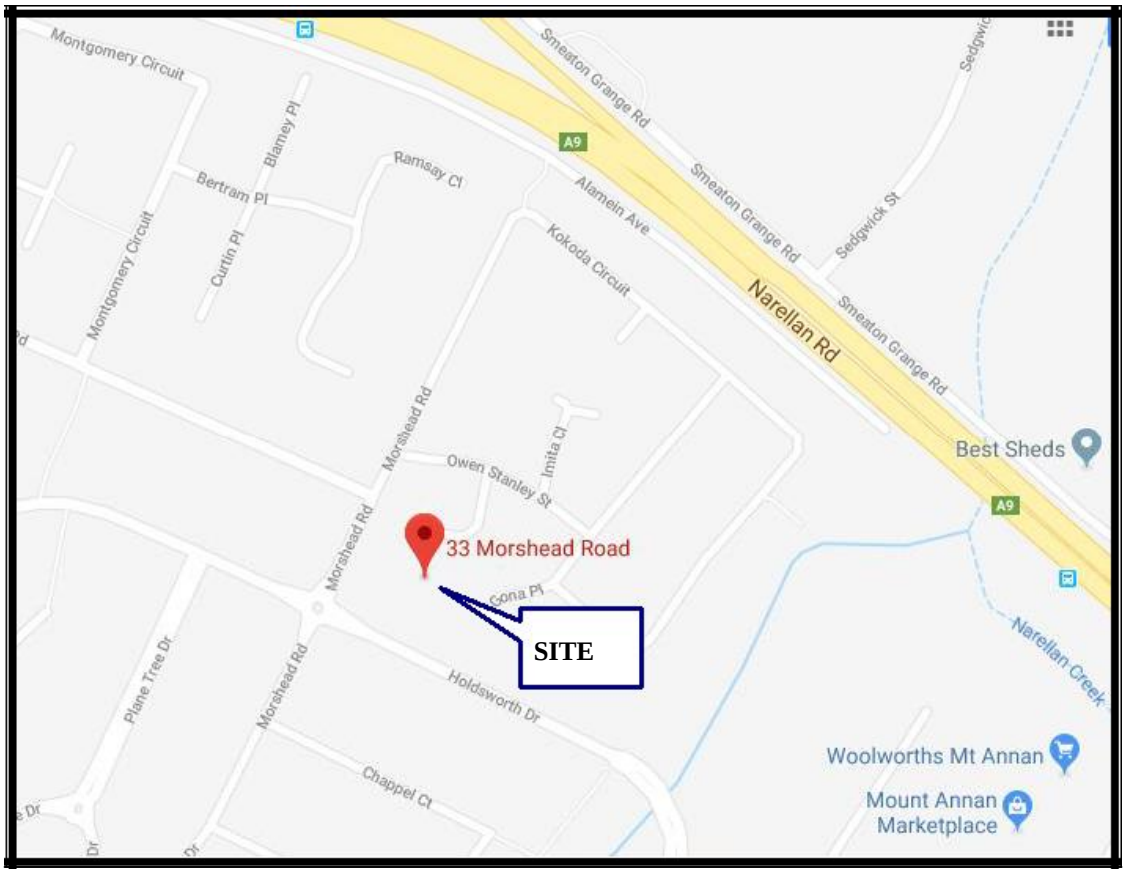


Figure 1: Site Locality Map

➢ ***Existing Site & Surrounding Land Use***

The subject site has an area of approximately 3,263m^2 and currently consists of a single dwelling. It has a frontage of approximately 30 metres to Morshead Road with a single driveway access point. It also fronts Buna Close from the north.

The site is located in a mainly residential area, with a mixture of single dwellings and multi dwellings sites.

The subject site is currently zoned R2 'Low Density Residential' and is surrounded by a number of R3 'Medium Density Residential' sites, as shown on The Camden LEP 2010 Land Zoning Map in Figure 2 below.

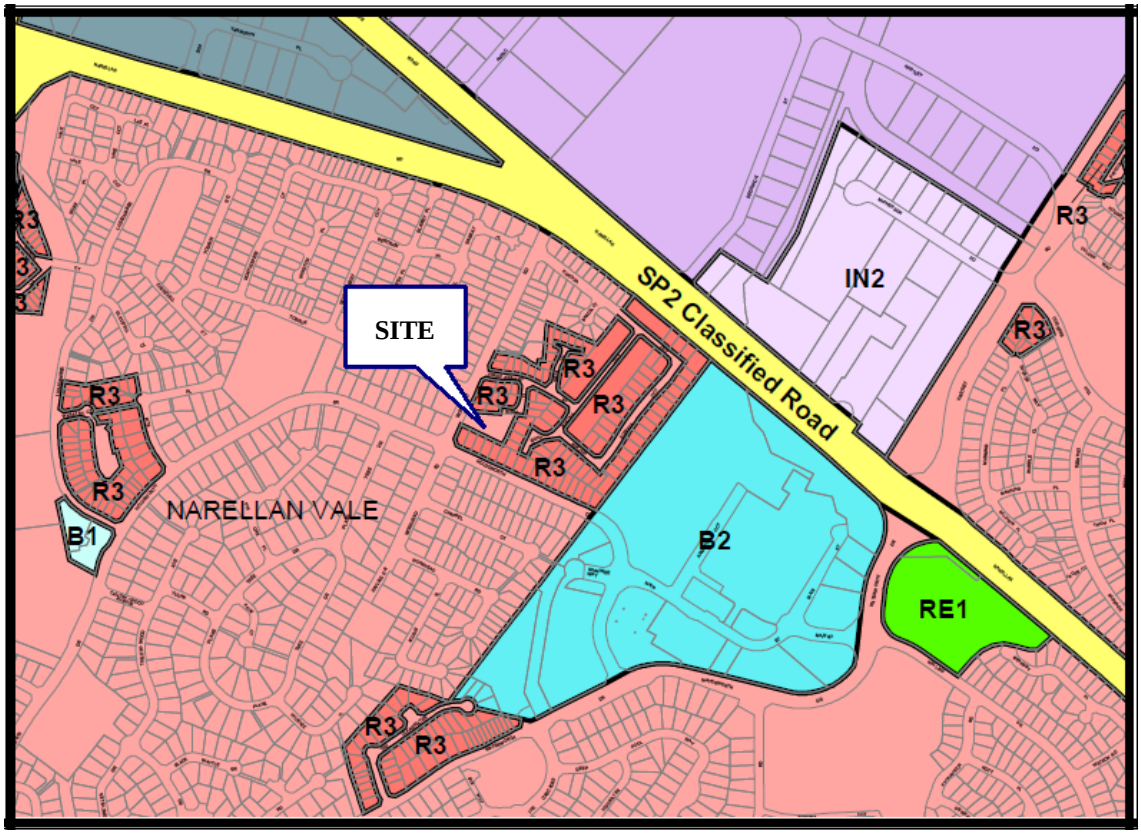


Figure 2: Current zoning in the vicinity of the subject site

Figure 3: Aerial map – Subject site and surrounding roads

Photo 1: The frontage of the subject site to Morshead Road

3 EXISTING TRAFFIC & TRANSPORT CONDITIONS

3.1 Existing Road Network, Classification & Traffic Controls

The existing road network in the vicinity of the subject site is shown in Figure 4 and summarised as follows:

- Narellan Road — A classified State Road under the jurisdiction of the Roads and Maritime Services. It is a multi-lane two-way divided road and carries a high volume of traffic daily and connects to the Camden By-Pass and to Waterworth Drive.
- Holdsworth Drive — A local residential road that runs east-west in the vicinity of the subject site. It has a two-way undivided carriageway with one traffic lane in each direction, in addition to a parking lane on each side of the road. It has a legal speed limit of 50 km/h. It intersects with Morehead Road near the subject site and is controlled by a roundabout.
- Morshead Road — A local residential road that runs north-west in the vicinity of the subject site. It has a two-way undivided carriageway with one traffic lane in each direction. It has a legal speed limit of 50 km/h. It intersects with Holdsworth Drive near the subject site and is controlled by a roundabout.
- Buna Close — A local cul-de-sac road with a two-way carriageway having a width of approximately 5 metres. It connects to the northern boundary of the subject site and it runs off Owen Stanley Street which is a local road as well that connects to Morshead Road. Buna Close provides vehicular access to adjoining residential properties.

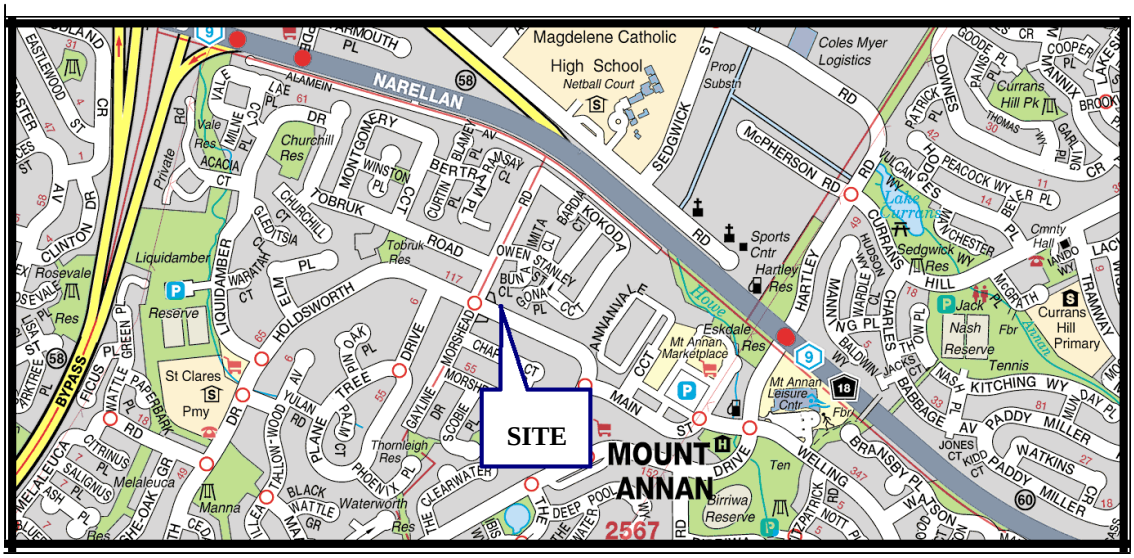


Figure 4: Subject site and surrounding road network

Photo 2: Morshead Road near the subject site - facing south

Photo 3: Holdsworth Drive near Morshead Road - facing west

Photo 4: Buna Close at the north boundary of the subject site - facing south

The current traffic flows on Morshead Road and Holdsworth Drive are considered to be appropriate for local residential roads, where traffic is free flowing without any major queuing or delays in peak hours, with spare capacity.

The current traffic flows on Owen Stanley Street and Buna Close are also low and appropriate for local roads providing vehicular access to adjoining residential properties, without any major queuing or delays in peak hours, with spare capacity.

It is determined that the existing Level of Service on the above mentioned roads is at level 'A' in accordance with Table 4.4 of the Roads & Maritime Services' *"Guide to Traffic Generating Developments - 2002"* (attached below) with peak hour flow being less than 200 vehicles/hr per direction.

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Table 4.4: Urban road peak hour flows per direction (RMS Guide)

➢ ***Current Intersection Performance***

Average Vehicle Delay (AVD) and Level of Service (LOS) – The AVD and LOS provide a measure of the operational performance of an intersection as indicated in Table 4.2 of the Roads & Maritime Services' "*Guide to Traffic Generating Developments - 2002*" (attached below).

It has been observed that the operational performance of the intersection of Morshead Road and Holdsworth Drive is in Good operation at a level of service 'A', in accordance with Table 4.2 of the Roads & Maritime Services guide with an average delay less than 14 seconds per vehicle.

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Table 4.2: Level of Service Criteria for intersections (RMS Guide)

3.2 Existing Transportation Services

The subject site has good access to existing public transport services in the form of trains and buses. The site is located approximately 7 km north west of Macarthur Railway Station.

Regular bus routes currently operate along both sides of Holdsworth Drive and Waterworth Drive in very close proximity to the subject site (i.e. bus route 890, 892 and 893). Refer to Figure 5 for bus routes map in the vicinity of the subject site.

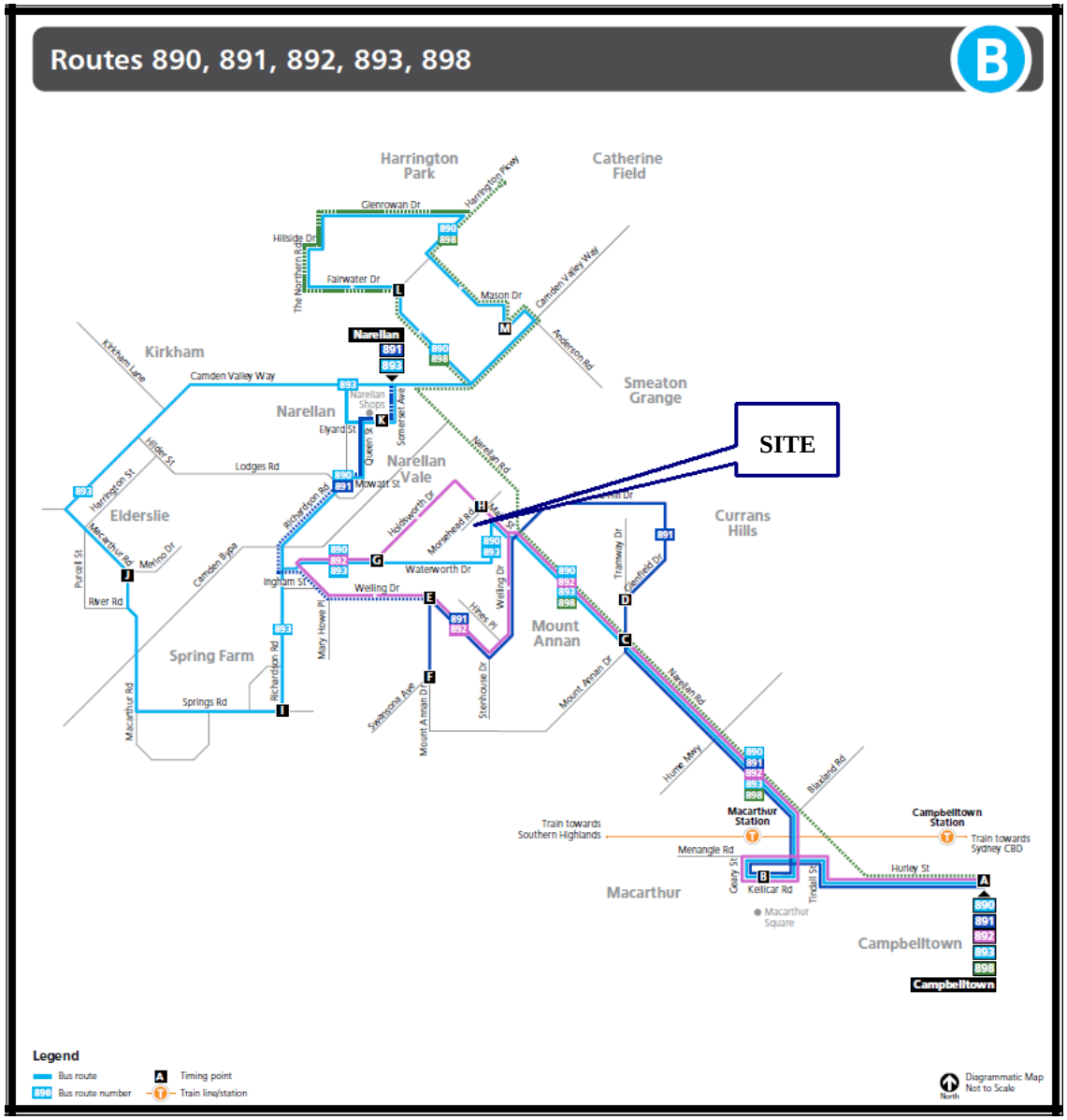


Figure 5: Bus routes map in the vicinity of the subject site

4 PROPOSED REZONING DEVELOPMENT

4.1 Description of the Proposal

The planning proposal request approval for the rezoning and subdivision of the subject site located at 33 Morshead Road, Mount Annan from zoning R2 'Low Density Residential' to R3 'Medium Density Residential'.

The proposed rezoning of the subject land is expected to allow for the provision of up to ten (10) subdivided lots (to accommodate a single dwelling on each lot) with an internal two-way road, which will be an extension to Morshead Road at the western boundary of the site.

Refer to ***Appendix 'A'*** for the proposed development site layout plans.

4.2 Vehicular Access

The proposed vehicular access to and from the subject site will be through a proposed new no-through road (cul-de-sac) to be constructed off Morshead Road at the western boundary of the site. A secondary optional vehicular access to and from the subject site will also be through a new road to be constructed as an extension to the existing dead-end road of Buna Close at the northern boundary of the site subject to Council approval.

The proposed roads are to provide vehicular access to the proposed subdivided lots and dwellings for the subject site.

All vehicular access is to be located and constructed in accordance with the requirements of AS2890.1:2004, where adequate sight distance is provided. Details of the proposed road layout are outlined in Section 4.3 of this report.

4.3 Proposed Road Alignment (proposed new access road)

As part of the subject rezoning proposal and future residential subdivision of the subject site, it is proposed to construct a new no-through road (cul-de-sac) off Morshead Road at the western boundary of the site to service the proposed residential development, including the provision of vehicular access to off-street car parking spaces/garages for the proposed future dwellings.

It is also proposed to construct a new road extension at the end of the existing Buna close, to service the proposed residential development, including the provision of vehicular access to off-street car parking spaces/garages for the proposed future dwellings, subject to Council approval.

At present, the carriageway in Morshead Road has a width of approximately 8 metres. The new no-through road end (cul-de-sac) will have a clear carriageway radius of 9.92 metres, in addition to a 1.2m wide footpath/nature strip on either side with roll-top type kerb, as per the requirements for Access Road or Access Place under Category E of Table 2.1 of the Camden Council Engineering Design Specification for a cul-de-sac road under 200 metres in length.

The proposed access road laneway falls under the category of laneways as per Section 3.3.2 of Camden Growth Centre Precincts DCP, which outlines that the primary purpose of laneways is to “create attractive front residential streets by removing garages and driveway cuts from the street frontages, improving the presentation of houses and maximising on street parking spaces and street trees”.

The proposed cul-de-sac will have a total radius of 9.92 metres, in addition to a 1.2m wide footway on either side. Therefore, the proposed no-through road layout is considered to be adequate for the proposed rezoning and future subdivision of the subject site and in accordance with Figure 3-16 of the DCP, as shown on the next page. The proposed no-through road carriageway must have a minimum width of 6 metres.

The cul-de-sac layout has been designed in a way to accommodate a full turn for a Medium Rigid Vehicle (MRV - 8.8 metres in length), which can be utilised by a waste collection truck or an emergency vehicle. Refer to the attached vehicle swept paths diagrams for MRV in Appendix ‘B’ of this report.

Typical Laneway section **Typical Laneway (plan)**

Figure 3-16: Laneway principles

4.4 Expected Traffic Generation

An indication of the potential traffic generation of the proposed rezoning of the subject site from low density to medium density residential and the expected future subdivision of the site into nine (9) dwellings is provided by the RMS *Guide to Traffic Generating Development 2002 – Technical Direction*.

The Guide specifies the following traffic generation rates for dwelling houses in Sydney:

- 10.7 daily vehicle trips per dwelling, and
- 0.95 (AM) peak hour vehicle trips per dwelling.
- 0.99 (PM) peak hour vehicle trips per dwelling.

Therefore, the proposed development site for 9 dwellings has an estimated traffic generation as shown on the following table:

Development Site	Type of dwellings	Estimated No. of dwellings	Daily vehicle trips	AM & PM Peak hour vehicle trips
33 Morshead Road, Mount Annan	Single dwellings	9	97	9

It should also be noted that the rates used by the RMS Guide are based on surveys of areas where public transport accessibility can be often limited. However, the subject site has access to a regular bus route within a short walking distance and therefore these rates are considered to be conservative and could justifiably be further reduced.

The RMS guide states that *"As a guide, about 25% of trips are internal to the subdivision, involving local shopping, schools and local social visits".*

The estimated peak hour traffic generation of 10 vehicle per hour for the proposed rezoning and future subdivision development site is considered to be acceptable and will have no major impact on the surrounding road network and can be easily accommodated.

It will not alter the current levels of service and additional traffic can be readily accommodated within the existing road network, without the need for any upgrade or change. The external impact of the traffic generated by the proposal is considered to be satisfactory and will remain well within the Environmental capacity of the surrounding streets, with no adverse impacts on the amenity of the area.

5 CONCLUSION

It can be concluded from the traffic impact assessment that the proposed rezoning and subdivision of the subject site located at 33 Morshead Road, Mount Annan from zoning R2 'Low Density Residential' to R3 'Medium Density Residential' will have no adverse impacts on the surrounding road network.

- The current traffic flows on the surrounding roads are considered to be appropriate for local residential roads, where traffic is free flowing without any major queuing or delays in peak hours, with spare capacity.

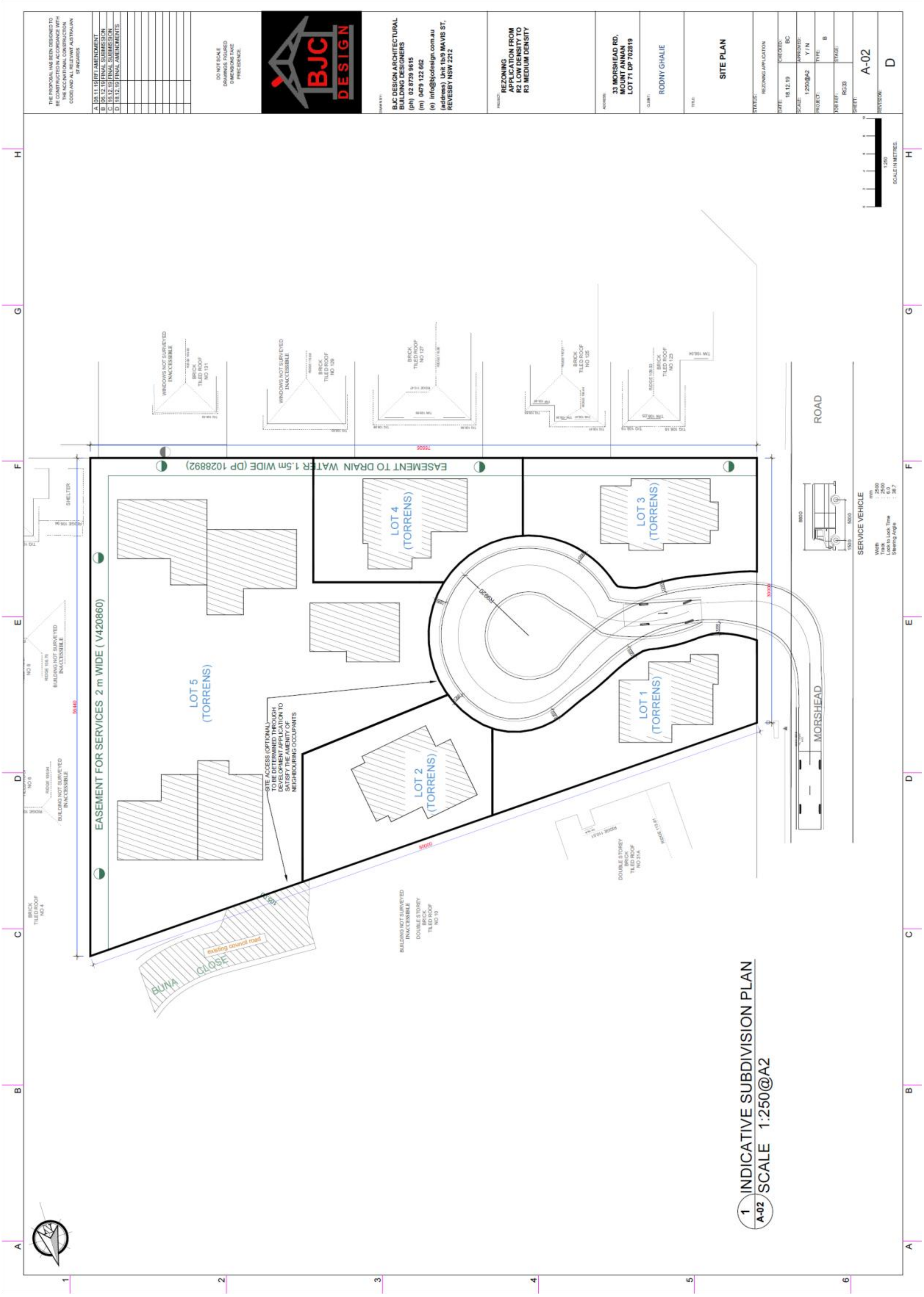
- The estimated traffic generated trips are considered to be acceptable and of low impact on the surrounding road network and can be easily accommodated with the existing road network.

- The external impact of the traffic generated by proposal is considered to be satisfactory and will remain well within the Environmental capacity of the surrounding streets, with no adverse impacts on the amenity of the area.

- The location and layout of the proposed access road is considered to be adequate and will provide vehicular access to the expected future residential subdivision and is in accordance with Council's Engineering Design Specification and Council's DCP.

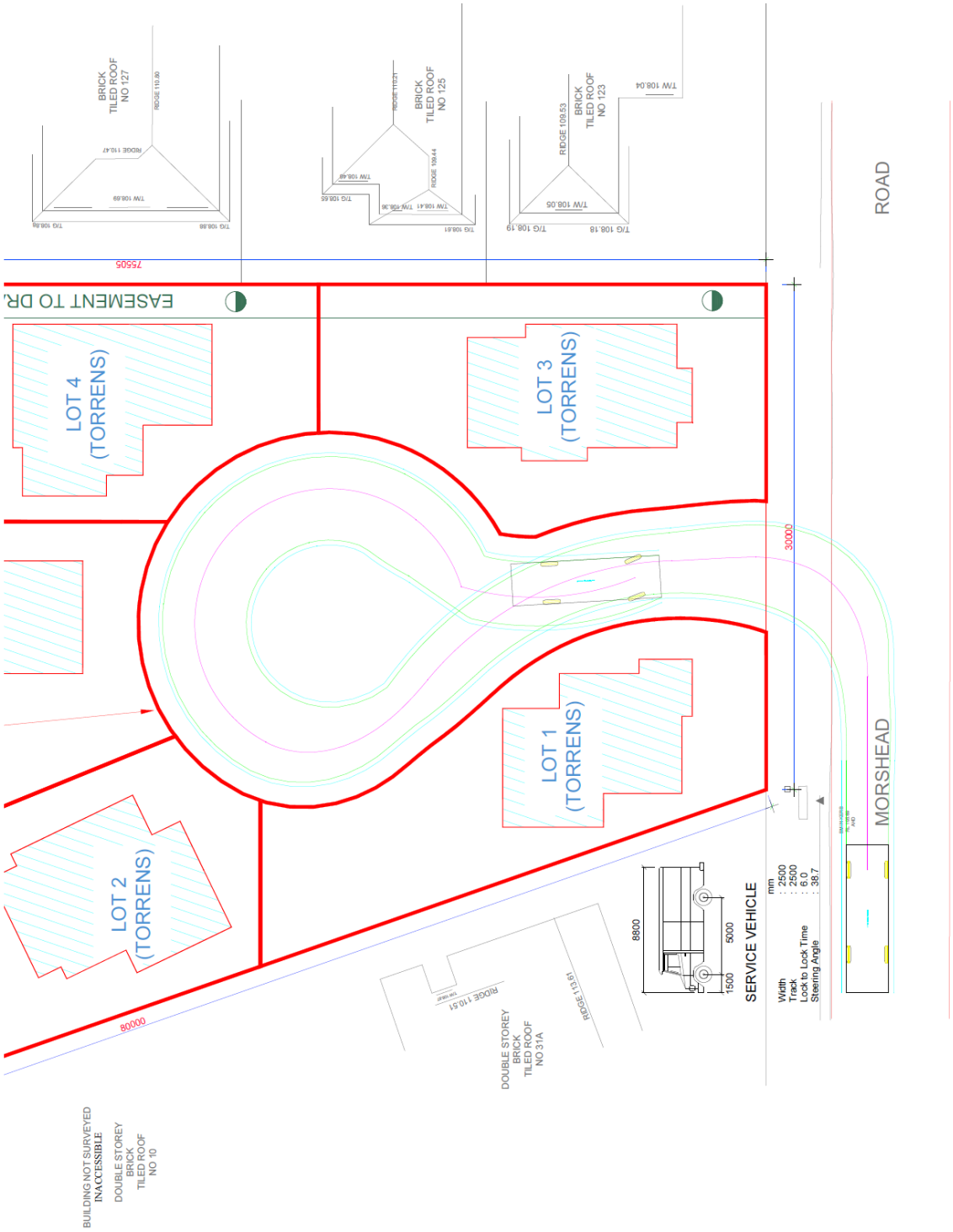
- The subject site has good access to existing public transport services in the form of regular bus services.

Appendix A – Proposed Development Site Layout Plans



BJC DESIGN ARCHITECTURAL BUILDING DESIGNERS
REZONING APPLICATION FROM R2 LOW DENSITY TO R3 MEDIUM DENSITY
33 MORSHEAD RD, MOUNT ANNAN LOT 71 DP 702819
RODNY GHALIE
SITE PLAN
A-02
D
EASEMENT TO DRAIN WATER 1.5m WIDE (DP 1028892)
EASEMENT FOR SERVICES 2 m WIDE (V420860)
LOT 1 (TORRENS)
LOT 2 (TORRENS)
LOT 3 (TORRENS)
LOT 4 (TORRENS)
LOT 5 (TORRENS)
MORSHEAD ROAD
BUNA CLOSE
SERVICE VEHICLE
INDICATIVE SUBDIVISION PLAN
SCALE 1:250@A2

Appendix B – Vehicle Swept Paths


ROAD
MORSHEAD
LOT 1 (TORRENS)
LOT 2 (TORRENS)
LOT 3 (TORRENS)
LOT 4 (TORRENS)
EASEMENT TO DR
BRICK TILED ROOF NO 127
BRICK TILED ROOF NO 125
BRICK TILED ROOF NO 123
DOUBLE STOREY BRICK TILED ROOF NO 31A
DOUBLE STOREY BRICK TILED ROOF NO 10
BUILDING NOT SURVEYED INACCESSIBLE
SERVICE VEHICLE
mm
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 38.7
8800
5000
1500
30000
80000
75505

Annexure “I”

Urban Design Report and Development (Indicative Scheme No. 2) Overview

33 Morshead Road, Mount Annan

Urban Design Report & Development Overview

Prepared For:

BJC DESIGN TO ACCOMPANY PLANNING PROPOSAL REQUEST BY PASCOE PLANNING SOLUTIONS

19 August 2019

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design partnership

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ABN:	85 162 968 103
Nominated Architect:	N R Dickson #7061

Contents

1.0 Introduction

1.1 Purpose

ae design partnership have been engaged by BJC Design to provide urban design advice to assist the advisory and determining bodies with the planning proposal request in respect of the property legally known as Lot 71 in DP 702819, otherwise known as 33 Morshead Road, Mount Annan NSW 2567 (**the site**).

This report is to be read in conjunction with further information provided in the Planning Proposal Request prepared by *Pascoe Planning Solutions*.

1.2 Background

In October 2018, *Pascoe Planning Solutions* submitted a Planning Proposal Request to Camden Council (**Council**) which sought to amend the Camden Local Environmental Plan 2010 by:

- Rezoning the site from R2 Low Density Residential to R3 Medium Density Residential; and
- Amending the minimum lot size from 450m² to 250m².

On 11 June 2019, Council issued a letter to BJC Design requesting for further information and updates to application documents.

1.3 Objectives

The objectives of this urban design report are to:

1. Conduct site analysis and identify opportunities in Strategic and Local Context to establish a Desired Future Character for the site which is compatible with surrounding development and establishes a template for potential future redevelopment, consistent with prevailing local planning controls.
2. Assess the proposed development against:
    - Desired Future Character; and
    - Key Objectives under State Environmental Planning

Figure 1: Site Location (Nearmap 2019)

2.0 Strategic Context

2.1 Greater Sydney Region Plan

As outlined in the Planning Proposal Request, redevelopment of the site will be consistent with the following key directions in respect of infrastructure and collaboration, liveability, productivity and sustainability:

Objective 4 - Infrastructure use is optimised

Objective 6 - Services and infrastructure meet communities' changing needs

Objective 7 - Communities are healthy, resilient and socially connected.

Objective 10 - Greater Housing Supply

Objective 11 - Housing is more diverse and affordable

Objective 25 - The coast and waterways are protected and healthier

Objective 27 - Biodiversity is protected, urban bushland and remnant vegetation is enhanced

Objective 28 - Scenic and cultural landscapes are protected

Objective 37 - Exposure to natural and urban hazards is reduced.

2.2 Western City District Plan

Similarly, the proposal will remain consistent with:

Planning Priority W1 – Planning for a city supported by infrastructure

Planning Priority W5 – Providing housing supply, choice and affordability, with access to jobs, services and public transport.

Planning Priority W12 – Protecting and improving the health and enjoyment of the District's waterways

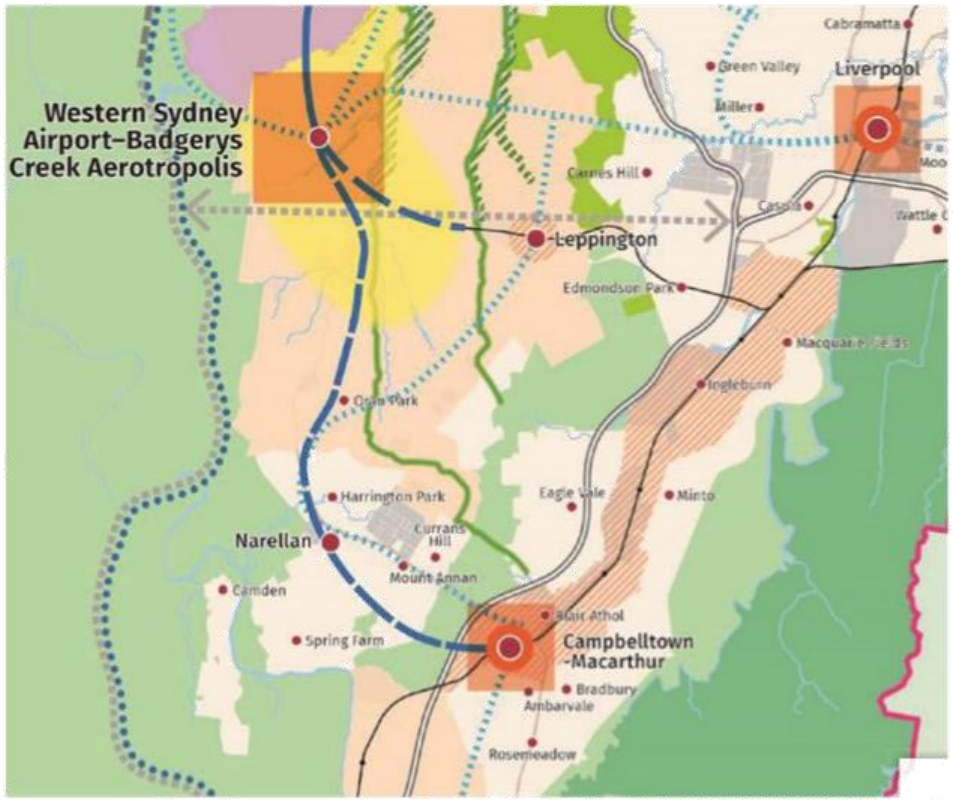


Figure 2: Western City (Western District Plan, 2018)

2.3 Camden Local Environmental Plan 2010

2.3 Current Zoning

The site is located within the R2 Low Density Residential land use zone under the Camden Local Environmental Plan 2010. The objectives of the zone are:

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To allow for educational, recreational, community and religious activities that support the wellbeing of the community.*
- *To minimise conflict between land uses within the zone and land uses within adjoining zones.*

2.4 Current Height of Buildings

The site is subject to a height limit of 9.5 metres as illustrated in **Figure 5** below. The objectives governing height are:

(a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality,
(b) to minimise the visual impact, disruption of views, loss of privacy and loss of solar access to existing development,
(c) to minimise the adverse impact of development on heritage conservation areas and heritage items.

2.4 Current Minimum Lot Size

The site is subject to a minimum lot size of 450m². The objectives of minimum lot sizes are:

(a) to ensure that subdivision reflects and reinforces the predominant subdivision pattern of the area,
(b) to ensure that lot sizes and dimensions are able to accommodate development consistent with relevant development controls,
(c) to ensure that lot sizes and dimensions allow dwellings to be sited to protect natural or cultural features, including heritage items, and retain special features such as trees and views,
(d) to provide for a range of residential lot sizes and types,
(e) to ensure that the density of development is consistent with the existing and proposed future road and utility infrastructure in the locality.

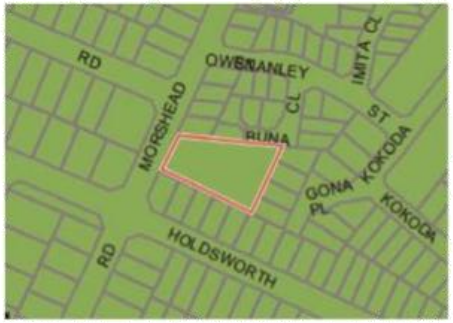
LEGEND

Figure 3: Land Use Zoning Map (Camden LEP 2010)

The Site

R3 Medium Density Residential

R2 Low Density Residential



LEGEND

Figure 4: Height of Buildings Map (Camden LEP 2010)

The Site

J - 9.5m

LEGEND

Figure 5: Minimum Lot Size Map (Camden LEP 2010)

The Site

G - 450m²

C - 250m²

3.0 Local Context

3.1 Site Locality

The locality is defined by a 400 metre (5 minute) walking catchment from the site.

The locality is characterised by:

- Single and two storey detached residential built form;
- On linear streets, lot shapes produce regular shaped small to modest allotments;
- Where streets end on a cul-de-sac, irregular shaped lots are produced, in some instances providing battle-axe allotments;
- Sparse vegetation along streets;
- In most instances, grass verges are only provided lacking pedestrian pathways;
- Where pedestrian paths are provided on blocks, little to no landscaping is provided to adjacent grass verges;
- Single vehicular access into residential sites directly off the street;
- Corner allotments dominated by boundary fencing; and
- a particularly modest public realm.

LEGEND

The Site

B2 Local Centre

Figure 6: Site Locality

3.2 Landscape

Topography

As illustrated in **Figure 7**, the locality is generally flat in topography. The highest point is located at the south-western end of the 400 metre catchment at RL 114 in accordance with the NSW SIX Maps Spatial Data.

The lowest points are located north-west at RL 90 and north-east at RL 88 which is a riparian waterway that creates a physical boundary between the residential frame of the area and commercial uses to the east.

Morshead Road is located on a ridge-line.

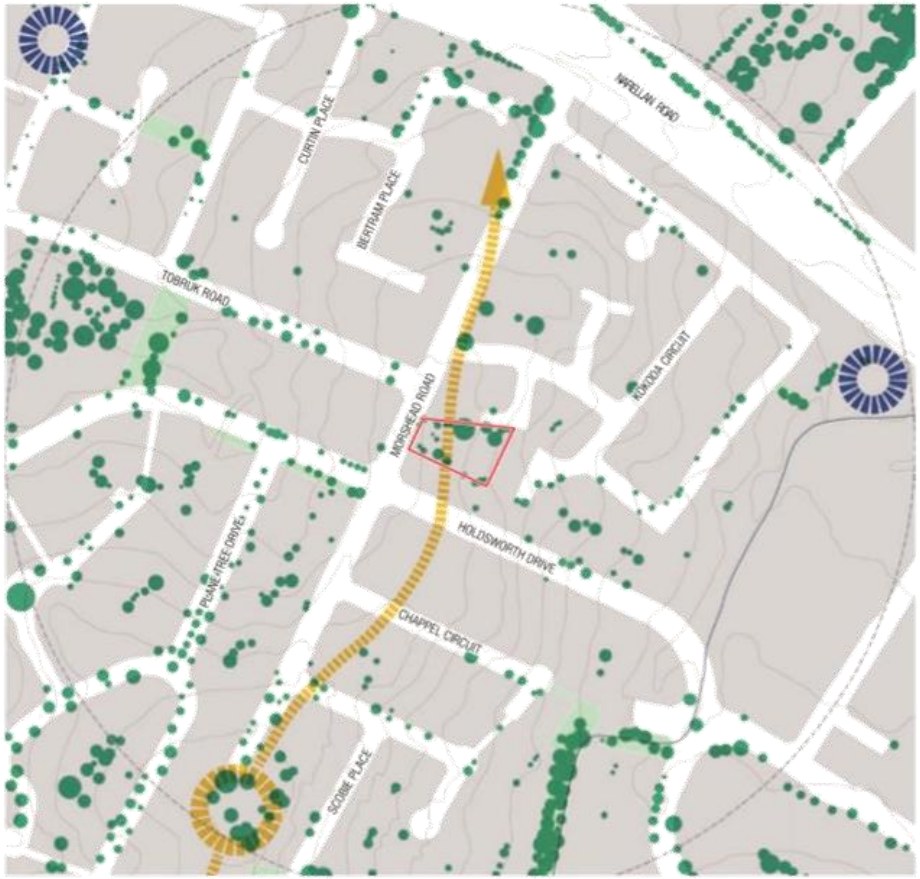
The site sits on contour RL 106.

Vegetation

The locality is characterised by sparse vegetation with majority of trees located within residential properties. Few street trees are provided along streetscapes.

The streets are devoid of character-forming trees.

Public open spaces generally have trees lined along the perimeter of public parks and in some instances, sporadically around a single edge or corner of the open space.



LEGEND

Figure 7: Local Context - Landscape

The Site	Low Point
2m Contour Interval	Existing Trees
High Point	Open Space
Ridge Line	Waterways

3.3 Road Network

As illustrated in **Figure 8**, the local road network is comprised of a range of different types of roads from major arterial roads to local streets.

Narellan Road forms the north-eastern boundary of the locality providing north and south connections to Greater Sydney. Waterworth Drive provides the northern-most road connection into Mount Annan from Narellan Road.

Morshead Road is a local street that runs perpendicular to Holdsworth Drive.

Cul-de-sac's occur frequently off local streets which reduce direct connections to destinations around the area. As a result, poor vehicular links are available in the area; it being characterised by limited permeability.

LEGEND

- The Site
- Highway
- Collector Road
- Local Road
- Cul-de-sac
- Commercial Site Access
- Existing Trees
- Open Space
- Waterways

Figure 8: Local Context - Road Network

3.4 Lot Size

Lots comprising detached residential dwellings in the locality vary between 243m² to 550m² in area, with the residue allotment of 4,048m² being the exception.

The lots in the immediate precinct and most proximate to the subject site, bounded by Morshead Road to the west, Owen Stanley Street and Kokoda Circuit to the north, Holdsworth Drive to the South and Thornleigh Gully to the east, are generally the smallest.

These small lots directly north of the site have areas between 243m² and 390m² and represent up to a 46% departure from the minimum lot area development standard under the current Camden LEP 2010.

LEGEND

- The Site
- 700m²+
- 601m² - 700m²
- 501m² - 600m²
- 401m² - 500m²
- 301m² - 400m²
- 250m² - 300m²
- Existing Trees
- Open Space
- Waterways

Figure 9: Local Context - Lot Size

3.5 Pedestrian Movement

Under current conditions in the area, there is limited pedestrian mobility due to the nature of the road network in the locality and the limited provision of pedestrian paths on residential blocks.

As mentioned in **Section 3.3**, the road network is characterised frequently of cul-de-sac's which limit pedestrian connections within the area.

In general the neighbourhood lacks permeability.

LEGEND

- The Site
- Pedestrian Movement
- Existing Trees
- Open Space
- Waterways

Figure 10: Local Context - Pedestrian Movement

3.6 Built Form

3.6.1 Building Envelopes

Building Footprints

Detached residential dwellings are the dominant building type in the locality.

Setbacks:

- Street frontage setbacks are generally 6 metres.
- Side setbacks are generally 0.9 metres.
- Variable rear setbacks up to 10 metres (depending on depth of the lot).

Building Heights

The locality is dominated by residential dwellings of single and two storey built forms.

Two storey built forms are largely located on smaller allotments within areas ranging between 249m² and 400m².

Building Forms

Dwellings are predominantly brick veneer construction with hipped roof forms.

Decorative aspects are rare.

Dwellings have min roof articulation.

Figure 11: Local Context - Built Form

3.6.2 Streetscape

A streetscape elevation of eastern side of Morsehead Road between Owen Stanley Street and Holdsworth Drive is shown at **Figure 12** below.

The streetscape is characterised by:

- Linear driveways with direct access to ground floor garages;
- Grass verges extending to Morshead Road;
- Pedestrian path and grass verge begins from the corner of Holdsworth Drive;
- Single or few trees within the front yard of properties;
- Only isolated street trees;
- Consistent street setback; and
- Predominantly two storey brick with hipped roof, little articulation and prominent garages built form, with the exception of the single storey dwelling at the corner of Holdsworth Drive and Morshead Road.

Figure 12: Local Context - Existing Streetscape Elevation along Morshead Road

4.0 Site Analysis

The site is currently occupied by a dilapidated 1960's residential dwelling with related improvements at the southern-most corner of the lot and poorly maintained landscaped areas.

The site sits on the RL 106 contour line in accordance with the NSW SIX Maps Spatial Data.

The terrain on the site is generally flat across a distance of approximately 50 metres with a modest fall of 2 metres over a distance of (approximately) 25 metres.

It has street frontage to Morshead Road to the west (principal access) and Buna Close to the north.

Existing vegetation on the site is concentrated at the northern and southern boundaries of the site and is of little significance.

The site is a residue site and dearly exhibits such qualities.

LEGEND

The Site

0.5m Contour Interval

Figure 13: Site Analysis

5.0 Desired Future Character

As the corresponding Planning Proposal Request prepared by *Pascoe Planning Solutions* seeks to amend the land use zoning on the site from R2 Low Density Residential to R3 Medium Density Residential, consistent with adjoining properties, the zone objectives establish the desired character of development within medium density residential zones, being:

- *To provide for the housing needs of the community within a medium density residential environment.*
- *To provide a variety of housing types within a medium density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To encourage redevelopment of land for medium density housing in locations close to main activity centres within the Camden local government area.*
- *To minimise conflict between land uses within the zone and land uses within adjoining zones.*

Council has clearly identified the immediate precinct as a medium density precinct having regard to its context/locational setting and general qualities suited to medium density residential development.

It is these aspirations borne out in the development controls which should underpin the future character of the area as it evolves over time.

If this were not the case Council would zoned the land R2 Low Density Residential, it chose not to do so in 2010, when the precinct was largely development, given its future aspirations.

Accordingly, the objectives of the prevailing R3 Medium Density Residential Zone, should underpin the desired future character for the area:

(a) to ensure that subdivision reflects and reinforces the predominant subdivision pattern of the area,
(b) to ensure that lot sizes and dimensions are able to accommodate development consistent with relevant development controls,
(c) to ensure that lot sizes and dimensions allow dwellings to be sited to protect natural or cultural features, including heritage items, and retain special features such as trees and views,
(d) to provide for a range of residential lot sizes and types,
(e) to ensure that the density of development is consistent with the existing and proposed future road and utility infrastructure in the locality.

6.0 The Proposal

6.1 Planning Proposal Request

The Planning Proposal Request seeks to amend the Camden Local Environmental Plan 2010 by:

- Rezoning the site from R2 Low Density Residential to R3 Medium Density Residential; and
- Amending the minimum lot size from 450m² to 250m².

Proposed amendments to the LEP Maps are shown in **Figure 14** and **Figure 15**. It is important to highlight properties within the block in which the site is located is characteristic of a:

- R3 Medium Density Residential land use zone; and
- Minimum lot area of 250m² under the current Camden LEP 2010.

LEGEND

Figure 14: Proposed Amendment to LEP Zoning Map

The Site

R3 Medium Density Residential

R2 Low Density Residential

LEGEND

Figure 15: Proposed Amendment to Minimum Lot Size Map

The Site

G - 450m²

C - 250m²

6.2 Indicative Concept Plan

6.2.1 Envelope Plan

Figure 16 illustrates an indicative concept for the site showing:

- 10 proposed lots, each comprising a two storey residential dwelling. A detailed breakdown of each lot is shown in **Table 1** below:

Table 1 Proposed Lot Areas.

Lot Number	Area (m²)
1	254
2	254
3	311
4	380
5	287
6	252
7	252
8	309
9	273
10	270

- Vehicular access off:
  - Morshead Road for Lot 1 to Lot 3;
  - Buna Close for Lot 9; and
  - Proposed extension of Buna Close to be dedicated to Council for remaining 6 lots.
- Grass verge;
- 2 on-street visitor car parking;
- Capacity for 4 new street trees within the site to for offset loss of existing vegetation on the site for proposed development
- Potential for 4 new street trees to be planted along the road verge along Morshead Road.
- Developable area consistent with DCP setbacks shown in a dashed red line;
- Minimum private open space consistent with DCP requirements; and
- Indicative driveway access into lots.

Figure 16: Proposed Setback Envelopes

6.2.2 Proposed T - turning Bay

The indicative concept plan proposes a T-turning bay as an extension of the existing Buna Close into the site, consistent with *Austroads Design Vehicles and Turning Paths* for 8.8 metre service vehicles.

The T-turning bay is consistent with **Figure 17** below.

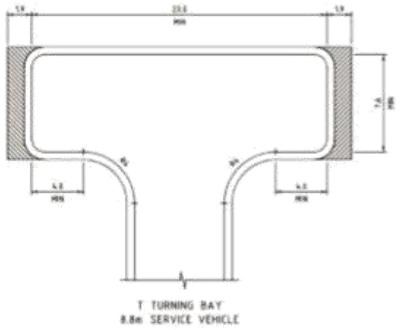


Figure 17: T-turning Bay for 8.8m Service Vehicle

In this regard, the proposed concept plan layout has capacity to accommodate Council waste vehicles on bin collection day.

Figure 18: Proposed Layout

6.2.3 Indicative Floor Plans

Figure 19: Proposed Indicative Concept - Ground Floor

Figure 20: Proposed Indicative Concept - First Floor

7.0 Assessment

7.1 Project Venture Developments v Pittwater Council [2005] NSWLEC 191

In order to determine whether the proposal is compatible with the desired future character for the site, it is appropriate to consider NSW LEC planning principle 'compatibility with context' established in Project Venture Developments v Pittwater Council [2005] NSWLEC 191.

In his judgement, Roseth SC states at paragraph [22]:

> *"There are many dictionary definitions of compatible. The most apposite meaning in an urban design context is capable of existing together in harmony. Compatibility is thus different from sameness.* ***It is generally accepted that buildings can exist together in harmony without having the same density, scale or appearance****, though as the difference in these attributes increases, harmony is harder to achieve".*
>
> (emphasis added)

In this instance, the site is located in the R2 Low Density Residential land use zone under the current LEP. The streetscape along Morshead Road is comprised of predominantly two storey residential developments with:

- a consistent street setback;
- varying street frontage lengths from 11m to 73m;
- sparse landscaped vegetation within front yards;
- no fencing at the street frontage; and
- linear vehicular driveway directly to ground floor garages.

Roseth SC also states at paragraph [24] of his judgement in Project Venture Developments v Pittwater Council [2005] NSWLEC 191:

> *"Where compatibility between a building and its surroundings is desirable, its two major aspects are physical impact and visual impact. In order to test whether a proposal is compatible with its context, two questions should be asked.*
>
> - *Are the proposal's physical impacts on surrounding development acceptable? The physical impacts include constraints on the development potential of surrounding sites.*
> - *Is the proposal's appearance in harmony with the buildings around it and the character of the street?"*

This test is applied to the proposed development:

Are the proposal's physical impacts on surrounding development acceptable? The physical impacts include constraints on the development potential of surrounding sites.

The proposal's physical impacts on surrounding development are acceptable on the following grounds:

- The proposal retains existing pattern of development along Morsehead Road and Buna Close consistent with orientation of residential dwellings;
- Proposed lot areas are compatible with neighbouring allotments immediately north of the site, particularly along Morsehead Road, Owen Stanley Street and Buna Close;
- Proposed built form produces two storey development consistent with adjacent properties;
- T-turning bay improves existing vehicular access for service vehicles consistent with Austroads requirements; and
- Development potential/amenity of adjoining sites is not adversely impacted.

Is the proposal's appearance in harmony with the buildings around it and the character of the street?

- Indicative dwellings on proposed lots (Lot 1, Lot 2 and Lot 3) along Morshead Road are consistent with adjoining properties in terms of:
  - Front setback;
  - Orientation;
  - Building Height; and
  - Vehicular Access into lots.
- Proposed dwellings on Lots 4-10 off Buna Close extension produce similar built form to that of existing development along the street.
- Indicative landscape treatment within proposed lots consistent with landscape requirements under the Camden DCP 2011 and compatible with existing streetscape character of both Morshead Road and Buna Close.
- The physical and visual impact will clearly be consistent and harmonious.

For the aforementioned reasons outlined in this assessment, the proposed development is considered compatible with surrounding development in the locality. The proposal is considered to be in harmony with existing development along the streetscape.

7.2 Consistency with Objectives under Camden LEP 2010

R3 Medium Density Residential - Zone Objectives

Objective	Consistency with Proposal	Compliance
To provide for the housing needs of the community within a medium density residential environment.	The indicative concept plan on the site provides 10 lots each with a detached two storey residential dwelling consistent with development standards under the Camden DCP 2011.	✓
To provide a variety of housing types within a medium density residential environment.	As illustrated in Section 6.2.3, four different housing layouts are provided within the site across the 10 allotments.	✓
To enable other land uses that provide facilities or services to meet the day to day needs of residents.	This application does not involve land uses other than residential so as not to detract from the existing character of the area.	✓
To encourage redevelopment of land for medium density housing in locations close to main activity centres within the Camden local government area.	The site is located within a 500 metre walking catchment of the Mount Annan Local Centre. Proposed medium density residential uses will have access to the main activity centre of Mount Annan.	✓
To minimise conflict between land uses within the zone and land uses within adjoining zones.	Proposed amendments to the Camden LEP 2010 are consistent with the existing character of the locality being R3 Medium Density Residential and R2 Low Density Residential.	✓

Minimum Lot Size

Objective	Consistency with Proposal	Compliance
(a) to ensure that subdivision reflects and reinforces the predominant subdivision pattern of the area,	The proposed subdivision layout reinforces the existing subdivision pattern of the area by providing similar shaped and sized allotments.	✓
(b) to ensure that lot sizes and dimensions are able to accommodate development consistent with relevant development controls,	Indicative concept plans for residential development on proposed lots are consistent with Camden DCP 2011.	✓
(c) to ensure that lot sizes and dimensions allow dwellings to be sited to protect natural or cultural features, including heritage items, and retain special features such as trees and views,	Consideration has been given to the siting of residential dwellings on each proposed lot with regard to natural features of the area. It is important to highlight the site is not a heritage item nor is located within vicinity of a heritage item. The site is situated in a fully developed contemporary urban release area.	✓
(d) to provide for a range of residential lot sizes and types,	Proposed development provides a range of lot sizes between 252m² and 380m². Refer to **Section 7.4**.	✓
(e) to ensure that the density of development is consistent with the existing and proposed future road and utility infrastructure in the locality	Proposed subdivision layout is consistent with the density of the area. The proposed extension of Buna Close and T-turning bay ensures Council waste service vehicles can accommodate existing and new residential developments along Buna Close, as well as Morshead Road.	✓

7.3 Road Network

The indicative concept plan for proposed amendments to the Camden LEP 2010 does not adversely impact the functionality existing road network in the locality.

An extension of the existing Buna Close cul-de-sac into a T-turning bay with capacity to accommodate 8.8 metre service vehicles is proposed within the site.

As illustrated in **Figure 21**, the existing local network comprises of a number of cul-de-sacs shown in dasked red line, including:

- Buna Close;
- Gona Place;
- Imita Close;
- Bertram Place;
- Ramsay Close;
- Bardia Circuit; and
- Chappel Circuit.

The proposed extension of Buna Close is therefore consistent with the existing character of the area.

Additionally, safe vehicle and pedestrian movement is not compromised by the proposal.

LEGEND

Figure 21: Assessment - Road Network

- The Site
- Existing Trees
- Highway
- Open Space
- Collector Road
- Local Road
- Cul-de-sac
- Commercial Site Access

7.4 Lot Size

Similarly to lots directly north of the site, the Planning Proposal Request seeks to amend the existing minimum lot size to 250m² consistent with the desired future character of the area.

The diagram in **Figure 22** shows the nature of lots immediately surrounding the site generally consistent with proposed lots on the site. **Table 2** below details the area of proposed lots on the site.

Table 2 Proposed Lot Areas.

Lot Size Group (m²)	Proposed Lot
250 - 300	1, 2, 5, 6, 7, 9 and 10
301 - 400	3, 4 and 8

The proposed subdivision of the site is consistent with the density of the area. Accordingly, the proposal satisfies Objective e) of Clause 4.1 Minimum Lot Size of the Camden LEP 2010.

LEGEND

- The Site
- 700m²+
- 601m² - 700m²
- 501m² - 600m²
- 401m² - 500m²
- 301m² - 400m²
- 250m² - 300m²
- Existing Trees
- Open Space

Figure 22: Assessment - Lot Size

7.5 Pedestrian Movement

The indicative concept plan for proposed amendments to the Camden LEP 2010 does not reduce the existing pedestrian links that exist in the locality.

Similar to neighbouring properties, particularly those north of the site, do not provide off-street pedestrian pathways. In this regard, the indicative concept for the site is compatible with the existing character of the local area.

LEGEND

Figure 23: Assessment - Pedestrian Movement

- The Site
- Pedestrian Movement
- Existing Trees
- Open Space

7.6 Built Form

7.6.1 Building Envelope

The Indicative building envelopes for detached residential development on proposed lots are consistent with built form in the locality.

Where lot areas are smaller, building footprints reduce in area. This is similar to existing residential development directly north of the site, where in some cases, smaller lot areas are produced.

Proposed building envelopes are two storeys in height compatible with adjoining two storey developments along Morshead Road, Buna Close and Holdsworth Drive.

Proposed lots facing the Morshead Road frontage are consistent with street frontage setbacks of adjacent sites to the north. Built form is consistently angled to the western aspect with residential entry off Morshead Road.

Figure 24: Assessment - Built Form

7.6.2 Streetscape

Figure 25 shows a streetscape elevation of the eastern side of Morsehead Road between Owen Stanley Street and Holdsworth Drive for proposed Lot 1, Lot 2 and Lot 3 on the site.

The proposed indicative residential dwellings are compatible with existing neighbouring developments north and south along Morshead Road by providing:

- Linear driveways with direct access to ground floor garage;
- Grass verges extending to Morshead Road;
- Consistent street setback; and
- Two storey built form with consistent with No. 29 - No. 33 Morshead Road.

It is important to highlight landscape design of front yards will be subject to detailed design stage of each individual lot.

Figure 25: Assessment - Proposed Streetscape Elevation along Morshead Road

8.0 Conclusion

In summary, the following conclusions were made:

1. Land Use Activities

- The site is located immediately adjacent R3 Medium Density Residential Development.
- Proposed subdivision layout for 10 residential allotments remain consistent with the existing character of the area.
- Proposed lots on the site have capacity to each accommodate a two storey detached residential dwelling (inclusive of open space provision) as demonstrated at **Section 6.2.3**.

2. Density

- The indicative concept plan is consistent with proposed amendments to the Minimum Lot Size of the site under Camden LEP 2010.
- Provision of 10 lots on the site, which meet a minimum area of 250m² are consistent with existing neighbouring development, particularly north of the site.
- Proposed residential development is compatible with existing density of the locality.

3. Built Form

- Proposed building envelopes are two storeys in height compatible with adjoining two storey developments along Morshead Road, Buna Close and Hordsworth Drive.
- Proposed built form is consistent with building envelope requirements under Camden DCP 2011 with particular regard to setbacks and private open space, improving the overall amenity of future residents.
- Indicative floor plans for detached dwellings on proposed lots are consistent with development standards under the Camden DCP 2011.

4. Road Network

- The indicative concept plan does not adversely impact the existing road network in the locality.
- Proposed T-turning bay is consistent with *Austroads Design Vehicles and Turning Paths* for 8.8 metre service vehicles.
- The proposed extension of the existing Buna Close cul-de-sac into a T-turning bay has capacity to accommodate Council's Waste service vehicles.
- Provision of visitor parking and new street trees contribute to improving amenity of future residents.

Based on an assessment of the proposed indicative concept plan for the site, the proposed development is supported on the following grounds:

1. The proposal is consistent with the desired future character of the area;
2. The indicative concept plan for residential development on proposed lots demonstrate compatibility with the existing character of the are;
3. The proposal satisfies zone objectives for R3 Medium Density Residential land uses; and
4. The proposal satisfies the objectives under Clause 4.1 Minimum Lot Size under Camden LEP 2010.

Accordingly, the Planning Proposal Request on the property 33 Morshead Road, Mount Annan is supported on urban design grounds and recommended for approval.

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www.aedesignstudio.com.au

Annexure “J”

Overview of Past Neighbourhood Consultation

Council undertook preliminary consultation within the immediate neighbourhood upon receipt of the PPR. The subject consultation resulted in two (2) submissions from a neighbourhood mail-out in the order of 30 households (minimum in Morshead Road, Buna Close and Owen Stanley Street (i.e. representing a response rate of approximately 6 percent).

The subject submissions are reproduced at the end of this Annexure.

Not only are the submissions not considered to be representative of the neighbourhood feeling in respect of the PPR, but they also are not considered to be entirely factual (if they are from adjoining properties) and/or represent a misunderstanding. In this regard it is noted:

- Two storey development is commonplace in both R2 - Low Density and R3 - Medium Density residential environments
- All two-storey development must comply with the Complying Development provisions as a minimum.
- Overshadowing and privacy concerns have been conceptually addressed in the Indicative Development Scheme evolution and will be further addressed in the compilation of a relevant development application.
- The lot size proposed is a minimum of 250sq.m and is not inconsistent generally with prevailing allotments.
- Any purchaser subsequent to the adoption of Camden Local Environmental Plan in 2010 should have been aware through an appropriate conveyance search that the minimum subdivision lot size in the locality is 250sq.m (as detailed in CLEP 2010).
- Any future development would be compliant with either Complying Development or Council parking requirements. Sufficient road and site capacity exists to address/integrate minimum parking requirements.
- The locality has been selected by Council as fulfilling desirable medium density residential development locational criteria.

The General Manager
Camden Council

Re: Planning Proposal, 33 Morshead Road, Mt Annan

We strongly object to the proposal to rezone the above mentioned site, to reduce the minimum lot size from 450m2 to 250m2.

The site is not close to a major public transport hub, and would be grossly overdeveloped.
Also, most dwellings have at least two occupants with vehicles, which would cause more congestion on local roads.

The minimum lot area is set to prevent higher density, so please consider the residents' wishes.

Yours sincerely,

[redacted]

03/04/19

[redacted]

From: [redacted]
Sent: Sunday, 31 March 2019 11:35 AM
To: Council Mailbox
Cc: One note
Subject: Ref PP/2019/3/1

Follow Up Flag: Follow up
Flag Status: Flagged

To the General Manager,

I would like to make a submission in regards to the proposed planning changes to Lot 71 DP:702819, 33 Morshead Rd, Mount Annan.

[redacted] I have concerns that to reduce the lot size of R2 to R3 zoning that the building size will all be two stories and will overshadow [redacted] will be subject to privacy concerns as any building [redacted] will look straight into

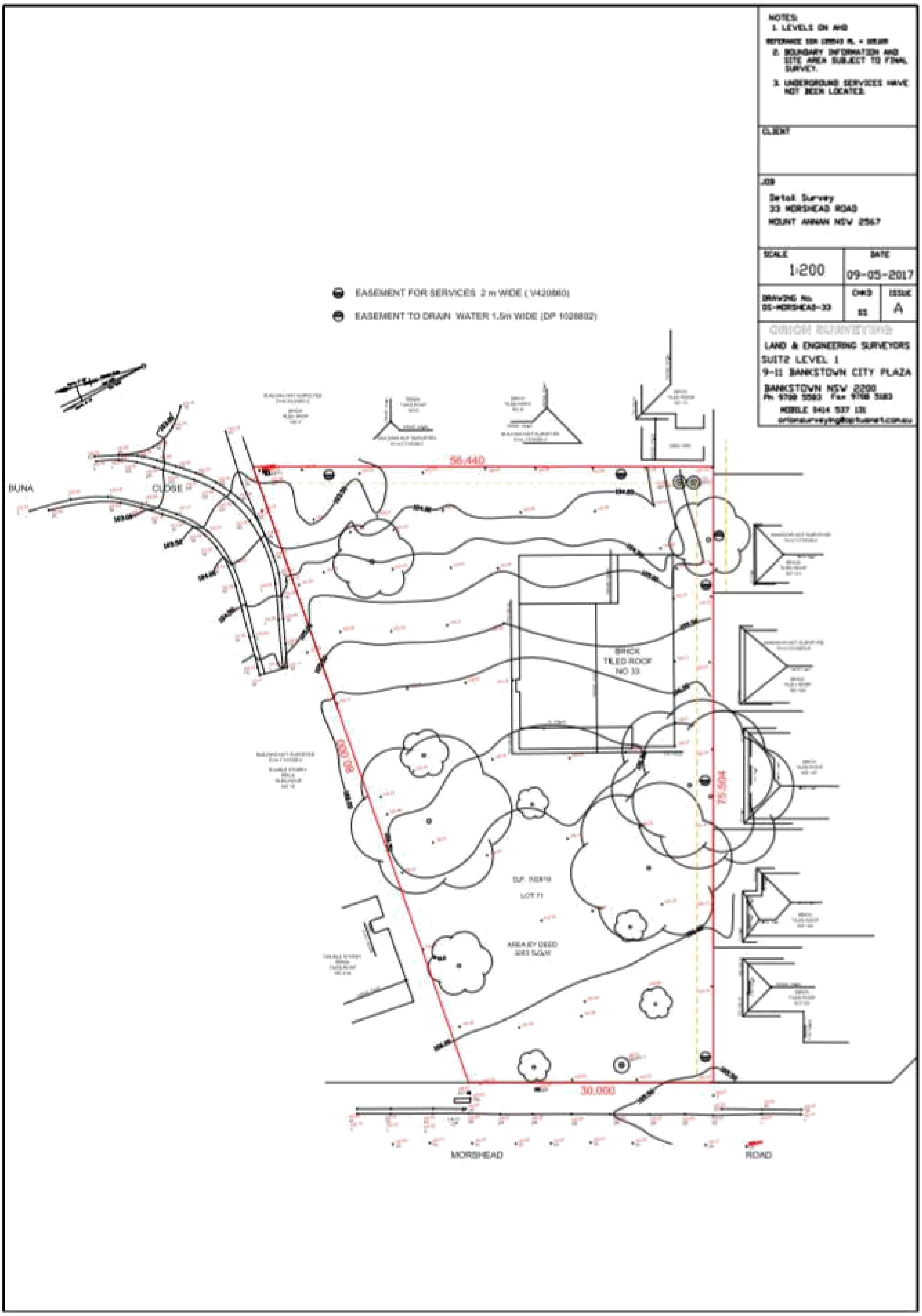
The other lots in the immediate area are all larger than the proposed lot, When I purchased my house in [redacted] bought with the understanding that this area would all be low density housing lots.

Thankyou for the opportunity to be notified and voice my opinion.

[redacted]

Annexure “K”

Miscellaneous Supporting Documents


NOTES:
1. LEVELS ON AHD
2. BOUNDARY INFORMATION AND SITE AREA SUBJECT TO FINAL SURVEY.
3. UNDERGROUND SERVICES HAVE NOT BEEN LOCATED.
CLIENT
JOB
Detail Survey
33 MORSHEAD ROAD
MOUNT ANNAN NSW 2567
SCALE
1:200
DATE
09-05-2017
DRAWING No.
DS-MORSHEAD-33
CHKD
ISSUE
A
LAND & ENGINEERING SURVEYORS
SUITE LEVEL 1
9-11 BANKSTOWN CITY PLAZA
BANKSTOWN NSW 2200
Ph 9708 5583 Fax 9708 5183
EASEMENT FOR SERVICES 2 m WIDE (V420860)
EASEMENT TO DRAIN WATER 1.5m WIDE (DP 1028892)
BUNA
CLOSE
56.440
75.504
30.000
BRICK
TILED ROOF
NO 33
LOT 71
AREA BY DEED
MORSHEAD
ROAD

DAY DESIGN PTY LTD
CONSULTING ACOUSTICAL ENGINEERS

SUITE 17, 808 FOREST ROAD, PEAKHURST 2210 ABN 73 107 291 494
P. 02 9046 3800 ACOUSTICS@DAYDESIGN.COM.AU WWW.DAYDESIGN.COM.AU

BJC Design
1B/9 Mavis Street
Revesby NSW 2212

18 April, 2018

Refer: 6413-1.1L

Attention: Mr Bashir Chidiac **Email:** info@bjcdesign.com.au

PROPOSED RESIDENTIAL SUBDIVISION

33 MORSHEAD ROAD, MT ANNAN, NSW – ACOUSTIC ASSESSMENT

Day Design has been engaged to provide a high level noise assessment of the proposed residential subdivision to be located at 33 Morshead Road, Mt Annan, NSW.

The site is located approximately 300 metres south of Narellan Road and 400 metres west of Mt Annan Marketplace. Given the large distances from potential noise sources such as major roads or commercial precincts affecting the residential development, it is unlikely that any acoustic treatment will be required as part of the construction of the residential dwellings on the proposed subdivision.

There is a total of 11 residential lots proposed as part of the subdivision. The traffic generation from the creation of 11 residential lots is expected to be minor and of minimal impact in generation of noise from additional traffic on the local road network.

Air conditioning units should be operated in accordance with Clause 52 of the Protection of the Environment Operations (Noise Control) Regulation 2008. Clause 52 states the following in relation to the use of air conditioners and heat pump water heaters:

"A person must not cause or permit an air conditioner or heat pump water heater to be used on residential premises in such a manner that it emits noise that can be heard within a habitable room in any other residential premises (regardless of whether any door or window to that room is open):

(a) before 8 am or after 10 pm on any Saturday, Sunday or public holiday, or

(b) before 7 am or after 10 pm on any other day".

We trust this information is satisfactory.

Kind regards

William Wang, BE (Mechatronics), MIEAust, MAAS

Senior Acoustical Engineer

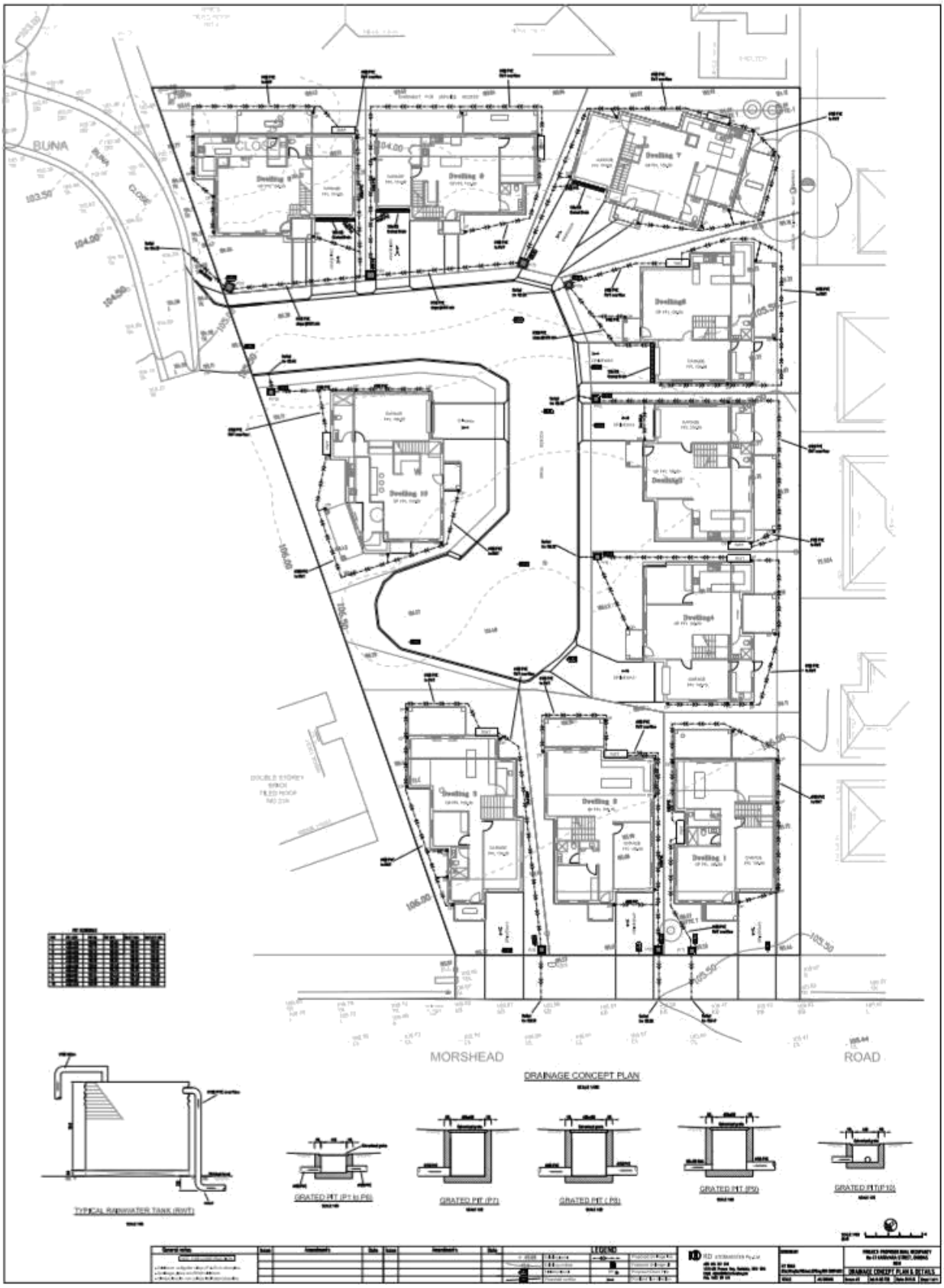
For and on behalf of Day Design Pty Ltd

AAAC MEMBERSHIP

Day Design Pty Ltd is a member company of the Association of Australian Acoustical Consultants, and the work herein reported has been performed in accordance with the terms of membership.

The undersigned hereby certifies that this Report has been checked and approved in accordance with our Quality Management System.

Date: 18/4/18



DRAINAGE CONCEPT PLAN

TYPICAL RAINWATER TANK (RWT)

GRATED PIT (P1 to P6)

GRATED PIT (P7)

GRATED PIT (P8)

GRATED PIT (P9)

GRATED PIT (P10)

SOIL TESTING REPORT FOR RESIDENTIAL FOOTINGS

SITE ADDRESS	**: 33 Morshead Road, Mt Annan NSW**
REPORT No	**: NE255**
DATE	**: 18 February 2018**
CLIENT	**: BJC Design**
PROPOSED STRUCTURE	**: Future Subdivision of Residential Lots**
SITE CLASSIFICATION	**: Class H1**

GEOTESTA

GEOTESTA PTY LTD | ABN 91851620815 | Level 15, 60 Station St East, Parramatta 2150
email: info@geotesta.com.au

1. COMMISSION AND LIMITATIONS

Geotesta was engaged to iinvestigate the soil profile at four borehole locations (BH1 to BH4) as requested to satisfy the requirements of Australian Standard 2870 - 2011 (Residential slabs and footings - Construction) with respect to the construction of a new dwelling. This report is based only on the information provided at the time of this report preparation and may not be valid if changes are made to the site or to the construction method.

2. SITE DESCRIPTION

This site is situated at 33 Morshead Road, Mount Annan, NSW. At the time of investigation the site was an abandoned single-storey residential dwelling surrounded by a front yard to the west, a side yard to the north, and a back yard to the east. The site is in a medium density residential neighbourhood and it is surrounded by residential dwellings, while it faces Morshead Road to the west. The front and back yards display a patchy grass cover of small to medium height (0 to 10 cm). Some medium size trees are present both along the northern and southern boundary. The site lays on an undulate surface gently sloping upwards from 105.0 m to 107.5 m from Morshead Road to the abandoned dwelling (towards the east), and downwards from the dwelling to the eastern boundary at 104.5 m elevation (Australian Height Datum: http://en-au.topographic-map.com/maps). The site plan showing the borehole locations is presented in Figure 1 (from Six Maps NSW). The site photos with borehole locations as taken at the time of investigation are shown in Figures 2, 3, 4 and 5.

3. FIELD INVESTIGATION

The site was visited by Geotesta on 29 January 2018. Soil sampling was undertaken using a hand auger at four locations (BH1 to BH4) as presented in Figure 1. The boreholes were excavated with a hand auger to a maximum depth of 1.0 m. The soil profiles encountered are described in the attached Borehole Logs. DCP test could penetrate to depths of 0.45-1.15 m.

4. FINDINGS

The geological origin of the soil profile was identified from our visual examination of the soil samples, geotechnical experience, and reference to geological maps of the area. The geological map of the area indicates that the site is underlain by Wianamatta Group sandstone and shales (Geology Map of Sydney, 1:100,000 scale) with the upper layers weathered into residual soils.

5. GEOTECHNICAL LABORATORY TESTING

One (1) representative soil sample was sent to the Soil Test Services (JK Geotechnics) NATA accredited laboratory for testing of index properties. The laboratory test results are summarised in Table 2.

Summary of Soil Laboratory Test Results

Bore No.	Depth (m)	Soil Type	Wn %	LL %	PI %	LS %
BH3	0.4	Silty CLAY	-	41	25	3.0

Note: Wn= Moisture content; LL= Liquid Limit; PI= Plasticity Index; LS= Linear Shrinkage

6. SITE CLASSIFICATION

After considering the area geology, the soil profile encountered in the bores (see attached borehole logs and DCP test results), the proposed structure and the climatic zone of the area; the site is classified as CLASS H1, with respect to foundation construction (Australian Standard 2870-2011 Residential Slabs and Footings).

It has been estimated that the Characteristic Surface Movement (ys) of the underlying natural soil material will be in the range of 20 to 40 mm provided the building site is protected from "abnormal moisture conditions" and is drained as described in AS 2870.

It must be emphasized that the heave mentioned and recommendations referred to in this report are based solely on the observed soil profile observed at the time of the investigation for this report, without taking into account any abnormal moisture conditions as defined in AS2870 – 2011, Clause 1.3.3 that might be created thereafter. With abnormal moisture conditions, distresses will occur and may result in "non-acceptable probabilities of serviceability and safety of the building during its design life," as defined in AS2870-2011, Clause 1.3.1. If these distresses are not acceptable to the builder, owner or other relevant parties then further fieldwork and revised footing recommendations must be carried out.

6. FOOTING DESIGN

6.1 SLAB ON GROUND:

An engineer designed Class H1 slab on ground footing system can be used on this site. We recommend that the designing engineer refer to AS2870-2011 to ensure design compliance to this document.

The founding depth of the edge and load bearing beams must be at least 100 mm into naturally occurring soil layer after the removal of any material with excessively high moisture or organic content, uncontrolled fill or deleterious matter and as described in the borehole logs. As a guide with information obtained from the bores, the actual founding depth at the test locations will be as follow:

Minimum founding Depth (mm)	Allowable Bearing Capacity (kPa)
400	120
800	180

Slab panels and internal beams can be founded in the natural soil profile or in compacted surface filling and/or as required in the design by engineering principles. Compacted filling used to raise levels beneath panels must be placed and compacted as per specifications for controlled or rolled fill.

6.2 STRIP/PAD FOOTING SYSTEM:

An engineer designed Class H1 strip and/or pad footing system can be used on this site. We recommend that the designing engineer refer to AS2870-2011 to ensure design compliance to this document.

The strip or pad footings should be founded in the natural soil layer and penetrate through any fill material, tree roots and founded at least 100 mm into the recommended founding material. As a guide with information obtained from the bores, the actual founding depth for strip or pad footings at the test locations should be as follow:

Minimum founding Depth (mm)	Allowable Bearing Capacity (kPa)
400	120
800	180

6.3 Bored Piers:

The proposed building can be founded on bored piers. The carrying capacity of bored piers can be estimated using the following parameters:

Minimum founding Depth (mm)	Allowable Skin Friction (kPa)	Allowable End Bearing Capacity (kPa)
500	25	-
2000	50	600

The design end bearing capacities have been calculated based on the geotechnical parameter at each corresponding soil layer.

It should be noted that the soil profile may vary across the site. It is recommended that a geotechnical engineer be engaged during the footing excavation stage to confirm founding depth and founding material.

7. GENERAL RECOMMENDATIONS

- Tree planting should be restricted to a distance from the house of 3/4 x mature height of the trees;
- Where some structures have been or are to be removed from the building site, any stump hole should be filled with well compacted soil or the footings deepened below the disturbed depth. In dry periods the ground should be gradually soaked well prior to footing construction until the moisture conditions over the whole building site are made uniform.
- Trees and/or shrubs in general could affect the long-term performance of footings. Where trees are deemed to affect the long-term performance of the footings, the slab and/or footings for the building should be designed by a professional engineer familiar with the soil conditions on the site taking into account the variable moisture condition over the building site at the time of construction. If offending trees are to remain, an engineer designed pier/screw piles and beam footing system should be considered.
- Any proposed footings which are close to an easement and/or other excavations, (including those in adjoining properties) should be founded below a line projected up at 30° to the horizontal (for Sand) and 40° to the horizontal (for firm/stiff Clay) and measured from the nearest base of the easement excavations.
- Avoid excavations close to footings since those founded on sandy soils can experience settlements while those founded in clayey soils can also move due to the shrinking and swelling of the clay. Plumbers and drainers should follow all the recommendations made in AS 2870 and other appropriate codes with respect to drainage works.
- It is also recommended that the Owners follow the requirements of AS 2870 and the C.S.I.R.O. BTF 18, which can be obtained from www.csiro.au. The document provides some guidelines to the Owners to carry out regular maintenance of drainage and care for the soil moisture conditions.

8. CONDITIONS OF THE RECOMMENDATIONS

- This report is a geotechnical report only and the classification stated shall not be regarded as an engineering design nor shall it replace a design by engineering principles although it may contribute information for such designs. It shall be read in conjunction with AS 2870 and must be reproduced only in total.
- The advice given in this report is based on the assumption that the test results are representative of the overall subsurface conditions. However, it should be noted that actual conditions in some parts of the building site may differ from those found in our test holes. If excavations reveal soil conditions significantly different from those shown in our attached Borehole Log(s), Geotesta must be consulted and excavations stopped immediately.
- The foundation depths quoted in this report are measured from the surface during our testing and may vary accordingly if any filling or excavation works are carried out. The description of the foundation material for has been provided for its easy recognition over the whole building site. In all cases the foundation soil chosen should be capable of supporting the proposed building but need not be of the same type.
- Any sketches in this report should be considered as only an approximate pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions or slope information should not be used for any building cost calculations and/or positioning of the building.

For and on behalf of
GEOTESTA PTY LTD

Amir Farazmand
BEng MEng MIEAust CPEng
Senior Geotechnical Engineer

Figure 1 – Site Plan and Test Locations

Figure 2 – Location of BH1 in the side yard

Figure 3 – Location of BH2 in the back yard

Figure 4 – Location of BH3 in the front yard

Figure 5 – Location of BH4 in the side yard

GEOTESTA

BOREHOLE LOG

SOIL

BORE No: BH1

Page: 1 of 1

Client:	Danmor Consulting Engineers	Excavated by	Paolo Abballe	Easting:	See Plan
Project:	NE255	Operator		Northing:	See Plan
		Rig Type:	Hand Auger	Grid Ref:	See Plan
Location:	33 Morshead Road, Mount Annan	Pit size		Collar RL:	See Plan
Date of test:	29 January 2018		-	Logged by:	PA Checked by: AF

Depth (m)	Drilling Method	Graphic Log	Group Symbol	MATERIAL DESCRIPTION Type, colour, particle size and shape, structure	Moisture	Consistency / Density / Strength	Dynamic Cone Blows per 100 mm DCP estimated CBR	FIELD TESTS & NOTES	Sampling / Runs	Water Levels
0.00	Hand Auger		ML	Topsoil: Sandy SILT with traces of gravel, brown/grey, dry, stiff	D	ST	3	Patchy grass cover		0.00
				Clayey SILT, brown, low plasticity		VST	6	5-10 cm		
				Dry, vey stiff			9			
			CL	Silty CLAY, brown / red, low to medium plasticity, dry, hard	D	H	12	Groundwater		
0.50							15	not encountered		0.50
							10			
							10			
1.00							9			1.00
							11			
				Borehole terminated at 1.0 m on hard silty CLAY			12			
							16			
1.50							Refusal			1.50
2.00										2.00
2.50										2.50
3.00										3.00
3.50										3.50
4.00										4.00
4.50										4.50
5.00										5.00

consistency:

VS	very soft
S	soft
F	firm
ST	stiff
VST	very stiff
H	hard

relative density:

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

moisture:

D	Dry
M	Moist
W	Wet

strength:

EH	Extremely High
VH	Very High
H	High
M	Medium
L	Low
VL	Very Low
EL	Extremely Low

Notes:

water:

- water level
- level risen to
- water inflow

sampling / testing:

- intact sample from core
- intact tube sample
- disturbed sample
- B bulk sample
- Suv Su from Field Vane Shear test
- SPT standard penetration test

soil classification:
soil is classified in accordance with AS1726 unless otherwise noted

GEOTESTA

BOREHOLE LOG

SOIL

BORE No: BH2

Page: 1 of 1

Client:	Danmor Consulting Engineers	Excavated by	Paolo Abballe	Easting:	See Plan
Project:	NE255	Operator		Northing:	See Plan
		Rig Type:	Hand Auger	Grid Ref:	See Plan
Location:	33 Morshead Road, Mount Annan	Pit size		Collar RL:	See Plan
Date of test:	29 January 2018		-	Logged by:	PA Checked by: AF

Depth (m)	Drilling Method	Graphic Log	Group Symbol	MATERIAL DESCRIPTION Type, colour, particle size and shape, structure	Moisture	Consistency / Density / Strength	Dynamic Cone Blows per 100 mm DCP estimated CBR	FIELD TESTS & NOTES	Sampling / Runs	Water Levels
0.00	Hand Auger		ML	Topsoil: Clayey SILT with traces of gravel, brown, dry, stiff	D	ST	4	Patchy grass cover		0.00
			CL	Silty CLAY, low to medium plasticity, very stiff to hard	D	VST	7	5-10 cm		
				Dark brown, dry		H	10			
0.50			SH	Shale V, dark brown, dry, very low strength	D	VL	28	Groundwater		
							Refusal	not encountered		0.50
				Borehole terminated at 0.5 m on Shale V from augering refusal						
1.00										1.00
1.50										1.50
2.00										2.00
2.50										2.50
3.00										3.00
3.50										3.50
4.00										4.00
4.50										4.50
5.00										5.00

consistency:

VS	very soft
S	soft
F	firm
ST	stiff
VST	very stiff
H	hard

relative density:

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

moisture:

D	Dry
M	Moist
W	Wet

strength:

EH	Extremely High
VH	Very High
H	High
M	Medium
L	Low
VL	Very Low
EL	Extremely Low

water:

water level

level risen to

water inflow

sampling / testing:

intact sample from core

intact tube sample

disturbed sample

B bulk sample

Suv Su from Field Vane Shear test

SPT standard penetration test

soil classification:

soil is classified in accordance with AS1726 unless otherwise noted

Notes:

GEOTESTA

BOREHOLE LOG

SOIL

BORE No: BH3

Page: 1 of 1

Client:	Danmor Consulting Engineers	Excavated by	Paolo Abballe	Easting:	See Plan
Project:	NE255	Operator		Northing:	See Plan
		Rig Type:	Hand Auger	Grid Ref:	See Plan
Location:	33 Morshead Road, Mount Annan	Pit size		Collar RL:	See Plan
Date of test:	29 January 2018		-	Logged by:	PA Checked by: AF

Depth (m)	Drilling Method	Graphic Log	Group Symbol	MATERIAL DESCRIPTION Type, colour, particle size and shape, structure	Moisture	Consistency / Density / Strength	Dynamic Cone Blows per 100 mm DCP estimated CBR	FIELD TESTS & NOTES	Sampling / Runs	Water Levels
0.00	Hand Auger		ML	Topsoil: Sandy SILT, dark brown, roots, dry, stiff	D	ST	4	Patchy grass cover		0.00
			CL	Silty CLAY, red / brown, low to medium plasticity, dry, very stiff	D	VST	6	0-5 cm		
							6			
				Grades to orange / red, very stiff to hard			7	Sample for Altenberg	●	
0.50							9			0.50
							9			
							9	Groundwater		
							9	not encountered		
1.00						H	11			1.00
							24			
				Borehole terminated at 1.0 m on hard silty CLAY			Refusal			
1.50										1.50
2.00										2.00
2.50										2.50
3.00										3.00
3.50										3.50
4.00										4.00
4.50										4.50
5.00										5.00

consistency:

VS	very soft
S	soft
F	firm
ST	stiff
VST	very stiff
H	hard

relative density:

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

moisture:

D	Dry
M	Moist
W	Wet

strength:

EH	Extremely High
VH	Very High
H	High
M	Medium
L	Low
VL	Very Low
EL	Extremely Low

water:

▼ water level

▼ level risen to

● water inflow

soil classification:
soil is classified in accordance with AS1726 unless otherwise noted

sampling / testing:

■ intact sample from core

T intact tube sample

● disturbed sample

B bulk sample

Suv Su from Field Vane Shear test

SPT standard penetration test

Notes:

GEOTESTA

BOREHOLE LOG

SOIL

BORE No: BH4

Page: 1 of 1

Client:	Danmor Consulting Engineers	Excavated by	Paolo Abballe	Easting:	See Plan
Project:	NE255	Operator		Northing:	See Plan
		Rig Type:	Hand Auger	Grid Ref:	See Plan
Location:	33 Morshead Road, Mount Annan	Pit size		Collar RL:	See Plan
Date of test:	29 January 2018		-	Logged by:	PA Checked by: AF

Depth (m)	Drilling Method	Graphic Log	Group Symbol	MATERIAL DESCRIPTION Type, colour, particle size and shape, structure	Moisture	Consistency / Density / Strength	Dynamic Cone Blows per 100 mm / DCP estimated CBR	FIELD TESTS & NOTES	Sampling / Runs	Water Levels
0.00			ML	Topsoil: Sandy SILT, dark brown, roots, dry, stiff	D	ST	4	Patchy grass cover		0.00
	Hand Auger		CL	Silty CLAY, red / brown, low to medium plasticity, dry, very stiff	D	VST	3	0-5 cm		
							6			
				Grades to orange / red, hard		H	11	Groundwater		
0.50							9	not encountered		0.50
							11			
							10			
			SH	Shale V, dark brown, dry, very low strength	D	VL	22			
							Refusal			
1.00				Borehole terminated at 0.9 m on Shale V from augering refusal						1.00
1.50										1.50
2.00										2.00
2.50										2.50
3.00										3.00
3.50										3.50
4.00										4.00
4.50										4.50
5.00										5.00

consistency:

VS	very soft
S	soft
F	firm
ST	stiff
VST	very stiff
H	hard

relative density:

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

moisture:

D	Dry
M	Moist
W	Wet

strength:

EH	Extremely High
VH	Very High
H	High
M	Medium
L	Low
VL	Very Low
EL	Extremely Low

Notes:

water:

- water level
- level risen to
- water inflow

sampling / testing:

- intact sample from core
- disturbed sample
- B bulk sample
- Suv Su from Field Vane Shear test
- T intact tube sample
- SPT standard penetration test

soil classification:
soil is classified in accordance with AS1726 unless otherwise noted

115 Wicks Road
Macquarie Park, NSW 2113
PO Box 976
North Ryde, Bc 1670
Telephone: 02 9888 5000
Facsimile: 02 9888 5001

SOIL TEST SERVICES

ATTERBERG LIMITS , LIQUID LIMITS AND LINEAR SHRINKAGE TEST REPORT

Client: Geotesta Pty Ltd
Location: 33 Morshead Road, Mount Annan, NSW

Ref No: L4040E8
Report: 1
Report Date: 9/02/2018

AS 1289	TEST METHOD	3.1.2	3.2.1	3.3.1	3.4.1
BOREHOLE NUMBER	DEPTH m	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	LINEAR SHRINKAGE %
3	0.4	41	16	25	3.0

Notes:
- The test sample for liquid and plastic limit was air-dried & dry-sieved
- The linear shrinkage mould was 125mm
- Refer to appropriate notes for soil descriptions
- Date of receipt of sample: 30/01/2018.

Authorised Signature / Date
9/2/18