

P: (07) 40 393 409 M: 0402 073 082 E: Info@planningplusqld.com.au A: PO Box 399, Redlynch QLD 4870 W: www.planningplusqld.com.au

 Our Ref:
 23-06/001272

 CRC Ref:
 CA 2023_5488/1

 Date:
 20 October 2023

Attn: Mr Daniel Lamond Chief Executive Officer Douglas Shire Council PO Box 723 MOSSMAN QLD 4873

VIA: Email: Daniel.lamond@douglas.qld.gov.au

Dear Sir,

RE: RESPONSE TO INFORMATION REQUEST IN RELATION TO AN APPLICATION FOR A PRELIMINARY APPROVAL FOR MATERIAL CHANGE OF USE INCLUDING A VARIATION REQUEST AND DEVELOPMENT PERMIT FOR RECONFIGURING A LOT (3 LOTS INTO 33 LOTS AND COMMON PROPERTY) AT MITRE STREET AND SAGIBA AVENUE, PORT DOUGLAS

Planning Plus acts on behalf of Allaro Homes Cairns Pty Ltd (the 'applicant') in relation to the above-described matter.

We hereby provide the following information in response to Council's Information Request dated 31 August 2023.

Performance Assessment

1. Council notes that a number of the proposed allotments are particularly narrow. Provide house plans for all proposed lots with a width less than 15 metres and demonstrate how they relate to each neighbouring allotment within the development. A response to this item should be inclusive of individual floor plans detailing window locations and site plans detailing the building location on each site with doors and windows nominated for each storey.

Please see attached dwelling plans for the narrow lots included as **Annexure 1**. A Site Plan is also included which shows groupings of the three (3) proposed designs for greater overall context, however it is noted that the dwellings have been designed so that the right-hand side is fully screened via screening fixtures or raised sill heights, therefore the proposed designs can be achieved on any of the narrow lots whilst still providing privacy.

2. Provide an assessment against the side boundary setback provisions from the Queensland Development Code MP1.1. The assessment is to have no regard to the overall proposed lot area. The assessment is to have regard to the allotment width and its relationship to the proposed side boundary setbacks and frontage boundary setbacks.

Please see attached assessment against QDC MP1.1 included as Annexure 2.



town planning, project management & development consultants

Amendment to Application

3. Officers have reviewed the Town Planning Report and the Engineering Report and note discrepancies between the proposed Lot numbers. Provide a comprehensive review of the reports and any supporting information accompanying the application to correct the discrepancies.

Please see Engineering Response included as **Annexure 3** which provides supporting information based on the correct yield, being 33 lots plus common property. A 34th lot is also proposed however this relates to the sewer pump station only.

4. Confirm that the Reconfiguration of a Lot component of the application is for 3 lots into 33 lots and common property. Note that the Town Planning Report by Planning Plus proposes Reconfiguring a Lot of 3 Lots into 33 Lots. The Engineering Report, by Neon Consulting, indicates 38 lots as per Section 1 Introduction, 37 lots as per Section 3 Wastewater Disposal and Section 4 Potable and Firefighting Water. The engineering plans, by Neon Consulting, indicate 34 lots (and a total road count of 35 lots as per Drawing No. 016-2304-00-SK-0002).

Please see Engineering Response included as **Annexure 3** which provides supporting information based on the correct yield, being 33 lots plus common property. A 34th lot is also proposed however this relates to the sewer pump station only.

Earthworks

5. Provide a preliminary Earthworks Masterplan to assist Officers in their assessment noting the amount of proposed fill on site.

Please see Engineering Response included as Annexure 3.

Ecology Survey and Assessment

6. Provide an ecology report inclusive of on-site survey results for flora and fauna on the site. The report must be prepared by a suitably qualified consultant. The report must determine if any species of National or State environmental significance are present within the proposed clearing and disturbance footprint. If any species of significance are discovered, demonstrate how these are to be appropriately managed.

Please see Matters of Environmental Significance Report included as **Annexure 4**. The report identifies the presence of 'Ant Plants' on the site which will require a permit under the Nature Conservation Act to remove or translocate.

Water Supply and Sewerage

2

7. Provide an updated Engineering Report and Water Supply and Sewerage Masterplans to demonstrate the capacity of the existing network is able to service the development in accordance with the standards of service specified within the FNQROC Development Manual. In particular, the Masterplan must:

A. identify the water supply and sewerage network catchment or catchments that the development relies upon;

B. provide a detailed hydraulic network analysis and supporting calculations which demonstrate any required augmentations or upgrades required to existing infrastructure and the internal design parameters set in order to ensure an adequate standard of service is achieved for the development;

C. Provide a hydrant flow and pressure test to confirm that the development can achieve the service pressure and firefighting provisions in the FNQROC Development Manual for the peak morning and afternoon periods over a one week period.

D. identify any existing trunk infrastructure which may require augmentation or upgrading to ensure an adequate standard of service is achieved for the development;

E. identify the staging and sequencing of the development in respect of the need or otherwise to implement particular infrastructure augmentations or upgrades to existing infrastructure to ensure an adequate standard of service is achieved for the development; F. provide a demand evaluation plan of the development;

G. identify the connection points and land tenure arrangements for new and existing infrastructure required to ensure an adequate standard of service is achieved for the development.

Please see Engineering Response included as Annexure 3.

8. Demonstrate provision is made for driveway access (and hardstand) to the existing sewer pump station.

Please see Engineering Response included as Annexure 3.

Drainage

3

9. Concerns are raised that the proposed stormwater drainage plan(s) will adversely affect the surrounding properties to the south of the site, along Martin Scullet Drive.

The Applicant is requested to amend the Engineering Report and proposal plan(s) to direct stormwater drainage into the existing concrete channel along Sagiba Avenue (falling West to East). The Applicant must identify any requirements for drainage easements along Sagiba Avenue.

Please see Engineering Response included as Annexure 3.

The proposal diverts all stormwater to Sagiba Avenue to the north and will therefore improve current stormwater issues which exist to the south of the site.

10. The revised Engineering Report and stormwater drainage plan(s) must provide additional supporting information (including but not limited to external catchments, supporting calculations and longitudinal sections) demonstrating provision is made that the stormwater drainage system does not adversely affect surrounding properties or properties downstream from the development, in accordance with the FNQROC Development Manual and Queensland Urban Drainage Manual.

Note: Stormwater discharge must have a no worsening effect or ponding nuisances on downstream or upstream properties, associated with the: diversion of stormwater; concentration of stormwater flows; changes in other flow characteristics; and or changes that affect the future use of land.

If a disparity exists between pre and post alteration flows, measures are to be implemented in order to have a no worsening effect.

Please see Engineering Response included as Annexure 3.

The proposal diverts all stormwater to Sagiba Avenue to the north and will therefore improve current stormwater issues which exist to the south of the site.

11. The drainage network for the development needs to incorporate a gross pollutant trap(s) or equivalent measure(s) in accordance with the FNQROC Development Manual.

Please see Engineering Response included as Annexure 3.

Landscaping

12. Council notes that the site is likely to be completely cleared of existing vegetation in order to develop the land with adequate drainage solutions. Provide a landscaping plan prepared by a suitably qualified consultant which details proposed planting for the site and for any areas external to the site to be disturbed.

The landscaping plan should also detail the proposed entry statement, opportunities to screen pad mount infrastructure, detail internal street tree planting and opportunities for deep planting and screening around the sewer pump station.

Please see Concept Landscape Plans included as Annexure 5.

Electricity

13. Detail the location of any pad mount for electricity infrastructure on site.

If required, a potential pad mount site has been identified adjacent to the sewer pump station and is shown below:



Internal Footpath

14. Confirm the width of the proposed internal footpath.

Please see Engineering Response included as Annexure 3.



Traffic

15. Provide vehicle swept path plan(s) demonstrating compliance in accordance with the AS 2890.1:2004 Parking facilities – Off-street car parking and Austroads Design Vehicles and Turning Path Templates. The plan(s) must address the following;

A. Provide the adopted base dimensions of the design vehicle(s) associated with the approved use(s) in accordance with AS 2890.1:2004 Parking facilities – Off-street car parking;

B. Provide vehicle swept paths for ingress/egress into the site; conflicts internal to the site; access to parking spaces and access to proposed Lots 28 to 33 (demonstrating that manoeuvring/circulation clearances are not encroached and spaces are provided on site for vehicles to enter, turn around and exit in a forward direction).

Please see Engineering Response included as Annexure 3.

Conclusion

This letter constitutes the applicant's full response to the information requested.

We trust this information is sufficient for your purposes; however should you require any further details or clarification, please do not hesitate to contact the undersigned.

Yours Faithfully

6

Evan Yelavich Director / Planner Planning Plus QLD Pty Ltd

enc.

Annexure 2: Annexure 3: Annexure 4: Annexure 5:

Annexure 1:

Dwelling Plans QDC Assessment Engineering Response Matters of Environmental Significance Report Concept Landscape Plans

https://ppqld-my.sharepoint.com/personal/evan_planningplusqld_com_au/Documents/JOBS/23-06 Cavallaro Mitre Street/IR Response/001274.docx

Annexure 1: Dwelling Plans

https://ppqld-my.sharepoint.com/personal/evan_planningplusqld_com_au/Documents/JOBS/23-06 Cavallaro Mitre Response/001274.docx

Street/IR



NEW RESIDENCE

TBA

at:

PORT DOUGLAS



ADDRESS: P.O. BOX 1034 SMITHFIELD QUEENSLAND 4878

Tel (07) 4031 0022 Fax (07) 4031 2061 ABN 63 070 056 996 QBCC 1008032 PRINT DATE: 10/10/2023 8:45:29 PM

Job No.-TYPE A



10/	10/2	023	8:45:30	F





TAKEOFF WINDOW			
Family	Туре	Count	
Fixed Glazing Panel	400Hx3000W	4	
Fixed Glazing Panel	600Hx3100W	1	
Fixed Glazing Panel	2000Hx1000W	1	
Louvers - Alumn 4 Bay	900Hx2400W	1	
Louvers - Alumn 4 Bay	1800Hx2400W	1	
Louvers - Alumn 4 Bay	2200Hx2400W	1	
Sliding OXXO	1200Hx2400W	1	
Sliding XO	400Hx2000W	1	
Sliding XO	600Hx900W	1	
Sliding XO	600Hx1200W	1	
Sliding XO	900Hx1400W	1	
Grand total: 14		14	



TAKEOFF DOOR				
Family	Туре	Count		
Bifold Doors 5 Panel - Alumn Frame	2800Hx4000W	1		
Door Cavity - Single	2400Hx720W	1		
Door Cavity - Single	2400Hx820W	1		
Door Cavity - Single	2400Hx920W	2		
Door Cavity - Single	2400Hx1000W	1		
Door Cavity - Single	2400Hx1220W	1		
Door Swing Single - Entrance	2400Hx1200W	1		
Door Swing Single - External	EXT 2400Hx820W	1		
Door Swing Single - Internal	INT 2100Hx820W	1		
Door Swing Single - Internal	INT 2400Hx820W	5		
Garage Door Panel-Lift - 2 Car	2400Hx4800W	1		
Robe & Linen - 2 Panel	2400Hx1500W	2		
Robe & Linen - 2 Panel	2400Hx2100W	1		
Robe & Linen - 3 Panel	2400Hx2700W	1		
Sliding Glass Door OX	2400Hx1800W	1		
Sliding Glass Door OX	2400Hx2400W	2		
Sliding Glass Door OXXO	2800Hx4200W	1		
Sliding Glass Door XXO	2800Hx3000W	1		
Sliding Glass Door XXO	2800Hx3600W	1		
Sliding Glass Door XXO	2800Hx3700W	2		
Grand total: 28		28		

TAKEOFF WINDOW			
Family	Туре	Count	F
Fixed Glazing Panel	400Hx3000W	4	Bifold Doors 5 Panel
Fixed Glazing Panel	600Hx3100W	1	Door Cavity - Single
Fixed Glazing Panel	2000Hx1000W	1	Door Cavity - Single
Louvers - Alumn 4 Bay	900Hx2400W	1	Door Cavity - Single
Louvers - Alumn 4 Bay	1800Hx2400W	1	Door Cavity - Single
Louvers - Alumn 4 Bay	2200Hx2400W	1	Door Cavity - Single
Sliding OXXO	1200Hx2400W	1	Door Swing Single -
Sliding XO	400Hx2000W	1	Door Swing Single -
Sliding XO	600Hx900W	1	Door Swing Single -
Sliding XO	600Hx1200W	1	Door Swing Single -
Sliding XO	900Hx1400W	1	Garage Door Panel-I
Grand total: 14		14	Robe & Linen - 2 Par
			Rohe & Linen - 2 Par

TAKEOFF DOOR			
Family	Туре	Count	
Bifold Doors 5 Panel - Alumn Frame	2800Hx4000W	1	
Door Cavity - Single	2400Hx720W	1	
Door Cavity - Single	2400Hx820W	1	
Door Cavity - Single	2400Hx920W	2	
Door Cavity - Single	2400Hx1000W	1	
Door Cavity - Single	2400Hx1220W	1	
Door Swing Single - Entrance	2400Hx1200W	1	
Door Swing Single - External	EXT 2400Hx820W	1	
Door Swing Single - Internal	INT 2100Hx820W	1	
Door Swing Single - Internal	INT 2400Hx820W	5	
Garage Door Panel-Lift - 2 Car	2400Hx4800W	1	
Robe & Linen - 2 Panel	2400Hx1500W	2	
Robe & Linen - 2 Panel	2400Hx2100W	1	
Robe & Linen - 3 Panel	2400Hx2700W	1	
Sliding Glass Door OX	2400Hx1800W	1	
Sliding Glass Door OX	2400Hx2400W	2	
Sliding Glass Door OXXO	2800Hx4200W	1	
Sliding Glass Door XXO	2800Hx3000W	1	
Sliding Glass Door XXO	2800Hx3600W	1	
Sliding Glass Door XXO	2800Hx3700W	2	
Grand total: 28		28	



FL2 1:100 1

WE HEREBY CERTIFY THE STRUCTURAL DETAILS





PO BOX 1034 SMITHFIELD 4878 tel: 07 4031 0022 fax: 07 4031 2061 QBCC No. 1008032

WHERE AND IF DISCREPANCIES OCCUR BETWEEN THE PLAN AND SPECIFICATION SCHEDULE, THE SPECIFICATION SCHEDULE WILL ALWAYS HAVE PRECEDENCE.

HOUSE STYLE:- Standard Plan

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PRINT DATE: 10/10/2023 8:45:33 PM

AMENDENTS:-			
DATE	DESCRIPTION		

CLIENT:-TBA

ADDRESS:-

PORT DOUGLAS

DATE:-Jul 12 2022 JOB No. 6:03PM DRAWN: TYPE A

Author

SHEET No.

CHECKED: Checker

WD-06/

AS SHOWN ON THESE DRAWINGS FOR CONSTRUCTION IN WIND CLASSIFICATION _C1







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PO BOX 651 DEERAGUN 4818 tel: 07 4724 1333 fax: 07 4724 3672 QBCC No. 1127956



TAKEOFF ROOF AREA		
Туре	Area	
Colorbond Roof	235.62 m ²	



FL2 ROOF FRAMING PLAN 1 1:100







NEW RESIDENCE

TBA

at:

PORT DOUGLAS



ADDRESS: P.O. BOX 1034 SMITHFIELD QUEENSLAND 4878

Tel (07) 4031 0022 Fax (07) 4031 2061 ABN 63 070 056 996 QBCC 1008032 PRINT DATE: 16/10/2023 3:48:33 PM

Job No.-TYPE B









No. : B : T No. 03/



TAKEOFF WINDOW			
Family	Туре	Count	
ouvers - Glass 2 Bay	600Hx1200W	1	
ouvers - Glass 3 Bay	600Hx1800W	3	
ouvers - Glass 4 Bay	600Hx2400W	2	
ouvers - Glass 4 Bay	2200Hx3600W	1	
Grand total: 7		7	



A.C.N. 011 065 375

FAX. (07) 4031 9013

16/10/2023 3:48:36 PM

TAKEOFF DOOR			
Family	Туре	Count	
Door Cavity - Single	2400Hx820W	4	
Door Cavity - Single	2400Hx1020W	1	
Door Swing Single - Entrance	2400Hx820W	1	
Door Swing Single - External	EXT 2400Hx820W	1	
Door Swing Single - External	EXT 2400Hx920W	1	
Door Swing Single - Internal	INT 2400Hx920W	6	
Garage Door Panel-Lift - 2 Car	2400Hx5200W	1	
Sliding Glass Door OX	2400Hx2000W	2	
Sliding Glass Door OX	2400Hx2200W	1	
Sliding Glass Door OXXO	2800Hx4200W	1	
Sliding Glass Door XXO	2400Hx3600W	1	
Sliding Glass Door XXO	2800Hx3500W	1	
Sliding Glass Door XXO	2800Hx3600W	4	
Grand total: 25		25	

No. : B	Allaro
T No.	
)4/	PO BOX 1034 SMITHFIELD 4878 tel: 07 4031 0022 fax: 07 4031 2061 OBCC No. 1008032

TAKEOFF WINDOW			
Family	Туре	Count	
ouvers - Glass 2 Bay	600Hx1200W	1	
ouvers - Glass 3 Bay	600Hx1800W	3	
ouvers - Glass 4 Bay	600Hx2400W	2	
ouvers - Glass 4 Bay	2200Hx3600W	1	
Grand total: 7		7	



1 FL2 1:100

AMENDENTS:-		WE HEREBY CERTIFY THE STRUCTURAL DETAILS			ADDRESS:-	DATE:-Jun 26 2023	JOBN
DATE	DESCRIPTION	AS SHOWN ON THESE DRAWINGS FOR CONSTRUCTION IN WIND CLASSIFICATION C1	SPECIFICATION SCHEDULE, THE	VALL PLANS ARE SUBJECT TO COPYRIGHT AND ARE NOT TO BE RETAINED, COPIED OR USED WITHOUT THE EXPRESS PERMISSION	PORT DOUGLAS	3:32PM DRAWN:	TYPE
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TAKEOFF DOOR						
Family	Туре	Count				
Door Cavity - Single	2400Hx820W	4				
Door Cavity - Single	2400Hx1020W	1				
Door Swing Single - Entrance	2400Hx820W	1				
Door Swing Single - External	EXT 2400Hx820W	1				
Door Swing Single - External	EXT 2400Hx920W	1				
Door Swing Single - Internal	INT 2400Hx920W	6				
Garage Door Panel-Lift - 2 Car	2400Hx5200W	1				
Sliding Glass Door OX	2400Hx2000W	2				
Sliding Glass Door OX	2400Hx2200W	1				
Sliding Glass Door OXXO	2800Hx4200W	1				
Sliding Glass Door XXO	2400Hx3600W	1				
Sliding Glass Door XXO	2800Hx3500W	1				
Sliding Glass Door XXO	2800Hx3600W	4				
Grand total: 25		25				



No. E B	Allaro
24/	PO BOX 1034 SMITHFIELD 4878 tel: 07 4031 0022 fax: 07 4031 2061 QBCC No. 1008032



TAKEOFF ROOF AREA				
Туре	Area			
Colorbond Roof	251.24 m²			



1 FL2 ROOF FRAMING PLAN 1 : 100

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NEW RESIDENCE

for: **TBA**

at:

PORT DOUGLAS



ADDRESS: P.O. BOX 1034 SMITHFIELD QUEENSLAND 4878

Tel (07) 4031 0022 Fax (07) 4031 2061 ABN 63 070 056 996 QBCC 1008032 PRINT DATE: 16/10/2023 3:56:00 PM

Job No.-TYPE C



JOB No. TYPE C SHEET No. /D-01/



FLOOR AREAS						
Garage	42 m²					
Living Area Sus	134 m²					
Living Areas	147 m²					
Patio	21 m²					
Patio Sus	9 m²					
Porch	9 m²					
Grand total	363 m²					



1 FL1 1:100

AMENDENT: DATE	S:- DESCRIPTION	WE HEREBY CERTIFY THE STRUCTURAL DETAILS AS SHOWN ON THESE DRAWINGS FOR CONSTRUCTION IN WIND CLASSIFICATION _C2	WHERE AND IF DISCREPANCIES OCCUR BETWEEN THE PLAN AND SPECIFICATION SCHEDULE, THE SPECIFICATION SCHEDULE WILL ALWAYS HAVE PRECEDENCE.	* ALL PLANS ARE SUBJECT TO COPYRIGHT AND ARE NOT TO BE RETAINED, COPIED OR USED WITHOUT THE EXPRESS PERMISSION	ADDRESS:- PORT DOUGLAS	DATE:-Jun 29 2023 3:25PM DRAWN: Author	JOB TYPI
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		CAIRNS QLD, 4870 PH. (07) 4031 2775 FAX. (07) 4031 9013 16/10/2023 3:56:03 PM	PRINT DATE:	LINTELS AFFECTED	IBA		VVD-24



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			CONSULTING ENGINEERS PTY. LTD. 208 BUG CAIRNS PH. (07)	CHAN ST, QLD, 4870 4031 2775	PRINT DATE:		GIRDER I RUSS LOCATIONS VARY & LINTELS AFFECTED	ТВА		WD-2
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TAKEOFF ROOF AREA				
Туре	Area			
Colorbond Roof	239 m²			



1 FL2 ROOF FRAMING PLAN 1:100

AMENDENTS	:-	WE HEREBY CERTIFY THE STRUCTURAL DETAILS	WHERE AND IF DISCREPANCIES		ADDRESS:-	DATE:-Jun 29 2023	JOB N
DATE	DESCRIPTION	AS SHOWN ON THESE DRAWINGS FOR CONSTRUCTION IN WIND CLASSIFICATION C2	SPECIFICATION SCHEDULE, THE SPECIFICATION SCHEDULE WILL ALWAYS HAVE PRECEDENCE.	COPYRIGHT AND ARE NOT TO BE RETAINED, COPIED OR USED WITHOUT THE EXPRESS PERMISSION OF ALLARO HOMES QUEENSLAND * DO NOT SCALE FROM DRAWING * ENGINEER TO BE ADVISED IF	PORT DOUGLAS	3:25PM DRAWN:	TYPE
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		A.C.N. 011 065 375 FAX. (07) 4031 2775 FAX. (07) 4031 9013	16/10/2023 3:56:04 PM				







A.C.N. 011 065 375



SITE PLAN

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Annexure 2: QDC Assessment



Street/IR Mitre

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS UNDER 450M²

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Purpose

To provide good residential design that promotes the efficient use of a *lot*, an acceptable amenity to residents, and to facilitate off street parking.

Commencement

This version of MP 1.1 commences on 26 March 2010 and replaces the part published on 16 November 2007.

Application

MP 1.1 applies to new *building* work for single *detached dwellings* (Class 1) and associated Class 10 *buildings* and *structures* on *lots* less than 450m² in *area* including "*community title lots*" having only one *detached dwelling* on a *lot*.

MP 1.1 does not apply to:

- a) Development in an urban development area; or
- b) Except for swimming pools, structures less than 1m above natural ground

Note 1 - Development in an *urban development area* must comply with the requirements of the land use plan for the area and guidelines issued by the Urban Land Development Authority

Referral Agency

The Local Government is a concurrence agency as per items 19 and 21 in schedule 7, table 1 of the *Sustainable Planning Regulation 2009*.

Associated Requirements

Compliance with this standard may not be the only requirement. Planning schemes, local laws, State Acts and other IDAS codes may impose additional requirements.

Referenced Standards

There are no Australian Standards referenced by this standard.

Definitions

Note 2 - Italicised words within the body of the text are defined.

Acceptable solution has the same meaning as Building solution in the Building Code of Australia – Volume 2.

Access place means a minor cul-de-sac street providing local residential access, with shared traffic, pedestrian and recreation use.

Access street means a street providing local residential access with shared traffic, pedestrian and recreation use with local traffic access priority.

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS $450M^2$ AND UNDER

Area means for enclosed spaces, the *area* including the outside wall; and for unenclosed spaces, the *area* is measured along a line 600mm in from the perimeter of the roof.

Balcony means any external platform, attached to and accessed from a *building* and 1 metre or more above adjacent finished ground level.

Building has the same meaning as in the Building Act 1975.

Building height means the vertical distance between natural surface level of the ground and the apex of a *building*'s roof, but not including any receiving antennae, chimneys or flues.

Carport means a class 10a *building*, other than a *garage*, providing covered vehicular parking.

Note 3 - Also refer to Open carport and Garage.

Collector Street means a street providing for local residential access and local traffic movement within performance limits defined in Queensland Streets.

Community Title refers to title created by subdivision of land by way of a standard format plan of a *community title* scheme given under the provisions of the *Body Corporate and Community Management Act 1997* (BCCM Act).

Depth of a lot means either the dimension at right angles to the *road* boundary or the average of the relevant dimensions at right angles to an irregular *road* boundary.

Detached dwelling means a single dwelling not attached to another dwelling and on an individual *lot*.

Frontage means the *road* alignment of a *lot*.

Garage means an enclosed class 10a *building*, providing covered vehicular parking.

Habitable room has the same meaning as in the Building Code of Australia.

Height of a *building* or *structure* at any point for the purpose of determining its *setback* from a boundary means the vertical distance between the *outermost projection* and the natural ground.

Note 4 - Refer also to Mean height and Building height.

Lot means a separate, distinct parcel of land on which a *building* is to be built, or is built.

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS $450M^2$ AND UNDER

Mean height, of a *building* or *structure*, means the vertical *height* worked out by dividing –

- (b) the total elevational *area* of the wall of a *building* or *structure* facing the boundary; by
- (c) the horizontal length of the *building* or *structure* facing the boundary.

Natural ground surface, for a *lot*, means

- (a) the ground level of the *lot* on the day the first plan of survey showing the *lot* was registered; or
- (b) if the ground level on the day mentioned in paragraph (a) is not known, the *natural ground surface* as determined by the *building* certifier.

Nominated road frontage means the *road frontage* nominated by the Local Government for the *area*.

Open Carport means a carport with –

- (a) two sides or more open, and a side is also considered open where the roof covering adjacent to that side is not less than 500mm from another *building* or a side or rear allotment boundary; and
- (b) not less than one-third of its perimeter open.

Outermost projection means the *outermost projection* of any part of a *building* or *structure* including, in the case of a roof, the outside face of the fascia, or the roof *structure* where there is no fascia, or attached sunhoods or the like, but does not include retractable blinds, fixed screens, rainwater fittings, or ornamental attachments.

Performance Criteria has the same meaning as "performance requirement" in the Building Code of Australia – Volume 2.

Rear boundary clearance, refer to side and *rear boundary clearance*.

Road means -

- (a) an area of land dedicated to public use as a road; or
- (b) an *area* open to , or used by, the public and developed for, or has, as 1 of its main uses, the driving or riding of motor vehicles; and
- (c) does not include a pedestrian or bicycle path.

Road boundary clearance, for a *building* or *structure* on a *lot* means the shortest distance measured horizontally from the *outermost projection* of the *building* or *structure* to the vertical projection of the boundary of the *lot* adjacent to the *road*.

Secondary frontage means the *road frontage* of a *lot* as determined by the Local Government.

Queensland Development Code

Setback means:

- a) for a building or structure other than a swimming pool, the shortest distance measured horizontally from the *outermost projection* of the *building* or *structure* to the vertical projection of the boundary of the *lot*.
- b) for a swimming pool, the shortest distance measured horizontally from the water's edge to the vertical projection of a boundary of the *lot*

Side and rear boundary clearance means:

- a) for a building or structure other than a swimming pool, the shortest distance measured horizontally from the *outermost projection* of the *building* or *structure* to the vertical projection of the boundary of the *lot*
- b) for a swimming pool, the shortest distance measured horizontally from the water's edge to the vertical projection of a boundary of the *lot*

Slope means the gradient of the natural ground of a *lot* measured across a 20m x 20m *area* over the *building* location, or where the *lot* is less than 20m wide -20m x width of *lot*.

Structure has the same meaning as in the Building Act 1975.

Urban development area has the same meaning as that given in the Urban Land Development Authority Act 2007.

Window has the same meaning as in the *Building* Code of Australia.

Window/Balcony Screen means a translucent, perforated or slatted barrier, including a fence, constructed of durable material and having –

- (a) if perforated -
 - (i) a maximum 25% openings; and
 - (ii) each opening not more than 50mm square; or
- (b) if slatted or louvred -
- (c) a maximum of 25% opening with clear vision at 90 to the plane of the window; and
- (d) each opening not more than 50mm clear vision at 90 to the plane of the window.

ELEMENT 1 – DESIGN AND SITING OF BUILDINGS AND STRUCTURES

PERFORMANCE CRITERIA\

Buildings and structure

- P1 The location of a *building* or A1 structure facilitates an acceptable streetscape, appropriate for –
 - (a) the bulk of the *building* or *structure*; and
 - (b) the *road* boundary *setbacks* of neighbouring *buildings* or *structure*; and
 - (c) the outlook and views of neighbouring residents; and
 - (d) nuisance and safety to the public.

ACCEPTABLE SOLUTIONS

- (a) For a *detached dwelling* the minimum *road setback* is:
 - (i) as in Table A1; or

TABLE A1				
Street Type	Minimum <i>Frontage</i> setback (m) ¹	Minimum side to corner street (m)		
Access place and Access street	3.0	1.0		
Collector street	4.0	2.0		

Front setbacks comply (3m min). Side setbacks to corner street on Lots 8, 9, 16 & 33 comply (1m min).

- (ii) where there are existing detached dwellings both on adjoining lots and at least one of the detached dwellings is setback from the road between 3m and 6m. the difference and between their road setbacks is-
 - (A) not more than 2m- a distance between the two *buildings* (Figure 1); or

Figure 1



WHERE B LESS A IS NOT MORE THAN 2M SETBACK = ANY DISTANCE BETWEEN A AND B

Queensland Development Code
MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS $450 \mbox{M}^2$ AND UNDER

ACCEPTABLE SOLUTIONS

setbacks

adjacent

(Figure 2); and

more than 2m- the average of the road

of

the

buildings

(B)

PERFORMANCE CRITERIA\		
Figure 2		
	NEW	EXISTING
EXISTING		-
		ROAD

WHERE B LESS A IS 2M OR MORE SETBACK = AVERAGE DISTANCE BETWEEN A AND B

Queensland Development Code

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS 450M² AND UNDER



SETBACK = ANY DISTANCE BETWEEN A AND B

Figure 4



ACCEPTABLE SOLUTIONS

 (iii) where adjacent buildings have road setbacks of 3m or less – any distance between the setbacks (Figure 3)

- (b) For a *garagelcarport* the minimum *road setback* is-
 - (i) as for A1(a); and
 - (ii) for a rectangular or one ar rectangular lot, the elevational dimension of openings facing the street is the lesser of 6m and 50% of the street frontage.
 (Figure 4)

Garages on narrow lots exceed 50% of the street frontage, however all dwellings are 2 storeys so the garages do not dominate the streetscape and comply with P1.

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS 450M² AND UNDER



Figure 5



(c) For a **corner** *lot*, the minimum *road setback* is-

ACCEPTABLE

SOLUTIONS

- (i) as for A1(a); and (b) _{Complies with A1}.(i) and (ii); except
- (ii) where the average depth of the *lot* is 24m or less:
 - (A) for the nominated road frontage as Table A1
 (Figure 5); and
 - (B) for the other road frontage – as for A1; provided
 - (C) no building or structure over 2m high is built within a 9m by 9m truncation at the corner of the 2 road frontages.
- (d) For *structures* minimum *road setbacks* are as for A1(a), (b), and (c) except for
 - (i) **swimming pools** where the minimum distance from the water to the *road frontage* is –
 - (A) where the vertical distance to the coping above the finished ground level is not more than 1.2m 1.5m; or

PERFORMANCE CRITERIA\

ACCEPTABLE SOLUTIONS

- (B) where a solid wall or fence at least 1.8m high above finished ground level is constructed the between the water and road frontage and the top of the wall or fence is at least 1.0m above the top of the coping of the pool, no _ requirement; and
- (ii) screens, fences. retaining walls or a combination of screens fences or retaining walls not more than 2m in height; and
- (iii) roofed **gatehouses** and arches having a –
 - (A) maximum *area* of $4m^2$; and
 - (B) not more than 2m wide elevation to street; and
 - (C) not more than 3m in *height*.

- P2 Buildings and structures
 - (a) provide adequate daylight and ventilation to *habitable rooms*; and
 - (b) allow adequate light and ventilation to *habitable rooms* of *buildings* on adjoining *lots*.
 - (c) do not adversely impact on
- A2 (a) The side and rear boundary clearance for a part of the building or structure is –
 - (i) where the *height* of that part is 4.5m or less 1.5m; and
 - (ii) where the *height* of that part is greater

Design and Siting Standard for Lots 450m² & Under

PERFORMANCE CRITERIA\

the amenity and privacy of residents on adjoining lots.

ACCEPTABLE SOLUTIONS

4.5m but not than more than 7.5m - 2m; and

- (iii) where the *height* is greater that 7.5m - 2m plus 0.5m for every 3m part exceeding or 7.5m.
- (b) For a rectangular or near rectangular narrow lot with а 15m less or frontage, the minimum side and rear setbacks for that part are -

(i) where the *height* is not more than 7.5m - in accordance with Table

(ii) where the *height* is more than 7.5 m 2m plus 0.5 m for every 3 m or part of 3m by which the *height*

exceeds 7.5m.

exempted from A2 (a) and

(i) the structure is not a deck, patio, pergola, verandah or the like

than

permitted under A2 (c)

recreational purposes

(iii) a screen, fence or retaining wall or

(ii) the structure is not

entertainment,

or the like

be

one

for

а

may

A2; and

(c) **Structures**

(b) where-

other

(v)

used

Side and rear setback comply with Table A2.

Table A2

Road Frontage	Side and Rear	
	boundary c	learances
	eig	ht
in metres	in metres	
	4.5 or less	4.5 to 7.5
14.501 - 15.000	1.425	1.900
14.001 - 14.500	1.350	1.800
13.501 – 14.000	1.275	1.700
13.001 – 13.500	1.200	1.600
12.501 - 13.000	1.125	1.500
12.001 - 12.500	1.050	1.400
11.501 – 12.000	0.975	1.300
11.001 – 11.500	0È900	1.200
10.501 - 11.000	0.825	1.100
10.500 or less	0.750	1.000

Publication Date: 11 March 2010

Design and Siting Standard for Lots 450m² & Under

PERFORMANCE CRITERIA\

ACCEPTABLE SOLUTIONS

combination of screens, fences of retaining walls not more than 2m high; or

- (iv) a rainwater tank, including any supporting structure such as a stand, is not more than 2..4m high.
- (v) Subject to (ii), it is a pergola or other *structure* which is-
 - (A) not enclosed by walls or roofed; and
 - (B) not more than 2.4m in *height* at the boundary; and
 - (C) primarily ornamental or for horticultural purposes.
- (d) **Subject to A2(c), class 10a** *buildings* or parts may be within the boundary clearances nominated in A2 (a) and (b) where-
 - (i) the *height* of a part within the boundary clearance is not more than 4.5m and has a *mean height* of not more than 3.5m; and
 - (ii) the total length of all *buildings* or parts, of any class, within the boundary clearance is not more than 9m along any one boundary; and;

PERFORMANCE **CRITERIA**

ACCEPTABLE SOLUTIONS

(iii) the class 10a buildings parts within the or boundary clearance are located no closer than 1.5m to a required window in a habitable room of an adjoining dwelling.

(e) Swimming pools may be boundary within the clearances nominated in A2(a) and (b) where -

- (i) a solid wall or fence, constructed to prevent water entry onto adjoining lots, at least 1.8m high above finished ground level, is erected between the swimming pool and the boundary of the lot; and
- (ii) The top of the wall or fence is at least 1.0m above the top of the coping of the pool.
- **P3** is **A3** Adequate open space provided for recreation, service facilities and landscaping.
- **P4** The *height* of a *building* is not to **A4** unduly –
 - (f) adjoining overshadow houses: and
 - obstruct the outlook from (g) adjoining lots.
- **P5** *Buildings* are sited and designed A5 to provide adequate visual privacy for neighbours.

The maximum area covered Site cover of by all buildings and structures proposed dwellings impervious 50%. roofed with materials, does not exceed 50% of the lot area.

For lot slopes-

- (a) up to 15%, the *building height* is not more than 8.5m: and
- (b) of 15% or more, the building height is not more than 10m.
- Where the distance separating а window or balcony of а detached dwelling from the side or rear

is approximately

MP 1.1 – DESIGN AND SITING STANDARD FOR SINGLE DETACHED HOUSING – ON LOTS 450M² AND UNDER

PERFORMANCE **CRITERIA**

Figure 6



WINDOW OPENINGS FOR VISUAL PRIVACY

P6 The location of a building or A6 structure facilitates normal building maintenance.

ACCEPTABLE SOLUTIONS

boundary is less than 1.5 m -

a permanent window and All dwellings on (a) balcony has а а window/balcony screen 1.5m or screening extending across the line to openings on the of sight from the sill to at right hand side of the building to least 1.5m above the ensure privacy. adjacent floor level; or

narrow lots have sill heights exceeding

- (b) a *window* has a sill *height* more than 1.5m above the adjacent floor level, or
- a window has obscure (c) glazing below 1.5m (Figure 6).
- A wall is -
 - Complies. (a) set back a minimum of 750mm from the side or rear boundary; or
 - (b) where less than 750mm to the boundary, maintenance free, such as unpainted or untreated masonry or prefinished steel sheeting..
- **P7** location of **A7** The size and structures on corner sites provide for adequate sight lines.

Figure 7



Fences, screens, and retaining walls and other structures are not more than 1m high within a truncation made by 3 equal chords of a 6m radius curve at the corner of the 2 road frontages (Figure 7).

Page 14

ELEMENT 2 – SPACE FOR ON-SITE CAR PARKING

PERFORMANCE REQUIREMENTS

- P8 Sufficient space for on-site A8 carparking to satisfy the projected needs of residents and visitors, appropriate for
 - (a) the availability of public transport; and
 - (b) the availability of onstreet parking; and
 - (c) the desirability of onstreet parking in respect to the streetscape; and
 - (d) the residents likelihood to have or need a vehicle.

Figure 8



ACCEPTABLE SOLUTIONS

- (a) For each detached dwelling Complies space is provided for parking two vehicles on the lot and the space has –
 - (i) minimum dimensions as follows:
 - (A) for a **single uncovered** parking space- 4.9m by 2.6m wide; and
 - (B) for a single covered parking space- 5m by 3m wide; and
 - (C) for a **double covered** parking space 5 by 5.5m wide; and
 - (D) for a single garage- 6m
 by 3m wide internally;
 and
 - (E) for a **double** garage-6m by 5.7m wide internally.
 - (b) Car parking spaces maybe in tandem, provided one space is behind the road setback required under Element 1 (Figure 8).

ELEMENT 3 – OUTDOOR LIVING SPACE

PERFORMANCE CRITERIA

- **P9** A *detached dwelling* has its **A9** own individual outdoor living space which
 - (a) has suitable size and slope is to allow residents to extend their living activities outdoors; and
 - (b) is available for the sole use of the residents of individual dwellings; and
 - (c) is adequately separated from each other to provide visual privacy

ACCEPTABLE SOLUTIONS

- Each detached dwelling has a Complies clearly defined outdoor living space which –
 - (a) has an area of at least 16m²; and
 - (b) has no dimension less than 4m; and
 - (c) has access from a living *area*; and
 - (d) Has a *slope* of not more than 1 in 10; and
 - (e) provides visual privacy from another outdoor living space by a window/balcony screen

Annexure 3: Engineering Response





18 October 2023

Attention: Chief Executive Officer Douglas Shire Council

Our reference: 016-2304

Information Request Response - 42-52 Mitre Street and Sagiba Avenue

The following responds to the **Operational Work** - **Subdivision (2 Lots into 6 Lots) Information Request dated** 22 August 2023 (your ref 8/10/1366 (7251824)) and provides further information for Reconfiguring a Lot (2 Lots into 6 Lots and Access Easements) Information Request dated 12 July 2023 (your ref 8/13/2532 (7226075))

With reference to the Operational Work - Subdivision (2 Lots into 6 Lots) Information Request dated 22 August 2023 (your ref 8/10/1366 (7251824)) we provide further information below:

Performance Assessment

1. Council notes that a number of the proposed allotments are particularly narrow. Provide house plans for all proposed lots with a width less than 15 metres and demonstrate how they relate to each neighbouring allotment within the development. A response to this item should be inclusive of individual floor plans detailing window locations and site plans detailing the building location on each site with doors and windows nominated for each storey.

A response will be provided under separate cover.

2. Provide an assessment against the side boundary setback provisions from the Queensland Development Code MP1.1. The assessment is to have no regard to the overall proposed lot area. The assessment is to have regard to the allotment width and its relationship to the proposed side boundary setbacks and frontage boundary setbacks.

A response will be provided under separate cover.

Amendment to Application

3. Officers have reviewed the Town Planning Report and the Engineering Report and note discrepancies between the proposed Lot numbers. Provide a comprehensive review of the reports and any supporting information accompanying the application to correct the discrepancies.

An amended Engineering Report has been attached to this letter.

4. Confirm that the Reconfiguration of a Lot component of the application is for 3 lots into 33 lots and common property. Note that the Town Planning Report by Planning Plus proposes Reconfiguring a Lot of 3 Lots into 33 Lots. The Engineering Report, by Neon Consulting, indicates 38 lots as per Section 1 Introduction, 37 lots as per Section 3 Wastewater Disposal and Section 4 Potable and Firefighting Water. The engineering plans, by Neon Consulting, indicate 34 lots (and a total road count of 35 lots as per Drawing No. 016-2304-00-SK-0002).

Plans and report have been amended and attached to show 3 into 33.

18 October 2023 Information Request Response- 42-52 Mitre Street and Sagiba Avenue

Earthworks

5. Provide a preliminary Earthworks Masterplan to assist Officers in their assessment noting the amount of proposed fill on site.

See attached preliminary earthworks plan. The amount of fill has increased in the revised plans to accommodate the diverting all stormwater to the north.

Ecology Survey and Assessment

6. Provide an ecology report inclusive of on-site survey results for flora and fauna on the site. The report must be prepared by a suitably qualified consultant. The report must determine if any species of National or State environmental significance are present within the proposed clearing and disturbance footprint. If any species of significance are discovered, demonstrate how these are to be appropriately managed.

A response will be provided under separate cover.

Water Supply and Sewerage

7. Provide an updated Engineering Report and Water Supply and Sewerage Masterplans to demonstrate the capacity of the existing network is able to service the development in accordance with the standards of service specified within the FNQROC Development Manual. In particular, the Masterplan must:

A. identify the water supply and sewerage network catchment or catchments that the development relies upon;

PIA of Port Douglas

PIA landuse of Residential 1

Water Catchment of Port Douglas (W1), based on trunk plans, the reticulation is connected to existing mains WME071 or WME072

Sewer Catchment of Port Douglas (S1), the existing SPS commissioned in stage 1 pumps to trunk rising main RME063.

B. provide a detailed hydraulic network analysis and supporting calculations which demonstrate any required augmentations or upgrades required to existing infrastructure and the internal design parameters set in order to ensure an adequate standard of service is achieved for the development;

<u>Sewer</u> - The existing sewer pump station has capacity to service the proposed development (including stage 1). The calculated duty point is 2.51L/s @56.3m, with 2 starts per hour under ADWF conditions. No upgrades to the existing pump station and/or pump is required. Refer attached pump station calculations.

<u>Water</u> - The existing 150dia water main has a static pressure of 535kpa.See attached water network analysis in the updated Engineering Report.

C. Provide a hydrant flow and pressure test to confirm that the development can achieve the service pressure and firefighting provisions in the FNQROC Development Manual for the peak morning and afternoon periods over a one week period.

Hydrant flow and pressure test is attached with the water network analysis in the updated Engineering Report..



18 October 2023 Information Request Response- 42-52 Mitre Street and Sagiba Avenue

D. identify any existing trunk infrastructure which may require augmentation or upgrading to ensure an adequate standard of service is achieved for the development;

The demands for site have been assessed against the allowanace made in Councils LGIP. On review, the site currently has 258.4 EP allocated to the demands of Councils trunk infrastrucuture. The proposed development (including the existing stage 1), has a total demand of 113.5 EP. On this basis the site utilises 44% of the current demand modelled in Councils LGIP for Lots 1,2, 6 on C2253. Refer to attached File Note for further details.

No upgrades are required as a result of this development.

E. identify the staging and sequencing of the development in respect of the need or otherwise to implement particular infrastructure augmentations or upgrades to existing infrastructure to ensure an adequate standard of service is achieved for the development;

No staging is required on the basis of infrastructure.

F. provide a demand evaluation plan of the development;

Refer attached plan showing the demand evaluation for the site in the current planning context, and proposed development.

G. identify the connection points and land tenure arrangements for new and existing infrastructure required to ensure an adequate standard of service is achieved for the development.

Connection points are show in the in the updated masterplans.

Demonstrate provision is made for driveway access (and hardstand) to the existing sewer pump station.

Refer to the attached turnpaths.

Drainage

9. Concerns are raised that the proposed stormwater drainage plan(s) will adversely affect the surrounding properties to the south of the site, along Martin Scullet Drive. The Applicant is requested to amend the Engineering Report and proposal plan(s) to direct stormwater drainage into the existing concrete channel along Sagiba Avenue (falling West to East).

The Applicant must identify any requirements for drainage easements along Sagiba Avenue.

The revised plans show the design amendments to outlet all stormwater to Sagiba Avenue instead of maintaining the existing flow conditions at Martin Scullet Drive.

The stage 1 lot contains a culvert and concrete drain within an easement which benefits the balance of the site. The easement will remain in place.

The drainage capacities of these elements have been reviewed and capacity is as follows:

- 3/600x450 RCBC approx. 1.3m3/s
- 2m wide drain 2.3m3/s

This infrastructure has capacity to convey the post development flows (1%AEP) from the subject site.



10. The revised Engineering Report and stormwater drainage plan(s) must provide additional supporting information (including but not limited to external catchments, supporting calculations and longitudinal sections) demonstrating provision is made that the stormwater drainage system does not adversely affect surrounding properties or properties downstream from the development, in accordance with the FNQROC Development Manual and Queensland Urban Drainage Manual.

Flows in the order of 1m3/s have been removed from Martin Scullet Drive, and this flow is contained within the Stage 1 easement (lot 1).

Note: Stormwater discharge must have a no worsening effect or ponding nuisances on downstream or upstream properties, associated with the: diversion of stormwater; concentration of stormwater flows; changes in other flow characteristics; and or changes that affect the future use of land.

If a disparity exists between pre and post alteration flows, measures are to be implemented in order to have a no worsening effect.

All of the site stormwater is now proposed to discharge to Sagiba Avenue as requested which will result in a disparity between pre and post flows. The result is a decrease to the flows to Martin Scullet Drive and an Increase in Sagiba Avenue. THe attached calculations show that Sagiba Avenue has capacity for the flow and that the increased flow will not impact the downstream properties (Stage 1)

11. The drainage network for the development needs to incorporate a gross pollutant trap(s) or equivalent measure(s) in accordance with the FNQROC Development Manual.

Due to the site topography a gross pollutant trap would need to be raised above the ground level to drain. As the development is proposed to be private infrastructure maintained by the owners it is expected that gross pollutants are less likely to be left in the roadway. In lieu of a GPT it is proposed to provide landscaping within the road reserve in the form of grassed swales and depressions as part fo a Water Sensitive Urban Design approach.

Landscaping

12. Council notes that the site is likely to be completely cleared of existing vegetation in order to develop the land with adequate drainage solutions. Provide a landscaping plan prepared by a suitably qualified consultant which details proposed planting for the site and for any areas external to the site to be disturbed.

The landscaping plan should also detail the proposed entry statement, opportunities to screen pad mount infrastructure, detail internal street tree planting and opportunities for deep planting and screening around the sewer pump station.

A response will be provided under separate cover.

Electricity

13. Detail the location of any pad mount for electricity infrastructure on site.

A response will be provided under separate cover.

Internal Footpath

14. Confirm the width of the proposed internal footpath.

The proposed road is FNQROC standard and can accommodate an internal footpath of 2m wide with standard service alignments.

18 October 2023 Information Request Response- 42-52 Mitre Street and Sagiba Avenue

Traffic

15. Provide vehicle swept path plan(s) demonstrating compliance in accordance with the

AS 2890.1:2004 Parking facilities – Off-street car parking and Austroads Design Vehicles and Turning Path Templates. The plan(s) must address the following;

A. Provide the adopted base dimensions of the design vehicle(s) associated with the approved use(s) in accordance with AS 2890.1:2004 Parking facilities – Off-street car parking;

B85 is the base case design vehicle, based on criteria within appendix B of AS2890.1.

B. Provide vehicle swept paths for ingress/egress into the site; conflicts internal to the site; access to parking spaces and access to proposed Lots 28 to 33

(demonstrating that manoeuvring/circulation clearances are not encroached and spaces are provided on site for vehicles to enter, turn around and exit in a forward direction).

The proposed internal road is an FNQROC width road which allows adequate manouevring and circulation for the design vehicles. Swept paths are attached to this letter.

We trust the above meets with your approval and look forward to receipt of your approval. Should you require any additional information, please do not hesitate to me on 0402 568 698 or the email address below.

Yours sincerely

rig phich

Craig Caplick Principal Engineer | RPEng RPEQ 25102 craig@consultneon.com.au | 0402 568 698









Mitre Street Development, Port Douglas

Engineering Services Report

016-2304-R-001 | Revision B 18 October 2023

Troy Cavallaro





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Project Name	Mitre Street Development, Port Douglas
Project Address	42-52 Mitre Street, Port Douglas (Lot 1, 2 & 6 C2253)
Project No:	016-2304
Document Title:	Engineering Services Report
Document No.:	016-2304-R-001
Revision:	В
Date:	18/10/2023
Client Name:	Troy Cavallaro

Report prepared by

Craig Caplick | Principal Engineer | RPEng RPEQ 25102 | +61 402 568 698 | Craig@ConsultNeon.com.au

Craig Cophel

Revision History

Rev	Date	Description
A	27/07/2023	Initial Issue
В	18/10/2023	RFI Response



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Appendix A. Preliminary Development Plans

Appendix B. Concept Engineering Plans

Appendix C. Flooding and Storm Surge



1. Introduction

Neon Consulting has been engaged to prepare an Engineering Services Report to support a Development Application for a development at 42-52 Mitre Street, Port Douglas (Lot 1, 2 & 6 C2253).



Figure 1 - Locality Aerial Image (image sourced from Qld Globe)



Figure 2 - Project Site Aerial Image (image sourced from Qld Globe)



The development proposal, shown in Appendix A, is to subdivide the property into 33 residential lots. The following report addresses the civil engineering elements of a Reconfiguring of a Lot (RaL) application to determine the development constraints, in particular:

- Traffic and Access
- Wastewater Disposal
- Water Supply
- Site Grading
- Stormwater and Flooding
- Electrical and Telecommunications



2. Traffic and Access

2.1 Surrounding Road Network

The development site has frontage to the council road network at Sagiba Avenue, Mitre Street and Martin Scullet Drive. The development proposal is to provide direct access to the development via a new access road connection to Sagiba Avenue. Key attributes of the existing local road networks associated with the proposed intersection have been summarised below.

Attribute	Mitre Street	Sagiba Avenue	Martin Scullet Drive
Jurisdiction	Douglas Shire Council	Douglas Shire Council	Douglas Shire Council
Posted Speed (km/h)	50km/h	Unposted (50km/h)	Unposted (50km/h)
Kerb & Channel	No	No	No
On Street Parking	No	Yes	No
Footpaths	Yes	No	No
Principal Cycle Network	No	No	No
Bus Route	No	No	No

Table 1 - Key Road Attributes

The plans in Appendix B include the proposed road arrangement, indicative driveways, on-street car parks and pedestrian footpaths.

The existing roundabout at the intersection of Sagiba Avenue and Mitre Street will not be altered by the proposed development.

2.2 Car Parking

Parking bays are planned to be provided for allotments with reduced street frontages in accordance with Queensland Streets requirements. During detailed design considering driveways, bin hardstands and other constraints, an assessment of the on-street parking generation will be undertaken. On-Street parking has been shown in the concept plans in Appendix B.

2.3 Refuse Collection

The proposed internal road is FNQROC standard width and has sufficient width and corner radii for access by the Council refuse vehicle if required within the Common Property.



3. Wastewater Disposal

Connection to the municipal sewage network for each of the proposed lots will be achieved via a new gravity network to discharge at the existing private pump station within the site. This pump station was installed during the previous development of the site and was sized for a unit development over the site and will have capacity for the development proposed in this application.

A review and assessment of the pumps will be undertaken in the detailed design phase of this project.

The expected sewage generation from the development is tabulated below.

3	3
2.8 EP /Lot	3.1 EP /Lot
31	2
93	5.0
33.2	
270 L/day	
0.291 L/s	
2.92	
0.849 L/s	
7.31	
2.12 L/s	
	3 2.8 EP /Lot 31 93 33 270 L 0.29 2.1 0.84 7.1 2.12

Table 2 - Development Sewage Generation

The concept engineering plans in Appendix B show the proposed location for the gravity sewer network.



4. Potable and Firefighting Water

Municipal potable water infrastructure is available within the verge of Sagiba Avenue at the site frontage. The development proposal is to connect to this infrastructure via a single connection to a new internal reticulation network. A Magflow meter (or approved equivalent) servicing the development will be located on private land and clear of vehicular access.

4.1 Modelling Parameters

4.1.1 Model

The reticulation network for the proposed development has been modelled using EPANET. The EPANET program analyses the head losses within the network using the Hazen Williams headloss formula in accordance with FNQROC Development Manual 'D6 Water Reticulation'.

On 20 September 2023, H2O Consultants (H2O) performed a hydrant test for pressure and flow rate on the existing main at two (2) locations, at the hydrant booster assembly on Sagiba Ave and also on Mitre St, adjacent to Sagiba Ave. For the purpose of analysis and calculation of the headpoint in the model, the Sagiba Ave test results were deemed most appropriate.

Appendix C contains data for the hydrant test location and results, which have been used to interpret the boundary condition of the proposed development.

4.1.2 Residential Demands

The Development demand loading was calculated in accordance with FNQROC Development Manual 'D6 Water Reticulation'.

The water supply flow parameters for the network model were calculated in accordance with FNQROC Development Manual 'D6 Water Reticulation'. The following Average Daily consumption and peaking factors were applied to the design of the water supply scheme:

- Average Daily Consumption (AD) = 500 L/person/day
- Mean Day Maximum Month (MDMM) = 1.5 × AD
- Peak Day (PD) = 2.25 × AD
- Peak Hour (PH) = 1/12 × PD over a 1-hour period

Error! Reference source not found. below shows the flow parameter values applied to the network model.

Design Criteria	
Number of Lots (401 – 900 m²)	30
Number of Lots (901 – 1100 m²)	3
Population per Lot (401 – 900 m²)	2.8 EP /Lot
Population per Lot (901 – 1100 m²)	3.1 EP /Lot
EP - Equivalent Population	93.3
EDC - Equivalent Domestic Connections	33.32
Demand per Equivalent Person	500 L/day
AD – Average Daily Demand	46.65 kL/day
MDMM – Mean Day Maximum Month Demand	69.97 kL/day
PD – Peak Day Demand	104.96 kL/day
PH – Peak Hour Demand	2.43 L/s
FF – Fire Flow	15 L/s



Table 3 - Development Water Demand

4.1.3 Pressure Parameters

A Peak Hour (PH) flow analysis was conducted in accordance with FNQROC Development Manual. The residual pressure during peak day (and hence peak hour) flow should range between 22m and 60m, at the building pad for the above design criteria.

4.1.4 Firefighting Parameters

A static fire flow analysis was conducted in accordance with FNQROC Development Manual. The fire flow (FF) requirement for a residential area is 7.5 L/s for 2 hours. In accordance with the guidelines, two fire event scenarios were simulated with the following background demands and minimum criteria:

- 1) Scenario 1 (Fire Flow + two thirds Peak Hour):
 - Fire flow requirements is 15 L/s for 2 hours
 - Background demand is 2/3 PH
 - Minimum criterion is 12 m residual pressure at the adjacent hydrant and 6 m residual pressure for the remainder of the network.
- 2) Scenario 2 (Fire Flow + Peak Hour):
 - Fire flow requirement is 7.5 L/s for 2 hours
 - Background demand is PH
 - Minimum criterion is that pressures in the network remain positive



4.2 Model Results

4.2.1 Connections

The site generally falls to the northeast towards the coast. Most of the site has been cleared previously, which make up the proposed subdivided lots. The general lot layout and water reticulation layout is provided in Figure 3 below.

The future building pad levels remain fairly constant around RL 3m AHD. The site is serviced by an existing Council main to the north of the proposed development.



Figure 3 – System Layout



4.2.2 Peak Hour Demand



The model flow rates and residual pressures for Peak Hour Scenario are contained in Appendix D.

Figure 4 – Pictorial View of Peak Hour Scenario

On this basis it is considered that all lots in the development will be able to achieve the minimum 22m residual pressure during Peak Hour.



4.3 Fire Flow

4.3.1 Scenario 1 (FF + 2/3 PH)

Scenario 1 has a background demand of two-thirds Peak Hour flow during the fire event with a minimum criterion of 12 metres residual pressure. After trialling a number of locations throughout the development, the worst case occurred when fire flow was drawn from Node 25 (Lot 14/15).

The figure below displays the state of the network during Fire Flow Scenario 1. The nodes are coloured to show the residual pressure. The model flow rates and residual pressures for Fire Flow Scenario 1 are contained in Appendix E.



Figure 5 – Pictorial View of Fire Flow Scenario 1 (Fire from Node 108)

During fire and two-thirds Peak Hour flows, residual pressures are greater than the required minimum of 12 m. the residual pressure does not fall below this level at any node for the duration of the simulation.



4.3.2 Scenario 2 (FF + PH)

Scenario 2 has a background demand of Peak Hour flow during the fire event with a minimum criterion of positive residual pressure in the network.

The model flow rates and residual pressures for Fire Flow Scenario 2 are contained in Appendix F.



Figure 6 – Pictorial View of Fire Flow Scenario 2 (Fire from Node 132)

During fire and Peak Hour flows, residual pressures remain positive throughout the network. The residual pressure does not fall below zero at any node for the duration of the simulation.

4.4 Recommendations

Based on the calculations and information collated in this report, it is concluded that the existing Council infrastructure has sufficient capacity to accommodate the proposed development, and as such, this development can be serviced in accordance with the statutory requirements.



5. Stormwater, Flooding and Storm Surge

5.1 Storm Tide

The site is situated within the Medium Storm Tide Hazard zone and is at risk of inundation in the year 2100 1% AEP event. Searches with the 'Douglas Shire Council and JB Pacific Storm Tide Inundation Methodology Study' tool indicate that Lots 1 & 2 C2253 are not subject to inundation, whilst Lot 6 C2253 has a required finished floor level (FFL) of RL 3.548m AHD inclusive of a 500mm freeboard to the calculated level (refer to reports in Appendix G). This level is considered appropriate and will be applied over the whole site as the minimum finished floor level. Earthworks pad levels and roads will be graded accordingly for overland flow paths.



Figure 7 – Year 2100 1% AEP Storm Tide Extent (Extract from Douglas Shire Council and JB Pacific Storm Tide Inundation Methodology Study)



5.2 Regional Flood

The property is not shown to flood in a 1% AEP event in the Port Douglas Flood Study. The site will be filled to provide immunity from the storm tide and will therefore be further above the flood level, and an assessment of flood storage losses is not considered appropriate.



Figure 8 – 100 Year ARI Flood Extent (Extract from DSC Flood and Storm Tide Innundation Overlay Map.

5.3 Development Stormwater Philosophy

A study of the stormwater discharge from the site was undertaken in the previous development of the site, which resolved to increase the capacity of the stormwater infrastructure in Sagiba Avenue, discharging to the coastal dunes in the east while maintaining predevelopment discharge flow rates from the rest of the site by reducing the catchment area accordingly. The stormwater catchment plans in Appendix B show how the pre-development and post-development catchments are intended to operate.



6. Site Grading and Vegetation Clearing

The development site is mostly cleared having been previously identified for a higher density unit development.

Engineering fill material will be imported to ensure that the finished floor levels of the future buildings will be above the predicted 1% AEP flood and storm surge levels with roads and alottments graded to maintain the stormwatwater catchments described in the previous section.

The earthwork philosophy is to achieve the project goals while also achieving;

- Compliance with the FNQROC Development Manual Design Guideline D2
- Flood immunity to the dwellings
- Stormwater drainage compliant with FNQROC Development Manual Design Guideline D4 and QUDM
- Provision of gravity sewer connections for each allotment.
- Balanced earthwork cut and fill volumes.
- Efficient and economical design

Earthwork compaction testing will comply with AS3798 – Guidelines on Earthworks for Commercial and Residential Development and the Far North Queensland Regional Organisation of Councils (FNQROC) Design Guideline D2. Topsoil from the site will be stockpiled before earthworks and spread over the zones identified for grass and landscaping.



7. Electricity and Telecommunication

Electricity and telecommunications infrastructure is located nearby within the existing development and will be extended as part of this development. Power and communications will be provided as required by the respective services authorities to service the new lots.

Intent to Supply offers from electrical and telecommunication providers will be provided to Council during the future project phases.



8. Recommendations

Based on the calculations and information collated in this report, it is concluded that this development can be serviced in accordance with the statutory requirements and appropriate engineering solutions. In summary;

- Earthworks and site re-grading over the site can be undertaken to achieve the project requirements and relevant standards without impacting on surrounding properties or the nearby road network.
- Future structures within each proposed lot can be constructed to be free from regional and local flooding with respect to 1% AEP flood and storm surge.
- Site access from Sagiba Avenue can be safely achieved
- Safe access to each for the proposed lots can be achieved from the new common access
- Connection to Council's potable water network is available.
- The development can connect to the municipal sewer network via a new gravity network.
- The site has access to nearby electrical and telecommunications networks to provide connection.

It is recommended that the proposed development be approved with standard, relevant and reasonable conditions.



Appendix A. Preliminary Development Plans


Legend

- Approximate site boundary 2.13Ha
- --- Previous application
- --- 30m SPS buffer
- Proposed sewer easement (confirm width)
- Proposed SPS easement to restrict construction to non habitable structures only eg. pool, shed Proposed drainage easement
- Bin pads for garbage collection
- A Lots 10,11,12 & 13
 B Lot 14 & 15

 - © Lots 17 & 18
 - D Lots 19,20 & 21
 - È Lot 25
- Ē Lots 26,27
- 1 New entry/exit located east of the existing median to provide all movements access.
- 2 Partial removal of existing parking bays.
- 3 Future duplex allotment.
- 4 Temporarly retain the existing structure.
- 5 Signage feature Common Property Detail design to be agreed with Council
- 6 Pump station lot. Transfer to Council.
- 7 Confirm property boundary clearance to the existing manhole.
- 8 5.5m Pavement 2 way movement.
- 9 Landscape feature.

Development Statistics

Saleable Land - 1.67 Ha Road Area - 0.43 Ha (20.1%)

Total No Allotments	33
400m ² - 500m ² Allotments	27
501m ² - 600m ² Allotments	1
>600m ² Allotments	5

Average Lot Size - 505m²

Average Lot Size (inc. previous application) - 580m²



2 4 6 8 10 12 14 1:500 @ A

MITRE STREET PORT DOUGLAS RAL PROPOSAL PLAN CANCELLING LOTS 1,2 & 6 C2253

PLAN REF:

DATE: CLIENT: DRAWN BY: CHECKED BY:

AU6631 – 06 25th JUNE 2023 Allaro Homes MJB MJB

Note: All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers desian.

Source Information: Site boundaries: Registered Survey Plans. Adjoining information: DCDB. Contours: RPS Survey Aerial photography:Google Earth Environment constraints: RPS Tree Survey (2004)



URBAN DESIGN Unit 1 5-7 Barlow Street South Townsville QLD 4810 T +61 7 4724 4244 W rpsgroup.com



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	F	rontage Prin	nary	Fronta	ge Secondar	Secondary to street Side Non-built to boundary wall to OMP and wall. Rear to OMP and wall. Refer to standard as in QDC (listed below)		Side Non-built to boundary wall to OMP and wall. Rear to OMP and wall. Refer to standard as in QDC (listed below)			
Height of wall	To wall	Το ΟΜΡ	To covered car parking space and domestic outbuildings	To Wall	Το ΟΜΡ	To Covered car parking space and domestic outbuildings	Road Frontage in metres	Side & Rear Boundary Clearance to OMP	Length and height of built to boundary wall		
							15.001+	1.500			
							14.501 - 15.000	1.425	Max Length: 70% of the length of the boundary.		
							14.001 - 14.500	1.350	Max Height: 7.5m.		
							13.501 - 14.000	1.275			
Loss than							13.001 - 13.500	1.200			
4.5m	4.5m Min 4m Min 3m Min 5.0m Min	4m Min 3m Min 5.0m Min 2m Min 1m Min 5.0m 12.501 - 13.000 1.125 12.001 - 12.500 1.050 1.050 1.050 1.050	Min 5.0m	Min 2m	Min 1m	Min 5.0m	12.501 - 13.000	1.125			
					12.001 - 12.500	1.050					
				11.001 - 11.500 0.900 10.501 - 11.000 0.825		11.001 - 11.500	0.900				
					0.825						
	waxaanaa							10.500 or less	0.750		
							Height 4.	5m to 7.5m			
							15.001+	1.500			
			N/A				14.501 - 15.000	1.425			
							14.001 - 14.500	1.350			
						N Fire days			13.501 - 14.000	1.275	
4.5m to	billion dana	Min 3m								N1/0	13.001 - 13.500
8.5m	iviin 4m			N/A	Min 2m		IN/A	12.501 - 13.000	1.125	X	
							12.001 - 12.500	1.050	(*)		
							11.501 - 12.000	0.975			
				11 001 - 11 500	0.900	·					
							10.501 - 11.000	0.825	URBAN DES		
							10.500 or less	0.750	5-7 Barlow South Townsville OLD		
Greater than 8.5m	Min 6m	Min 5m	N⁄A	Min 3m	Min 2m	N/A	Where the height is greater that 7.5m - 2m plus 0.5m for every 3m or part exceeding 7.5m.		T +61 7 4724 W rpsgroup		

Site Cover			
Building Height	Less than 700sqm	Greater than 700sqm	
8.5m or less	70%	60%	
>8.5m	60%	50%	

4 6 8 10 12 14 **1:500@A** MITRE STREET PORT DOUGLAS PLAN OF DEVELOPMENT

PLAN REF:

DATE: CLIENT: DRAWN BY: CHECKED BY:

AU6631 – 07a 21st JULY 2023 Allaro Homes MJB MJB

Note: All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information: Site boundaries: Registered Survey Plans. Adjoining information: DCDB. Contours: RPS Survey Aerial photography:Google Earth Environment constraints: RPS Tree Survey (2004)

Legend

- Approximate site boundary 2.13Ha
- --- Previous Application
- === 30m SPS buffer
- Proposed sewer easement (confirm width) Proposed SPS easement to restrict construction to non habitable structures only eg. pool, shed Proposed Drainage easement
- Frontage Primary Setback Wall _____
- —— Frontage Primary Setback OMP
- Frontage Secondary Setback Wall
- Frontage Secondary Setback OMP
- Setback Garage
- --- Optional Built to Boundary Wall (BTB)
- Non BTB Side and Rear Setback _____



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Appendix B. Concept Engineering Plans



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MITRE STREET SUBDIVISION

MASTERPLANS LOCALITY PLAN

MITRE STREET SUBDIVISION

MASTERPLANS ROADWORKS

A3 Full Size (Scale as shown) 14.07.23

016-2304-00-SK-0002

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2304\01 Drawings\00 Masterplanning\016-2304-00-SK-0001.dwg

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LEGEND

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PROPOSED LOTS SEWER MAIN Ø150 SEWER COUNTS (EDC) EXISTING SEWER MAIN EXISTING SEWER RISING MAIN

MITRE STREET SUBDIVISION

MASTERPLANS SEWER

LEGEND

PROPOSED LOTS WATER RIDER MAIN WATER SUPPLY MAIN EXISTING WATER MAIN

MITRE STREET SUBDIVISION

MASTERPLANS WATER

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A3 Full Size (Scale as shown) 14.07.23

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LESS THAN 0.5m 0.5m TO 1.0m 1.0m TO 1.5m 1.5m TO 2.0m 2.0m TO 2.5m 2.5m TO 3.0m MORE THAN 3.0m

DEPTH OF CUT DEPTH OF FILL NOTE: DEPTHS ARE MEASURED BETWEEN EXISTING AND FINISHED SURFACES

LEGEND

DESIGN SURFACE CONTOURS (0.2m INTERVAL)

EXISTING SURFACE CONTOURS (0.2m INTERVAL)

MITRE STREET SUBDIVISION

MASTERPLANS EARTHWORKS CONCEPT

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A3 Full Size (Scale as shown 17.10.23 016-2304-00-SK-0021

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Appendix C. Hydrant Test Results

James Harris

From:	Shane Barnes <admin@h2oconsultants.com.au></admin@h2oconsultants.com.au>
Sent:	Thursday, 21 September 2023 7:28 AM
То:	Paul Mashford - NEON
Cc:	Troy Cavallaro
Subject:	RE: Mitre St Hydrant Test
Attachments:	Flow Test Sagina Avenue.pdf; Flow Test Mitre Street.pdf; Test Locations.pdf; IMG_8369.JPG; IMG_8370.JPG; IMG_8371.JPG; IMG_8372.JPG; IMG_8373.JPG

Hi Paul,

Flow Test results attached.

As discussed, I was unable to find the hydrant that you requested, due to either a parked car, or the hydrant is located in Dense Bushes. The one located further down Sagina Ave was also unable to be located.

Regards

From: Paul Mashford - NEON <Paul@consultneon.com.au> Sent: Friday, 15 September 2023 2:52 PM To: Shane Barnes <admin@h2oconsultants.com.au> Cc: Troy Cavallaro <troy@allarohomes.com.au> Subject: Mitre St Hydrant Test

Hi Shane

We're looking at a subdivision for Troy Cavallaro at 42-44 Mitre St, Craiglie. Council has requested that we perform a water network analysis for the development. <u>https://www.google.com/maps/@-16.5278651,145.4746651,19.252?entry=ttu</u>

Cairns: 07 4032 1468 | 15/38-42 Pease Street, Cairns, Qld 4870 Townsville: 07 4426 1826 | 4/1 Kalynda Parade, Townsville, Qld 4817 Email: admin@h2oconsultants.com.au www.h2oconsultants.com.au

JOB NUMBER:	23179		
PROJECT:	Proposed Sub	odivision	
CLIENT:	Allaro Homes	5	
DATE:	20.09.2023	TIME:	4.45PM
LOCATION:	Hydrant 1 - H	ydrant Booster A	Assembly - Sagiba Avenue
	Hydrant 2 - N	litre Street	

FOR DESIGN PURPOSES

FLOW CHART				
FLOW	HYD 1	HYD 2		
L/S	KPA	KPA		
0	535	535		
1	530	535		
2	520	535		
5	480	535		
10	480	535		
15	440	520		
16	435	520		
17	435	520		
20	420	510		
21	410	510		
22	400	510		
25	360	510		
26	335	510		
27	310	510		
30	180	510		
31	170	510		
32	160	510		
35	100	500		

Cairns: 07 4032 1468 | 15/38-42 Pease Street, Cairns, Qld 4870 Townsville: 07 4426 1826 | 4/1 Kalynda Parade, Townsville, Qld 4817 Email: admin@h2oconsultants.com.au www.h2oconsultants.com.au

JOB NUMBER:	23179			
PROJECT:	Proposed Subdi	ivision		
CLIENT:	Allaro Homes			
DATE:	20.09.2023	TIME:	5.00PM	1.1
LOCATION:	Hydrant 1 - Mit	re Street adj	Sagina Ave	
	Hydrant 2 - Mit	re Street		

FOR DESIGN PURPOSES

F	FLOW CHART				
FLOW	HYD 1	HYD 2			
L/S	KPA	KPA			
0	535	535			
1	535	535			
2	535	535			
5	525	530			
10	485	515			
15	385	515			
16	385	515			
17	360	515			
20	285	505			
21	264	500			
22	245	495			
25	185	495			
26	145	495			
27	105	485			
30	50	485			

Appendix D. Water Network - Peak Hour

Network Ta	able - Nodes	at 19:00 H	rs	
	Elevation	Demand	Head	Pressure
Node ID	m	LPS	m	m
Junc 1	3.15	0.00	37.76	34.61
Junc 2	3.11	0.14	38.85	35.74
Junc 3	3.15	0.00	39.13	35.98
Junc 4	3.03	0.00	40.79	37.76
Junc 5	3.12	0.14	41.27	38.14
Junc 6	2.97	0.00	41.93	38.96
Junc 9	3.18	0.00	37.73	34.55
Junc 10	3.25	0.14	37.73	34.48
Junc 11	3.30	0.00	37.75	34.44
Junc 14	3.10	0.22	38.26	35.16
Junc 15	2.99	0.00	38.24	35.25
Junc 16	3.33	0.00	38.18	34.84
Junc 19	2.74	0.00	44.76	42.02
Junc 20	2.97	0.30	41.99	39.02
Junc 21	3.18	0.59	39.52	36.35
Junc 22	3.13	0.22	39.34	36.21
Junc 23	3.31	0.22	38.37	35.06
Junc 24	3.22	0.00	38.16	34.94
Junc 25	3.35	15.43	37.72	34.37
Junc 26	3.15	0.00	37.75	34.60
Junc 27	2.60	0.00	47.11	44.51
Junc 28	2.78	0.00	47.11	44.33
Junc 29	2.86	0.00	47.11	44.26
Junc 30	3.03	0.00	47.30	44.27
Junc 31	3.03	0.00	47.32	44.29
Junc 32	2.38	0.00	47.30	44.92
Resvr 33	47.35	-17.40	47.35	0.00

Network Table - Links at 19:00 Hrs

	Length	Diameter	Flow	Velocity	Unit Headloss	Status
Link ID	m	mm	LPS	m/s	m/km	
Pipe 1	27.49	63.00	-4.41	1.42	39.75	Open
Pipe 2	6.68	63.00	-4.56	1.46	42.19	Open
Pipe 3	39.37	63.00	-4.56	1.46	42.19	Open
Pipe 4	11.26	63.00	-4.56	1.46	42.19	Open
Pipe 5	14.95	63.00	-4.70	1.51	44.70	Open
Pipe 6	1.18	63.00	-4.70	1.51	44.70	Open
Pipe 8	27.90	63.00	-0.37	0.12	0.40	Open
Pipe 9	5.60	63.00	-0.37	0.12	0.40	Open
Pipe 10	22.76	63.00	-0.51	0.16	0.74	Open
Pipe 11	7.27	63.00	-0.51	0.16	0.74	Open
Pipe 13	29.26	63.00	1.25	0.40	3.83	Open
Pipe 14	5.60	63.00	1.03	0.33	2.69	Open
Pipe 15	24.06	63.00	1.03	0.33	2.69	Open
Pipe 16	7.27	63.00	1.03	0.33	2.69	Open
Pipe 18	44.33	100.00	17.40	2.22	53.14	Open
Pipe 19	52.15	100.00	17.40	2.22	53.14	Open
Pipe 20	86.82	100.00	12.40	1.58	28.38	Open
Pipe 21	7.13	100.00	11.82	1.50	25.95	Open
Pipe 22	38.55	100.00	11.60	1.48	25.08	Open
Pipe 23	10.84	100.00	10.13	1.29	19.53	Open
Pipe 24	18.97	100.00	11.17	1.42	23.37	Open
Pipe 25	10.74	100.00	-3.90	0.50	3.33	Open
Pipe 26	1.00	100.00	-4.41	0.56	4.19	Open
Pipe 27	68.26	150.00	0.00	0.00	0.00	Open
Pipe 28	1.26	150.00	0.00	0.00	0.00	Open
Pipe 29	25.61	150.00	-17.40	0.98	7.37	Open
Pipe 30	2.68	150.00	-17.40	0.98	7.37	Open
Pipe 32	118.21	150.00	0.00	0.00	0.00	Open
Pipe 7	3.63	150.00	17.40	0.98	7.37	Open

Appendix E. Water Network - Fire Flow Scenario #1

Network Table - Nodes at 16:00 Hrs	
------------------------------------	--

	Elevation	Demand	Head	Pressure
Node ID	m	LPS	m	m
Junc 1	3.15	0.00	38.44	35.29
Junc 2	3.11	0.11	39.50	36.40
Junc 3	3.15	0.00	39.77	36.63
Junc 4	3.03	0.00	41.37	38.34
Junc 5	3.12	0.11	41.83	38.71
Junc 6	2.97	0.00	42.47	39.50
Junc 9	3.18	0.00	38.41	35.23
Junc 10	3.25	0.11	38.41	35.16
Junc 11	3.30	0.00	38.43	35.12
Junc 14	3.10	0.17	38.94	35.84
Junc 15	2.99	0.00	38.92	35.93
Junc 16	3.33	0.00	38.86	35.52
Junc 19	2.74	0.00	45.14	42.41
Junc 20	2.97	0.24	42.52	39.55
Junc 21	3.18	0.46	40.17	36.99
Junc 22	3.13	0.17	39.99	36.86
Junc 23	3.31	0.17	39.05	35.73
Junc 24	3.22	0.00	38.84	35.62
Junc 25	3.35	15.34	38.40	35.05
Junc 26	3.15	0.00	38.43	35.28
Junc 27	2.60	0.00	47.38	44.78
Junc 28	2.78	0.00	47.38	44.60
Junc 29	2.86	0.00	47.38	44.52
Junc 30	3.03	0.00	47.56	44.53
Junc 31	3.03	0.00	47.57	44.55
Junc 32	2.38	0.00	47.56	45.17
Resvr 33	47.60	-16.90	47.60	0.00

Network Table - Links at 16:00 Hrs

	DIC LINKS	41 10.00 1115				
	Length	Diameter	Flow	Velocity	Unit Headle	Status
Link ID	m	mm	LPS	m/s	m/km	
Pipe 1	27.49	63.00	-4.35	1.40	38.74	Open
Pipe 2	6.68	63.00	-4.47	1.43	40.65	Open
Pipe 3	39.37	63.00	-4.47	1.43	40.65	Open
Pipe 4	11.26	63.00	-4.47	1.43	40.65	Open
Pipe 5	14.95	63.00	-4.58	1.47	42.60	Open
Pipe 6	1.18	63.00	-4.58	1.47	42.60	Open
Pipe 8	27.90	63.00	-0.38	0.12	0.43	Open
Pipe 9	5.60	63.00	-0.38	0.12	0.43	Open
Pipe 10	22.76	63.00	-0.50	0.16	0.69	Open
Pipe 11	7.27	63.00	-0.50	0.16	0.69	Open
Pipe 13	29.26	63.00	1.22	0.39	3.66	Open
Pipe 14	5.60	63.00	1.04	0.34	2.76	Open
Pipe 15	24.06	63.00	1.04	0.34	2.76	Open
Pipe 16	7.27	63.00	1.04	0.34	2.76	Open
Pipe 18	44.33	100.00	16.90	2.15	50.36	Open
Pipe 19	52.15	100.00	16.90	2.15	50.36	Open
Pipe 20	86.82	100.00	12.08	1.54	27.06	Open
Pipe 21	7.13	100.00	11.62	1.48	25.17	Open
Pipe 22	38.55	100.00	11.45	1.46	24.48	Open
Pipe 23	10.84	100.00	10.06	1.28	19.27	Open
Pipe 24	18.97	100.00	11.11	1.41	23.14	Open
Pipe 25	10.74	100.00	-3.86	0.49	3.26	Open
Pipe 26	1.00	100.00	-4.35	0.55	4.08	Open
Pipe 27	68.26	5 150.00	0.00	0.00	0.00	Open
Pipe 28	1.26	5 150.00	0.00	0.00	0.00	Open
Pipe 29	25.61	. 150.00	-16.90	0.96	6.99	Open
Pipe 30	2.68	150.00	-16.90	0.96	6.99	Open
Pipe 32	118.21	. 150.00	0.00	0.00	0.00	Open
Pipe 7	3.63	150.00	16.90	0.96	6.99	Open

Appendix F. Water Network - Fire Flow Scenario #2

	Elevation	Demand	Head	Pressure
Node ID	m	LPS	m	m
Junc 1	3.15	0.00	37.45	34.30
Junc 2	3.11	0.14	38.54	35.43
Junc 3	3.15	0.00	38.82	35.67
Junc 4	3.03	0.00	40.48	37.45
Junc 5	3.12	0.14	40.96	37.83
Junc 6	2.97	0.00	41.62	38.65
Junc 9	3.18	0.00	37.42	34.24
Junc 10	3.25	0.14	37.42	34.17
Junc 11	3.30	0.00	37.44	34.13
Junc 14	3.10	0.22	37.95	34.85
Junc 15	2.99	0.00	37.93	34.94
Junc 16	3.33	0.00	37.87	34.53
Junc 19	2.74	0.00	44.45	41.71
Junc 20	2.97	0.30	41.68	38.71
Junc 21	3.18	0.59	39.21	36.04
Junc 22	3.13	0.22	39.03	35.90
Junc 23	3.31	0.22	38.06	34.75
Junc 24	3.22	0.00	37.85	34.63
Junc 25	3.35	15.43	37.41	34.06
Junc 26	3.15	0.00	37.44	34.29
Junc 27	2.60	0.00	46.80	44.20
Junc 28	2.78	0.00	46.80	44.02
Junc 29	2.86	0.00	46.80	43.95
Junc 30	3.03	0.00	46.99	43.96
Junc 31	3.03	0.00	47.01	43.98
Junc 32	2.38	0.00	46.99	44.61
Resvr 33	47.04	-17.40	47.04	0.00

Network Table - Links at 19:00 Hrs

			10 19:00 1113				
	Length		Diameter	Flow	Velocity	Unit Headle	Status
Link ID	m		mm	LPS	m/s	m/km	
Pipe 1	27	.49	63.00	-4.41	1.42	39.75	Open
Pipe 2	6	.68	63.00	-4.56	1.46	42.19	Open
Pipe 3	39	.37	63.00	-4.56	1.46	42.19	Open
Pipe 4	11	.26	63.00	-4.56	1.46	42.19	Open
Pipe 5	14	.95	63.00	-4.70	1.51	44.70	Open
Pipe 6	1	.18	63.00	-4.70	1.51	44.70	Open
Pipe 8	27	.90	63.00	-0.37	0.12	0.40	Open
Pipe 9	5	.60	63.00	-0.37	0.12	0.40	Open
Pipe 10	22	.76	63.00	-0.51	0.16	0.74	Open
Pipe 11	7	.27	63.00	-0.51	0.16	0.74	Open
Pipe 13	29	.26	63.00	1.25	0.40	3.83	Open
Pipe 14	5	.60	63.00	1.03	0.33	2.69	Open
Pipe 15	24	.06	63.00	1.03	0.33	2.69	Open
Pipe 16	7	.27	63.00	1.03	0.33	2.69	Open
Pipe 18	44	.33	100.00	17.40	2.22	53.14	Open
Pipe 19	52	.15	100.00	17.40	2.22	53.14	Open
Pipe 20	86	.82	100.00	12.40	1.58	28.38	Open
Pipe 21	7	.13	100.00	11.82	1.50	25.95	Open
Pipe 22	38	.55	100.00	11.60	1.48	25.08	Open
Pipe 23	10	.84	100.00	10.13	1.29	19.53	Open
Pipe 24	18	.97	100.00	11.17	1.42	23.37	Open
Pipe 25	10	.74	100.00	-3.90	0.50	3.33	Open
Pipe 26	1	.00	100.00	-4.41	0.56	4.19	Open
Pipe 27	68	.26	150.00	0.00	0.00	0.00	Open
Pipe 28	1	.26	150.00	0.00	0.00	0.00	Open
Pipe 29	25	.61	150.00	-17.40	0.98	7.37	Open
Pipe 30	2	.68	150.00	-17.40	0.98	7.37	Open
Pipe 32	118	.21	150.00	0.00	0.00	0.00	Open
Pipe 7	3	.63	150.00	17.40	0.98	7.37	Open

Appendix G. Flooding and Storm Surge

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Port Douglas Design Flood Estimates

Annual Exceedence Probability (%)	Peak Discharge (cumecs)	Storm Surge Level (m AHD)
10	NA	NA
5	280	NA
2	380	2.(
1	460	2.7
0.5	590	NA
0.2	780	3.4

Note - Use this data with extreme caution and use in conjunction with the report:

1 These estimates of flows and levels could change as a result of more detailed flood modelling and/or measurements during higher flood events.

2 Flows have been estimated using regional methods

3 Storm surge levels from DEHC Report 10

 Local Authority:
 Caims Regional

 Locality:
 Port Douglas

 Projection:
 GDA 1994 MGA Zone 55
 GDA 1994

1800 110 841

Scale at A2 - 1.15,000 While every care is taken to ensure the accuracy of this data, the Queensland Reconstruction Authority, the Department of Natural Resources and Mines and/or contributors to this publication, makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages, (including indirect or subsequent damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way or for any reason. Data must not be used for direct marketing or be used in breach of privacy laws. State Digital Road Network copyright Pitney Bowes Software Pty Ltd (2012). This map is based on or contains data provided by the State of Queensland (Department of Natural Resources and Mines) 2012.

Port Douglas Flood Investigation Flood Hazard Map 1% AEP Event

16/04/2013

	۲	Points of interest	BoM gauging station	Velocity	1 - 1.5	Local Authority Locality: Projection: Datum:
AECOM		Roads	NRM gauging station	0 - 0.5	1.5 - 2	Queensland Reco 1800 www.aldrecor
www.aecom.com	+	Rail	Cadastre	0.5 - 1	>2	Queensland Reconstruction

Disclaimer:

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Annual Exceedence Probability (%)	Peak Discharge (cumecs)	Storm Surge Level (m AHD)
10	NA	NA
5	280	NA
2	380	2.6
1	460	2.7
0.5	590	NA
0.2	780	3.4

Note - Use this data with extreme caution and use in conjunction with the report:

- 1 These estimates of flows and levels could change as a result of more detailed flood modelling and/or measurements during higher flood events.
- 2 Flows have been estimated using regional methods

3 Storm surge levels from DEHC Report 10

ity: Cairns Regional Port Douglas GDA 1994 MGA Zone 55 GDA 1994

Authority

construction Authority) 110 841 nstruction.org.au

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Port Douglas Flood Investigation Flood Hazard Map Velocity Component 1% AEP Event

16/04/2013

80

1C2253

Contact us Privacy

Search for a Property

 Ξ Jump to

Storm Tide Inundation Study

Property Information

Storm Tide Information

Storm Tide Range Overview

Construction Level

Storm Tide Inundation Property Report

The following report has been automatically generated to provide a general indication of development related information applying to the nominated land parcel.

For more information refer to the JB Pacific Storm Tide Inundation Methodology Study. This report is not intended to replace the need for carrying out a detailed assessment of Council and State controls or the need to seek your own professional advice on any town planning instrument, local law or other controls that may impact on the existing or intended use of the premise mentioned in this report. For further information please contact Council by phone: 07 4099 9444 or 1800 026 318 or email enquiries@douglas.qld.gov.au.

A separate Council Planning Scheme Property Report tool is available for information relating to Council's 2018 Planning Scheme.

Visit Council's website to apply for an official property search or certificate, or contact the Department of Natural Resources, Mines and Energy to undertake a title search to ascertain how easements may affect land.

JB Pacific Storm Tide Inundation Methodology Study

The purpose of the Douglas Shire Storm Tide Inundation Methodologies Study was to review and analyse different methodologies, identify a best practise model for the Shire's coastal urban areas, run this preferred best practise model and calculate the minimum heights for the 1% AEP (Annual Exceedance Probability) storm tide inundation for the year 2100 having regard to a 0.8m sea level rise for urban coastal properties.

Excerpt from the JB Pacific Storm Tide Inundation Methodology Report -

Storm Tide Inundation

The Douglas Shire coastline experiences a range of hydrodynamic, waves, and morphologic processes that are linked through dependant and independent variables. This includes the underlying astronomical tide, the passage of local storms and cyclones, the interaction of storm surges along the open coastline, the local wave climate, any sheltering provided by nearshore reefs, and the role of nearshore and dune vegetation. A range of these coastal processes are shown in Figure 2-1.

Figure 2-1: Drivers of coastal risk

Importantly storm tide inundation can be from the overtopping at the foreshore as well as wave runup through estuaries and inundate from "behind" a locality. Check out the animation of this activity through the local estuaries in the animation on Council's website.

Future Year 2100 Projected Levels

On 2 July 2017 the Planning Act 2016 came into effect as part of the Queensland Government's commitment to delivering planning reform across the State and the State Planning Policies reinstating the need to consider the 1% AEP (Average Exceedance Probability) Storm Tide Inundation level for the year 2100 with a 0.8m sea level rise. The 1% AEP is referred to as the one in one hundred year event. The 1% AEP is the minimum we need to consider and plan for.

Freeboard

There are numerous variants that can affect the modelled levels. To account for the differences in these variants a "freeboard" is applied. For the JB Pacific Storm Tide Inundation Methodology Study these differences have been considered within a nominal 0.5m freeboard level. Minimum levels for habitable rooms need to consider the Finished Floor Level (FFL) being the 1%AEP level plus the 0.5m freeboard. This value is a measurement at AHD (Australian Height Datum).

AHD Levels

A Licensed Surveyor should be engaged to determine the accurate AHD for a property. Contours and levels identified through Queensland Globe are estimated from LIDAR calculations and may not be 100% accurate.

Property Information

Property Address

42-44 Mitre Street CRAIGLIE

Lot Plan

(- m²)

Storm Tide Inundation Study

E Jump to

Storm Tide Inundation Property Information

The information below provides details of the projected Future Year 2100 Storm Tide Inundation Level that considers a Sea Level Rise of 0.8m AHD

This property is not affected by the 1 % AEP Event for the year 2100

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/1C2253;unique=true

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Storm Tide Inundation Study

Property Information

Storm Tide Information

<u>Storm Tide Range Overview</u>

Construction Level

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/1C2253;unique=true

1C2253

The Level for Construction – for Storm Tide Inundation Considerations

The Storm Tide inundation Study determined the lot is not affected by the 1% AEP for the year 2100. Consideration should be given to the height of nearby properties, the 1% AEP mapping of such properties, and due regard to freeboard.

Disclaimer

The maps show the estimated areas of inundation for the 1% AEP projected for the year 2100 having regard to a sea level rise of 0.8m. The report nominates required minimum habitable room minimum finished floor level. This minimum level is determined from the best data to date held by Council. This storm tide inundation flood level, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels. Storm tide lnundation analysis is based on comprehensive computer modelling calibrated against actual storm tides. The website provides locations, street names, aerial photography and available storm tide inundation data for the Shire areas that were included in the JB Pacific Storm Tide Inundation Methodologies Study. This property reporting tool is not a substitute for a detailed Coastal Engineering analysis of a property and should not be relied upon where the reliance may result in loss, damage or injury. While every effort is taken to ensure the information in this report is accurate and up to date, Douglas Shire Council makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs that may occur as a result of the report being inaccurate or incomplete in any way or for any reason.

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/1C2253;unique=true

Search for a Property

Lot Plan

2C2253

Storm Tide Inundation Study

Construction Level

 Ξ Jump to

33	Property Information ×
	Storm Tide Information
	Storm Tide Range Overview

Storm Tide Inundation Property Report

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For more information refer to the <u>JB Pacific Storm Tide Inundation Methodology Study</u> This report is not intended to replace the need for carrying out a detailed assessment of Council and State controls or the need to seek your own professional advice on any town planning instrument, local law or other controls that may impact on the existing or intended use of the premise mentioned in this report. For further information please contact Council by phone: <u>07 4099 9444</u> or <u>1800 026 318</u> or email <u>enquiries@douglas.qld.gov.au</u>.

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Excerpt from the JB Pacific Storm Tide Inundation Methodology Report -

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Freeboard

There are numerous variants that can affect the modelled levels. To account for the differences in these variants a "freeboard" is applied. For the JB Pacific Storm Tide Inundation Methodology Study these differences have been considered within a nominal 0.5m freeboard level. Minimum levels for habitable rooms need to consider the Finished Floor Level (FFL) being the 1%AEP level plus the 0.5m freeboard. This value is a measurement at AHD (Australian Height Datum).

AHD Levels

A Licensed Surveyor should be engaged to determine the accurate AHD for a property. Contours and levels identified through Queensland Globe are estimated from LIDAR calculations and may not be 100% accurate.

Property Information		
Property Address <u>46-52 Mitre Street CRAIGLIE</u>		
Lot Plan (- m ²)		Storm Tide Inundation Study
		Property Information Storm Tide Information Tide Range Overview Construction Leve
Selected Property	Easements	Property

Storm Tide Inundation Property Information

The information below provides details of the projected Future Year 2100 Storm Tide Inundation Level that considers a Sea Level Rise of 0.8m AHD

This property is not affected by the 1 % AEP Event for the year 2100

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/2C2253;unique=true

E Jump to <u>Storm Tide Inundation Study</u>

Property Information

Storm Tide Information

Storm Tide Range Overview

Construction Level

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/2C2253;unique=true

The Level for Construction – for Storm Tide Inundation Considerations

The Storm Tide inundation Study determined the lot is not affected by the 1% AEP for the year 2100. Consideration should be given to the height of nearby properties, the 1% AEP mapping of such properties, and due regard to freeboard.

Disclaimer

The maps show the estimated areas of inundation for the 1% AEP projected for the year 2100 having regard to a sea level rise of 0.8m. The report nominates required minimum habitable room minimum finished floor level. This minimum level is determined from the best data to date held by Council. This storm tide inundation flood level, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels. Storm tide lnundation analysis is based on comprehensive computer modelling calibrated against actual storm tides. The website provides locations, street names, aerial photography and available storm tide inundation data for the Shire areas that were included in the JB Pacific Storm Tide Inundation Methodologies Study. This property reporting tool is not a substitute for a detailed Coastal Engineering analysis of a property and should not be relied upon where the reliance may result in loss, damage or injury. While every effort is taken to ensure the information in this report is accurate and up to date, Douglas Shire Council makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs that may occur as a result of the report being inaccurate or incomplete in any way or for any reason.

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/2C2253;unique=true

Contact us Privacy

Search for a Property

∃ Jump to

Storm Tide Inundation Study

Property Information

Storm Tide Information

Storm Tide Range Overview

Storm Tide Range Detailed

Storm Tide Inundation Property Report

The following report has been automatically generated to provide a general indication of development related information applying to the nominated langt matter. Level

For more information refer to the <u>JB Pacific Storm Tide Inundation Methodology Study</u> This report is not intended to replace the need for carrying out a detailed assessment of Council and State controls or the need to seek your own professional advice on any town planning instrument, local law or other controls that may impact on the existing or intended use of the premise mentioned in this report. For further information please contact Council by phone: <u>07 4099 9444</u> or <u>1800 026 318</u> or email <u>enquiries@douglas.qld.gov.au</u>.

A separate Council Planning Scheme Property Report tool is available for information relating to Council's 2018 Planning Scheme.

Visit Council's website to apply for an <u>official property search or certificate</u>, or contact the <u>Department of Natural Resources</u>, <u>Mines and Energy</u> to undertake a title search to ascertain how easements may affect land.

JB Pacific Storm Tide Inundation Methodology Study

The purpose of the Douglas Shire Storm Tide Inundation Methodologies Study was to review and analyse different methodologies, identify a best practise model for the Shire's coastal urban areas, run this preferred best practise model and calculate the minimum heights for the 1% AEP (Annual Exceedance Probability) storm tide inundation for the year 2100 having regard to a 0.8m sea level rise for urban coastal properties.

Excerpt from the JB Pacific Storm Tide Inundation Methodology Report -

Storm Tide Inundation

The Douglas Shire coastline experiences a range of hydrodynamic, waves, and morphologic processes that are linked through dependant and independent variables. This includes the underlying astronomical tide, the passage of local storms and cyclones, the interaction of storm surges along the open coastline, the local wave climate, any sheltering provided by nearshore reefs, and the role of nearshore and dune vegetation. A range of these coastal processes are shown in Figure 2-1.

Figure 2-1: Drivers of coastal risk

Importantly storm tide inundation can be from the overtopping at the foreshore as well as wave runup through estuaries and inundate from "behind" a locality. Check out the animation of this activity through the local estuaries in the animation on Council's website.

Future Year 2100 Projected Levels

On 2 July 2017 the Planning Act 2016 came into effect as part of the Queensland Government's commitment to delivering planning reform across the State and the State Planning Policies reinstating the need to consider the 1% AEP (Average Exceedance Probability) Storm Tide Inundation level for the year 2100 with a 0.8m sea level rise. The 1% AEP is referred to as the one in one hundred year event. The 1% AEP is the minimum we need to consider and plan for.

Freeboard

There are numerous variants that can affect the modelled levels. To account for the differences in these variants a "freeboard" is applied. For the JB Pacific Storm Tide Inundation Methodology Study these differences have been considered within a nominal 0.5m freeboard level. Minimum levels for habitable rooms need to consider the Finished Floor Level (FFL) being the 1%AEP level plus the 0.5m freeboard. This value is a measurement at AHD (Australian Height Datum).

AHD Levels

A Licensed Surveyor should be engaged to determine the accurate AHD for a property. Contours and levels identified through Queensland Globe are estimated from LIDAR calculations and may not be 100% accurate.

Property Information

Property Address The Beach Residences

Lot Plan

Storm Tide Inundation Study

(- m²) Property Information

Storm Tide Inundation Property Information

The information below provides details of the projected Future Year 2100 Storm Tide Inundation Level that considers a Sea Level Rise of 0.8m AHD

Selected Property

6C2253

Affected by the 1 % AEP Event for the year 2100

E Jump to

DP2dfic summary Information DP2dfic summary Information To represent the summary Information To represen

Storm Tide Range Detailed

+	

 D23, 16:51
 6C2253

 StormTide Levels Detailed
 Below 0.33000
 2.16968
 2.32640
 2.47331
 2.76642
 2.91969
 3.18777 and above

E Jump to

Storm Tide Inundation Study

Property Information

The Level for Construction – for Storm Tide Inundation Considerations

The lot is affected by storm tide inundation for the Year 2100, 1 in 100 (1% AEP) event. The 1% AEP for the year 2100 (including a Sea Leventer Storm Tide Information is at **3.048** (without freeboard). The Freeboard for the Study is 0.5m and is applied to determine Finished Floor Level for habitable rooms in Tide Range Overview

Storm Tide Range Detailed

The total required Finished Floor Level for habitable rooms is 3.548 m AHD

Construction Level

Note - Finished floor level is usually 225mm above the pad level.

Disclaimer

Finished Floor Level

The maps show the estimated areas of inundation for the 1% AEP projected for the year 2100 having regard to a sea level rise of 0.8m. The report nominates required minimum habitable room minimum finished floor level. This minimum level is determined from the best data to date held by Council. This storm tide inundation flood level, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels. Storm tide lnundation analysis is based on comprehensive computer modelling calibrated against actual storm tides. The website provides locations, street names, aerial photography and available storm tide inundation data for the Shire areas that were included in the JB Pacific Storm Tide Inundation Methodologies Study. This property reporting tool is not a substitute for a detailed Coastal Engineering analysis of a property and should not be relied upon where the reliance may result in loss, damage or injury. While every effort is taken to ensure the information in this report is accurate and up to date, Douglas Shire Council makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs that may occur as a result of the report being inaccurate or incomplete in any way or for any reason.

https://maps.douglas.qld.gov.au/trueview/dsc_storm/main/lotplan/search/6C2253;unique=true





Technical Information

GRP111 D





Performance Curve

GRP111 D





Dimensions

GRP111 D





Technical Data





2019-06-21

Operating data							
Flow	1.78 l/s	l/s	Head	54.61 m	m		
Shaft power P2	6.2	kW	Static head	5.5	m		
Pump efficiency	19.3	%	Required pump NPSH		m		
Pumpe type	Single pump		No. of pumps	1			
Fluid	Water, clean		Temperature	293	К		
Density	998.3	kg/m³	Kin. viscosity	1.005	mm²/s		

Pump							
Pump Code	GRP111 D	Speed		2900	1/min		
Suction port		Head	Max.	68.0	m		
Discharge port	DN50	neau	Min.	3.0	m		
Impeller type	Vane impeller with cutter sys.	Flow	Max.	8.5	l/s		
Solid size	mm	Pump efficiency max.		37.1	%		
Impeller Ø	219 mm	Required rated power max. P	2	9.2	kW		

Motor						
Motor design	Submersible moto	r	Insulation class		Н	
Motor name	AM 173.11/2 T		Degree of protection		IP 68	
Frequency	50	Hz	Temperature class		T4	
Rated power P1	11.0	kW			-	
Rated power P2	9.5	kW	Explosion protection			
Rated speed	2900	1/min		100%	86.0	%
Rated voltage	415	V 3~	at % rated power	75%	87.0	%
Rated current	18.1	A		50%	87.0	%
Starting current, direct starting	108.6	А		100%	0.89	
Starting current, star-delta	36.2	А	at % rated power	75%	0.84	
Starting mode	Star-delta			50%	0.71	
Power cable	7G1.5		Control cable		5G1.5	
Type of power cable	H07RN-F		Type of control cable		H07RN-F	
Cable length	10 m		Service factor		1.15	
Shaft seal	Mechanical seal o	n motor sid	de SiC / SiC		·	
	Mechanical seal of	Mechanical seal on medium side SiC / SiC				
Bearing	Lower Bearing	Lower Bearing Double row angular ball			bearing	
	Upper Bearing		Deep Gro	ove Ball Beariı	ng	
Remarks				LGAC Bauart geprüft	DIN EN 12050-1	

Materials / Weight							
Motor housing	Grey cast iron EN-GJL-250	Bolts		Stainl	ess steel		
Pump housing	Grey cast iron EN-GJL-250	Elastomeres	Elastomeres				147
Impeller	Grey cast iron EN-GJL-250						Suild
Cutting system	Stainless steel 1.4122						17 (F
Motor shaft	Stainless steel 1.4104						120
							12
Weight aggregat	107 kg						6
					1		-ีณ่ า
Project	Project no.:		Created by:		Page: 4	Date: 2019-06-21	

FLOW

* in accordance with FNQROC Development Manual



Total pump capacity (2 pumps operational)

PWWF = 153.23 kL/day = 5 x ADWF

Infiltration

Length of gravity sewers =	597.95	m
Length of house drain per EDC =	20	m
Infiltration =	20	m³/km/day

Infiltration = 27.96 kL/day

SIZE PUMP WELL

Colouiste Deck Wet Weether Flow (DWWE)		
Calculate Peak wet weather Flow (PWWF)	20 65 kl /day	
Enter C1	7 08	
Enter C2	2.86	
Enter Maior Industrial Flows	0 kL/dav	
Enter Infiltration / Inflow	27.96 kL/day	
Max Flow - C1 x ADWF =	216.9317	
Max Flow - C2 x ADWF + I/I =	115.5951	
Design Flow Rate (PWWF)	216.9317 kL/day	2.51 L/s Size pumps on this flow
Calculate Storage Canacity of Wet Well (Old Sew Guidelin	105)	
Enter may no of accentable starts	10	Motor rating <50 - May 10 starts per bour >50 - As per manufacturor
Storage Capacity	0.226 m^3	
otorage dapadity	0.220 11	
Determine the Storage Height		
Enter Internal Well Diameter	1.8	1.8, 2.1, 2.4
Height in well	0.300 m	Height should be minimum 300mm
Chook if Adoquata Buma Starta for ADWE		
Adopted beight	0.2 m	
	0.3 11	
Well volume for adopted height	0.35 L/s	
Time for numps to empty well	254 000	Remove full volume plue inflow during pump duration
Time to refill well	2151 500	Remove full volume plus innow during pump duration
Determine no starts per bour	354 Empty	1
	2505 Fill	1
	2859 Empty	2
	5010 Fill	2
	5364 Empty	3
	7515 Fill	3
	7869 Empty	4
	10021 Fill	4
	10374 Empty	5
	12526 Fill	5
	12880 Empty	6
	15031 Fill	6
	15385 Empty	7
	17536 Fill	7
	17890 Empty	8
	20041 Fill	8
	20395 Empty	9
	22546 FIII	9
	22900 Empty 25051 Fill	10
Total starts per hours	2	First Value greater than 3600 sec, should be greater than 5 starts
Determine Total Well Depth (excluding plug)		
Enter Surface Level	4.15 RL	
Enter Sewer Inlet Level	-0.031 RL	
Enter height between Alarm and S/B pump start	0.3 m	
Enter height between S/B and Duty pump start	0.2 m	
Height between pump start and pump stop	0.3 m	
Enter height between pump stop and well bottom	0.3 m	
Bottom of well level	-1.131 RL	

* Hand calculations should be included with pump design (as required above)

CALCULATE DEPTH OF PLUG IN PUMP STATION

Enter Internal Diameter of Well Enter Well wall thickness	1.8 m 0.23 m	From "Well Size" worksheet FNQROC Drawing S3020	
Enter Depth of Well (excl. plug)	5.281 m	From "Well Size" worksheet	
Enter Depth of plug	<mark>1.886</mark> m	change until get FOS	
Volume of Water Displaced		Density of Water =	1000 kg/m ³
Pump Station		Density of Concrete =	2400 kg/m ³
Area of Pump Station (X section) =	4.01 m ²		
Depth of Pump Station =	7.167 m	Weight of Water displaced =	321 kN
Volume of Pump Station =	28.74 m ³	Weight of Concrete =	401 kN
Valve Pit		-	
Area of Valve Pit (X section) =	2.47 m ²	FOS	1.25
Depth of Valve Pit =	1.35 m		
Volume of Valve Pit =	3.33 m ³	*Factor of Safety (FOS) should (may be less if skin friction ign	l be greater than 1.25 ored)
Total Volume Displaced =	32.07 m ³		
		**Skin Friction resisting buoya (conservative)	ncy has been ignored for this calculation
Volume of Concrete in Pump Station			
Pump Station Walls		***Valve pit based on FNQRO	C - cast in situ
Area of Pump Station Walls =	1.47 m ²		
Depth of Pump Station Walls =	7.317 m	****Change depth of plug until	acceptable FOS achieved
Volume of Pump Station walls =	10.73 m ³		
Valve Pit Walls		Comment:	
Area of Valve Pit Walls =	0.68 m ²		
Depth of Valve Pit Walls =	1.20 m		
Volume of Valve Pit walls =	0.81 m ³		
Volume of Valve Pit base =	0.37 m ³		
Plug			
Area of Plug =	2.54 m ²		
Depth of Plug =	1.886 m		
Volume of Plug =	4.80 m ³		
Total Volume of Concrete =	16.70 m ³		

https://neonconsultingau.sharepoint.com/sites/NeonConsulting/Shared Documents/General/WIP for PAM/1 - Mitre Street/230926-Sewer/016-2304_Pump Station Sizing 230926.xlsx 18/10/2023

RISING MAIN AND PUMP SIZING

Determine Stat	ic Lift			
Ent	er Discharge Point Level	5.5	RL	Highest point in rising main l
Dut	y Pump start level	-0.531	RL	From "Well Size" worksheet
Pun	np stop level	-0.831	RL	From "Well Size" worksheet
Max	kimum Static lift	6.331	m	
Min	imum Static lift	6.031	m	
Max	connecting pressure	47	m	
Details of Risir	ng Main Section 1 (80mm pipework)	1		
Ent	er Pipe Length	8	m	
Ent	er internal diameter	50	mm	
Cal	culate Area	0.0019625	m²	
Details of Risir	ng Main Section 2 (80mm pipework)	1		
Ent	er Pipe Length	22	m	
Ent	er internal diameter	76.5	mm	
Cal	culate Area	0.00459402	m ²	
Details of Risir	ng Main Section 3 (100mm pipeworl	<)		
Ent	er Pipe Length	894	m	
Ent	er internal diameter	100	mm	
Cal	culate Area	0.00785	m²	
Details of Risir	ng Main Section 4 (300mm to discha	arge MH)		
Ent	er Pipe Length	4284	m	
Ent	er internal diameter	300	mm	
Cal	culate Area	0.07065	m²	
Enter flow info	rmation			
AD	NF	0.35	L/s	From "Well Size" worksheet
PW	WF	2.51	L/s	From "Well Size" worksheet
Velo	ocity at duty flow	0.55	m/s	
Determine Dete	ention Time			
Tota	al Daily Flow	30.645	kL/day	
Det	ermine Detention Voume	7.02	kL	
Det	ermine Changes of Volume	4.37	per day	
Det	ention Time	5.50	hours	

Highest point in rising main long section From "Well Size" worksheet From "Well Size" worksheet

Calculate Headloss for different flows for System Curve Enter Minimum C factor Enter Maximum C factor

100 120

					Hea	dloss						
	Headloss Pi	pe Section 1	Headloss P	ipe Section 2	Headloss P	ipe Section 3	Headloss Pi	pe Section 4	Total Pipe H	leadloss (m)	Total Head	Curve
Flow	100	120	100	120	100	120	100	120	100	120	100	120
1.51	0.220	0.157	0.076	0.055	0.843	0.602	0.019	0.014	1.159	0.827	54.49	53.86
1.61	0.248	0.177	0.086	0.061	0.950	0.678	0.022	0.015	1.305	0.931	54.64	53.96
1.71	0.277	0.198	0.096	0.069	1.062	0.758	0.024	0.017	1.459	1.041	54.79	54.07
1.81	0.308	0.220	0.107	0.076	1.179	0.842	0.027	0.019	1.621	1.157	54.95	54.19
1.91	0.340	0.243	0.118	0.084	1.303	0.930	0.030	0.021	1.790	1.278	55.12	54.31
2.01	0.373	0.267	0.130	0.093	1.431	1.022	0.033	0.023	1.967	1.404	55.30	54.44
2.11	0.408	0.292	0.142	0.101	1.566	1.118	0.036	0.026	2.152	1.536	55.48	54.57
2.21	0.445	0.318	0.155	0.110	1.706	1.218	0.039	0.028	2.344	1.673	55.68	54.70
2.31	0.483	0.345	0.168	0.120	1.851	1.321	0.042	0.030	2.544	1.816	55.88	54.85
2.41	0.522	0.373	0.181	0.129	2.002	1.429	0.046	0.033	2.752	1.964	56.08	55.00
2.51	0.563	0.402	0.196	0.140	2.159	1.541	0.049	0.035	2.967	2.117	56.30	55.15
2.61	0.605	0.432	0.210	0.150	2.320	1.656	0.053	0.038	3.189	2.276	56.52	55.31
2.71	0.649	0.463	0.225	0.161	2.488	1.775	0.057	0.041	3.419	2.440	56.75	55.47
2.81	0.694	0.495	0.241	0.172	2.660	1.898	0.061	0.043	3.656	2.609	56.99	55.64
2.91	0.740	0.528	0.257	0.183	2.838	2.025	0.065	0.046	3.900	2.783	57.23	55.81
3.01	0.788	0.562	0.274	0.195	3.021	2.156	0.069	0.049	4.151	2.963	57.48	55.99
3.11	0.837	0.597	0.291	0.207	3.209	2.290	0.073	0.052	4.410	3.147	57.74	56.18
3.21	0.888	0.633	0.308	0.220	3.402	2.428	0.078	0.056	4.676	3.337	58.01	56.37
3.31	0.939	0.670	0.326	0.233	3.601	2.570	0.082	0.059	4.949	3.532	58.28	56.56
3.41	0.993	0.708	0.345	0.246	3.805	2.715	0.087	0.062	5.229	3.732	58.56	56.76
3.51	1.047	0.747	0.364	0.260	4.014	2.865	0.092	0.065	5.516	3.937	58.85	56.97

Pump Station System Curve



https://neonconsultingau.sharepoint.com/sites/NeonConsulting/Shared Documents/General/WIP for PAM/1 - Mitre Street/230926-Sewer/016-2304_Pump Station Sizing 230926.xlsx 18/10/2023

016-2304 MITRE STREET SUBDIVISION

PUMP STATION HEIGHTS



Overflow level	2.826 RL	
Length of sewer < 2.826	266.15 m	
Volume of sewer	4.701 m ³	
MH 1/2 volume	2.268 m ³	
MH 1/3 volume	1.786 m ³	
MH 1/4 volume	1.206 m ³	
MH 1/5 volume	1.015 m ³	
MH 1/6 volume	0.591 m ³	
MH 1/7 volume	0.389 m ³	
MH 3/1 volume	1.513 m ³	
MH 3/2 volume	1.110 m ³	
MH 3/3 volume	0.669 m ³	
PS volume	6.732 m ³	As
Total volume available	21.982 m ³	
ADWF	0.355 L/s 1.277 m ³ /hr	
Storage available in hours	17.215 hrs	

Assume level already at alarm level







Our reference: 016-2304

LGIP Water and Sewer Demands - 42-52 Mitre Street and Sagiba Avenue

The assumptions and methodology from Council's LGIP policy have been reviewed to confirm that the proposed development does not exceed demand allowances for the subject site, and that adequate trunk infrastructure is available.

The Council's assumptions and methodology make note of the following when calculating present and future demands within the PIA:

- 1 EDU = 2.59 EPs (Water and Sewer)
- All lots under 1Ha were assumed to be fully developed.
- Occupied lots over 1Ha were assumed to be fully developed.
- Tourist and Residential demand is 88.8 EDU/dev ha. (This is highly likely to be a typographical error and should be 88.8 EP/dev Ha as reflected in other areas of the documentation. 88.8 EP/dev ha has been used below and is a more conservative outcome)

Lot	Land use with respect to LGIP assumptions	Area (ha)	EP allowance from LGIP
Lot 6 on C2253	House built Circa 2014, Occupied lot >1Ha	1.2201	108.3
Lot 1 on C2253	Vacant lot < 1Ha	0.7278	64.6
Lot 2 on C2253	Vacant lot < 1Ha	0.9632	85.5
TOTAL			258.4

The current development proposal (including the previously constructed stage 1) has a demand of 113.5 EP.

The above table totals 258.4 EP for the subject site, and on the basis of the LGIP assumptions and methodology, the water and sewer demand for the proposed development is presently allowed for within Council's trunk infrastructure for the 3 subject lots. The demand for the site is reduced by approximately 50% compared to the current allowance adopted in the LGIP. <u>On this basis, no increased demand is generated, or a responsibility of this development.</u>

In the above calculations, Lot 6 on C2253 was included as the house was constructed prior to the calculations. As a stress test, in the event that the lot was not counted during the LGIP preparation the below scenario shows that the current proposal is still less that the site allowance.

Lot	Land use with respect to LGIP assumptions	Area (ha)	EP allowance from LGIP
Lot 6 on C2253	House built Circa 2014, Occupied lot >1Ha	1.2201	0
Lot 1 on C2253	Vacant lot < 1Ha	0.7278	64.6
Lot 2 on C2253	Vacant lot < 1Ha	0.9632	85.5
TOTAL			150.1

References:

See DSC website:

https://douglas.qld.gov.au/development/planning-services/adopted-infrastructurecharges/

Assumptions and Methodology:

https://douglas.qld.gov.au/download/council_meetings/meeting_agendas/5.1-Proposed-Douglas-Shire-Planning-Scheme-Amendment-Local-Government-Infrastructure-Plan.pdf



27 September 2023 LGIP Water and Sewer Demands- 42-52 Mitre Street and Sagiba Avenue



Extract from LGIP PIA drawing 1100-017 showing 3 lots as residential 1 land use.









3.7 EP (Lot 1101m2 - 1500m2) 3.1 EP (Lot 901m2 - 1100m2)

Proposed Development Site EP allowance = 113.5 EP

SUMMARY

NEON

CONSULTING

2.8 EP (Lot 401m2 - 900m2 (Also equal to 4 Bedroom Unit))

Tourist and Residential Demand 88.8 EP/Ha

Development Site EP allowance from LGIP = 258.4 EP (150.1 EP Stress Tested, Refer to Neon Consulting File Note)

SUMMARY

60

1:1500 0

15

30

45

A 03.10.23 INITIAL ISSUE

Rev Date Revision Notes

File: S:\Working\Drawings\016\016-2304\01 Drawings\00 Masterplanning\016-2304-00-SK-0061.dwg Thu Oct 19 09:51:31 2023

MITRE STREET SUBDIVISION

MASTERPLANS DEMAND EVALUATION PLAN











A 03.10.23 INITIAL ISSUE

Rev Date Revision Notes

Thu Oct 19 09:46:23 2023 File: S:\Working\Drawings\016\016-2304\01 Drawings\00 Masterplanning\016-2304-00-SK-0071.dwg 1:400 0

4 8 12

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15	14	13	

MITRE STREET SUBDIVISION

TURNPATH ASSESSMENT SERVICE VEHICLE



ings\016\016-2304\01 Drawings\00 Masterplanning\016-2304-00-SK-0071.dwg File: S:\Working\Dr

Rev Date Revision Notes

		40	
15	14	13	

	m	neters
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MITRE STREET SUBDIVISION

TURNPATH ASSESSMENT B85 / B99 CAR



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MITRE STREET SUBDIVISION

TURNPATH ASSESSMENT SRV TO SEWER PUMPSTATION

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016-2304-00-SK-0073

Matters of Environmental **Annexure 4: Significance Report**



Street/IR



EcoRex Report Number 02/09/2023 Matters of Environmental Significance, Lot1C2253, Lot2C2253 and Lot6C2253. Reconfiguring a Lot, Mitre Street, Port Douglas. Report prepared for Planning Plus Pty Ltd, Redlynch, Queensland.

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This report has been based upon the conditions encountered during the investigation and on the best available information. The accuracy of the advice provided in this report may be limited by reasonably unforeseeable errors or misgivings in searchers and information reviewed.

This report does not constitute legal advice and is open to third party and government official interpretation of legislation and may thus be modified and adapted to this regard.

Maps are for illustration only and not of survey or cadastral value.

Plant names follow those listed in the <u>Census of the Queensland Flora</u>. Non-native species are denoted by an asterisk (*) and are generally included under the comments field. Vegetation descriptions follow that recommended for the National Vegetation Information System (NVIS) Level 5 (COAG,2012) and uses a modified Braun-Blanquet format.

Fauna names follow that of the Australian Fauna Directory (AFD) on the date of this document.

EcoRex, 22 Whale Close, Kewarra Beach, 4879 Queensland Mobile 0499784030 e-mail: johan@ecorexaustralia.com

25 September 2023

EcoRe

Executive Summary

Findings.

The Area of Interest (AOI) and Impact Area (IA) contains both Matters of State Environmental Significance (MSES) and Matters of National Environmental Significance (MNES). Due to the presence of an EPBC listed plant species, it will necessitate a proposal assessment by SARA, even if the assessing authority happens to be a Local Government Authority (LGA).

MSES.

- The IA contains approximately 0.6 hectares of Endangered Category B Vegetation as RE 7.2.8 which is also a Palustrine Wetland.
- The AOI contains essential habitat for Conservation Significant Fauna, including two with Endangered Conservation Status, four Vulnerable taxa and twelve Special Least Concern taxa.
- The AOI provides connectivity and habitat for terrestrial requirements of volant marine species.
- The AOI contains the NCA listed plant *Myrmecodia beccarii* and a species management plan will be required for the development.
- Financial offsets may be required for clearing of Endangered Category B vegetation, Essential Habitat and Wetland vegetation and can be calculated using the State Offsets Calculator.

MNES.

- The AOI contains the EPBC listed plant *Myrmecodia beccarii* and EPBC referral will potentially be required after consultation with SARA (State Assessment and Referral Agency).
- A detailed Threatened Plant survey and Threatened Plant Management Plan is required for the development proposal.
- The Nationally Significant weed *Lantana camara* occurs as sporadic specimens within the AOI.

MLES.

• No additional MLES were found, which had not been covered under that of the MSES and MNES.

Statutory Requirements.

- Due to the presence of Ant Plants within the AOI, the development proposal will have to be discussed with the State Assessment and Referral Agency (SARA) for potential EPBC referral requirements.
- Any clearing done of Category B vegetation must also be reported to the Department of Resources (DNMRE) for Vegetation Management Act mapping updates before clearing commences – even if approved by other approval agencies such as the Local Government or SARA. In which case the approval should accompany the information on planned clearing too DNMRE.

Recommendations.

- The AOI's proximity to the beach and potential occurrence for associated ground nesting beach fauna, triggers a high requirement for a pre-clearing fauna survey and associated spotter catcher requirements during clearing.
- It is recommended that known and suitable on-site specimens of the fan palm *Livistona muelleri* be considered for use within the landscaping design.



List of the Acronyms used in this report.

ALA – Atlas of Living Australia.

AOI – Area of Interest.

DES – Queensland Department of Environment and Science.

DNRME - Department of Resources.

DSC – Douglas Shire Council.

EIA – Environmental Impact Assessment.

EPA – Environmental Protection Agency.

EPBC – Environment Protection and Biodiversity Conservation Act 1999.

EVNT – Endangered, Vulnerable and Near Threatened.

FLIR- Forward Looking Infra-Red.

GBO – General Biosecurity Obligations.

GIS – Global Information System.

HERBRECS – Queensland Herbarium Records Database.

IA – Impact Area.

LGA – Local Government Area.

MLES – Matters of Local Environmental Significance.

MNES – Matters of National Environmental Significance.

MSES – Matters of State Environmental Significance.

NCA – Queensland Nature Conservation Act of 1992.

RAL – Reconfiguring a lot.

RE – Regional Ecosystem.

ROAV - Remotely Operated Aerial Vehicle (drone).

RVM – State Regulated Vegetation Mapping

SARA - State Assessment and Referral Agency.

TEC – Threatened Ecological Community

VMA – Queensland Vegetation Management Act of 1999.

EcoRex

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1. Introduction.

Planning Plus Pty Ltd has engaged EcoRex to investigate and report on Matters of Environmental Significance (MES), that could impact upon a town planning project in Port Douglas, Douglas Shire Council (DSC), Local Government Area (LGA), Queensland (Map 1). The Area of Interest (AOI).



Map 1. Location of the Area of Interest in Port Douglas, Queensland.

The project involves reconfiguring of three lots (RAL) on Mitre Street, and involves Lot1C2253, Lot2C2253 and Lot6C2253 (Map 2).

1.1. Background.

A previous RAL application has been approved for part of Lot6C2253 (Map 2) and does not form part of this survey and scope.

The current RAL application includes the remainder of Lot6C2253 and - Lot1C2253 and Lot2C2253 (Map 2) into 33 lots and communal access road.

1.2. Purpose of this Document.

The purpose of this document is to provide due diligence on Matters of State Environmental Significance (MSES), Matters of National Environmental Significance (MNES) and potential Matters of Local Environmental Significance (MLES) that could potentially impact upon the development proposal.



Map 2. The AOI depicting the proposed RAL application areas.

2. Methodology.

The survey methodology follows the accepted sequence of a Desktop survey followed by Site survey.

2.1. Desktop Survey.

A review of databases and information relating to the following list was undertaken as a desktop assessment. The results of these searches and reviews of information assist with gaining a better understanding of the ecology and broader landscape of the survey area (AOI).

The following databases and sources of information were reviewed:

- Regional Ecosystem mapping. The most recent version of the DES's remnant regional ecosystem (RE) vegetation mapping (version 6.0) was used to provide an indication of the status and location of remnant vegetation, of the project site. This mapping was overlaid on a digital colour aerial image base sourced from Queensland Globe or Google Maps.
- Queensland Department of the Environment, Wildlife Online database of flora and fauna. This database holds records of plants and animals that have been either sighted or collected within a given radius of the site (a search parameter can be prescribed which limits the search area to a given radius around a central point).
- Protected Matters database of Matters of National Environmental Significance (MNES). This database applies a range of bio-models to predict the presence of species of flora and fauna and other matters of National Environmental Significance cited under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- HERBRECS database of plant records. This database provides confirmed records of plant collections made within a specified area, of which voucher specimens are held by the

Environmental Protection Agency's (EPA) Queensland Herbarium. Data from this source provides useful information on the known location of rare and threatened species and expedites targeted surveys for such plants in the field as well as being a valuable source of what plant taxa are generally present on site or nearby.

- Atlas of Living Australia is a centralized searchable database for locally and regionally recorded fauna and flora.
- Literature review noted within the References. A range of scientific papers and other literature were reviewed for each taxon potentially expected within the survey area.
- Queensland Globe Queensland online mapping and planning services provided by the State Government of Queensland.
- Far North Queensland Regional Organization of Councils (FNQROC) Manual.
- Douglas Shire Council Interactive Mapping.

All database searches were undertaken using a standard 2km buffer surrounding the Project area, using the approximate central point of the AOI (Latitude: -16.5279, Longitude: 145.4746) or Lot and Plan search where appropriate.

Data for obligatory estuarine, oceanic, and pelagic marine taxa is not evaluated for this terrestrial site.

An initial likelihood assessment of species potentially occurring in the project area was conducted prior to this field assessment, based on the results of any initial field surveys, current state vegetation mapping and database records.

Likelihood assessments were undertaken using the known distribution and preferred habitat of the species and the identification of these habitat values from data base searches. The criteria used to assess the likelihood of threatened species occurring within the survey area is presented in Table 1.

Likelihood	Definition
Known	Taxon was positively identified and recorded in the survey area during a previous field
	assessment; previous records of occurrence within the project area.
Likely	There are known records within the nearby surrounding area and suitable habitat exists
	on site.
Potentially	Known records occur within the surrounding area, but habitat in the survey area is sub-
	optimal, marginal, or degraded.
Unlikely	Habitat in the survey area might be suitable or marginal; however, no known records of
	the taxon exist within the surrounding area.
Very Unlikely	Obligate habitat taxa with no suitable habitat on site.
None	E.g., Obligate marine taxa not expected in a terrestrial environment.

Table 1. Assessment criteria used to evaluate taxa flagged as potentially occurring on site.

2.2. Flora and Vegetation Field Surveys.

The AOI (Map 2) was visited between 3 September 2023 and 24 September 2023. The visit was conducted for recognisance and such purposes as is required for Ecological, Fauna and Flora Surveys.

2.2.1. Vegetation Communities.

Vegetation communities discernible in the field were surveyed using the methodology for recording quaternary type information as defined by the 'Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland' (Nelder et al. 2012).

2.2.2. Conservation Significant Flora.

No statutory EVNT Flora survey is required for the AOI under the Nature Conservation Act (1999). However, the vegetation and flora survey were of a robust enough nature to detect any potential EVNT or other protected flora that may occur.

2.2.3. Survey Timing

The survey timing was undertaken within the potential flowering/fruiting period for all protected flora and other species. Flowering and fruiting data were acquired directly from The Atlas of Living Australia (ALA) and online herbarium record labels (HERBRECS). All taxa involved are very well known to the investigators as local flora and easily identifiable and definable even when not in flower or fruiting.

2.2.4. Species Identifications

All the potential flora involved are very well known to the investigators as local flora and easily distinguishable and identifiable even when not in flower or fruiting. When in doubt, taxa are cross referenced and identified using standard keys used in professional identification and electronic copies of the TYPE specimens and an EcoRex proprietary electronic field herbarium.

2.3 Fauna Field Survey Methodology.

A fauna trapping program was not deemed necessary and purely non-invasive and non– intrusive methods of data collecting were employed and are in accordance with the Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (2018) and methods discussed by Thompson and Thompson (2017).

These include:

- Aural, acoustic, and ultrasonic surveys.
- Visual and thermal nocturnal and diurnal surveys.
- Utilizing naturally occurring sand traps to document wildlife tracks.
- Scat identification.
- Checking surrounding roads, paths, and tracks for incidental roadkill or crossing wildlife.

Physical observations on the presence of fauna were done in conjunction with the Flora Survey and Vegetation Survey.

Specific fauna identified in the desk top review as potential Matters of National Environmental Significance (MNES) or Matters of State Environmental Significance (MSES), were targeted.

For ultrasonic data collection, an Anabat Walkabout (Titley Scientific products), detector was used over five nights while actively transect searching for nocturnal fauna using FLIR or headlamps.

To complement active surveys, three stationary data collecting sites were set up, each consisting of a Chorus acoustic data collector, Anabat Swift passive ultrasonic detector (Titley Scientific) and eight motion activated trail cameras to augment data collection on animals that vocalise audibly or potentially missed during transect surveys. Each of these sites were deployed for five nights.

Acoustic field data was analysed, using the program – Anabat Insight (Titley Scientific products) and compared to a proprietary reference database kept by EcoRex for this purpose.

2.4. Field Survey Limitations.

The field survey was carried out at the start of the dry season of the Wet Tropics Bioregion and data will be limited by the presence or absence of tropical migratory species and species that require standing water for breeding or active movement.

These would include certain frog and bird taxa, which may be absent due to having aestivated at the time or volant taxa that migrate north during the Wet Tropics "winter".

3. Desktop Review Results and Discussions.

Condensed AOI and related information is given in Table 2.

Table 2. Condensed AOI information.

Lot and Plan	1C2253, 2C2253, 6C2253
Local Government(s) (LGA)	Douglas Shire (DSC)
Total AOI Size (ha)	2.946
Bioregion(s)	Wet Tropics
Subregion(s)	Daintree - Bloomfield
Catchment(s)	Mossman

3.1. Site Description and Terrain.

The proposed development is situated along the beach from to the south of Port Douglas City centre.

The AOI consists of three partially developed and cleared lots, bound to the east by beach vegetation and the Coral Sea, to the west by a main road and major golf course, to the north and south by tourist accommodation and a vulnerable, frail, and aged care facility.

The terrain is flat to slightly undulating, sloping very gradually to the east and Coral Sea beach.

3.1.1. Superficial Geology, Soil and Land Zone.

The AOI falls within Land Zone two (Wilson and Taylor, 2012) and consists of coastal dunes and beach ridges of Quaternary coastal sand deposits.

This land zone includes degraded dunes, sand flats, sand plains, swales, lakes, and swamps enclosed by dunes, as well as coral and sand cays.

Soils are predominantly Rudosols and Tenosols (siliceous or calcareous sands), Podosols and Organosols. Soils are typically of low to moderate fertility.

3.2. Matters of State Environmental Significance (MSES).

MSES that may influence the proposed RAL, groundworks, and subsequent land use within the AOI, is summarised in Table 3.

It is noted that elements of State Marine Parks (Great Barrier Reff Marine Park – GBR) falls within a one kilometre buffer of the AOI but not directly in the AOI.

In general, there are very few MSES published that could potentially impact on the proposed works being executed within the AOI.

Although there is a mapped occurrence of (point 5)-High Ecological Significance wetlands recorded from the AOI, this does not currently fall within the proposed Impact Area (IA) (Table 3).

The state mapped presence of known Threatened wildlife, known occurrence of Special Least Concern fauna, the presence of Endangered Category B remnant vegetation, Essential habitat, and the presence of the IA within a 100-meter buffer of a Vegetation Management Wetland, are the most obvious constraints on the development proposal and may incur requirements for re-alignment, offsetting, or other mitigation measures to the development application (DA).

MSES	Extent	Percent	Percent of
	in AOI	of AOI	Impact (IA)
1a Protected Areas- estates	0.0 ha	0.0%	0.0 %
1b Protected Areas- nature refuges	0.0 ha	0.0 %	0.0 %
1c Protected Areas- special wildlife reserves	0.0 ha	0.0 %	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	0.02 ha	0.68 %	0.0 %
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %	0.0 %
6b High Ecological Value (HEV) waterways	0.0 km	0.0%	0.0 %
7a Known Threatened (endangered or vulnerable) wildlife	0.89	30.02%	29.34 %
	ha		
7b Known Special least concern fauna	0.89	30.02 %	29.34 %
	ha		
7c i Koala habitat area - core (SEQ).	0.0 ha	0.0 %	0.0 %
7c ii Koala habitat area - locally refined (SEQ).	0.0 ha	0.0 %	0.0 %
7d Sea turtle nesting areas.	0.0 km	0.0%	0.0 %
8ai Regulated Vegetation - Endangered in Category B (remnant).	0.64 ha	21.7%	21.7 %
8aii 8ai Regulated Vegetation - Of concern in Category B	0.0 ha	0.0%	0.0%
(remnant).			
8b Regulated Vegetation - Endangered/Of concern in Category C	0.0 ha	0.0%	0.0 %
(regrowth).			
8c Regulated Vegetation - Category R (GBR riverine regrowth).	0.0ha	0.0%	0.0 %
8d Regulated Vegetation - Essential habitat.	0.64	21.70 %	21.7 %
	ha		
8e Regulated Vegetation - intersecting a watercourse.	0.0 ha	0.0%	0.0 %
8f Regulated Vegetation - within 100m of a Vegetation	0.64 ha	21.70 %	21.7 %
Management Wetland.			
9a Legally secured offset areas- offset register areas.	0.0 ha	0.0 %	0.0 %
9b Legally secured offset areas- vegetation offsets through a	0.0 ha	0.0 %	0.0 %
Property Map of Assessable Vegetation.			
10 Protected Plant Trigger Mapping.	0.0ha	0.0%	0.0%

Table 3. Synopsis of recorded Matters of State Environmental Significance for the AOI.

3.2.1. State Regulated Vegetation Mapping.



Map 3. State Regulated Vegetation Mapping of the AOI.

Vegetation regulated by the Vegetation Management Act (1999) within the AOI is represented in Table 3.

The proposed IA involves Category B vegetation and Non-Remnant Category X vegetation.

- Category X vegetation is vegetation that is generally exempt from requirements under vegetation management laws.
- Category B vegetation is remnant vegetation shown on a regional ecosystem or remnant map as an endangered regional ecosystem, an of concern regional ecosystem or a least concern regional ecosystem.

The AOI contains 21.7% Category B vegetation and 78.3% Category X vegetation. Of this the development will impact the whole AOI. (Table 3).

It is thus apparent that clearing of the 0.64 hectares has to be reported to the Department of Resources (DNMRE), even if approved by a LGA, so that the department is informed and can amend the State Regulated Vegetation Mapping.

3.2.2. Regional Ecosystems.



Map 4. Regional Ecosystem Mapping for the AOI.

Two Regional Ecosystems (RE's) are mapped for the AOI (Map 4), while only one (RE 7.2.8) occurs within the IA for this DA.

The relevant RE 7.2.8 is further discussed in Table 4.

Table 4.	Regional	Ecosystems	within	the	AOI
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RE	Category	Description	VMA	Biodiversity	Extent in IA
			Class	Status	(approximately)
7.2.2a	Cat B	Notophyll vine forests, often with Acacia emergents. Species commonly include Cupaniopsis anacardioides, Diospyros geminata, Canarium australianum, Alphitonia excelsa, Acacia crassicarpa, Pleiogynium timorense, Chionanthus ramiflorus, Mimusops elengi, Polyalthia nitidissima, Millettia pinnata, Geijera salicifolia, Ficus opposita, Sersalisia sericea, Terminalia muelleri, T. arenicola, Drypetes deplanchei, and Exocarpos latifolius. Lowlands on dune sands, of the moist and dry rainfall zones. Not a Wetland.	Of Concern	Endangered	0 ha
7.2.8	Cat B	<i>Melaleuca leucadendra</i> open forest to woodland. Sands of beach origin. Palustrine wetlands.	Of Concern	Endangered	0.61 ha
3.2.3. Conservation Significant Flora.

The AOI does not fall within an area that triggers the requirement for a statutory Protected Plant Survey and associated Exemption requirements from the Department of Environment (DES) under the NCA (1992), and there are no official records of any Endangered, Vulnerable and Near Threatened (EVNT) flora that could potentially occur within the AOI, or which have been recorded within a one-kilometre document search buffer of the AOI.

Table 5 addresses potential conservation significant – Protected Least Concern Flora - that may occur within the AOI.

Table 5. List of known Least Concern Protected flora (non-EVNT) flora within a 2 km search buffer and potential for occurring in the AOI.

Taxon	NCA Status	Potential for Occurrence
Stylidium alsinoides	Least Concern	Potentially
Hydrilla verticillata	Least Concern	Very Unlikely
Livistona muelleri	Least Concern	Known

It is strongly recommended that suitable, known specimens of the fan palm *Livistona muelleri* be considered for use within the landscaping design as destruction of these plants are regulated and will require a permit to take and could require further costs to the developer if destroyed.

3.2.4. Conservation Significant Fauna.

Conservation significant fauna that has potential for occurring within the AOI are listed in Table 6.

Table 6. List of known Conservation Significant fauna within a 1 km search buffer and potential for occurring in the AOI.

Taxon	NCA Status	Potential for
		Occurrence
Calidris ruficollis	Special Least Concern	Potentially
Charadrius leschenaultii	Vulnerable	Likely
Charadrius mongolus	Endangered	Likely
Crocodylus porosus	Vulnerable	Very Unlikely
Esacus magnirostris	Vulnerable	Likely
Gelochelidon nilotica	Special Least Concern	Potentially
Hydroprogne caspia	Special Least Concern	Potentially
Limosa lapponica baueri	Vulnerable	Likely
Monarcha melanopsis	Special Least Concern	Potentially
Numenius madagascariensis	Endangered	Likely
Numenius minutus	Special Least Concern	Likely
Numenius phaeopus	Special Least Concern	Likely
Pandion haliaetus cristatus	Special Least Concern	Potentially
Pluvialis fulva	Special Least Concern	Likely
Sterna sumatrana	Special Least Concern	Potentially
Thalasseus bergii	Special Least Concern	Potentially
Tringa brevipes	Special Least Concern	Potentially
Tringa nebularia	Special Least Concern	Potentially

The AOI's proximity to the beach and potential occurrence for associated ground nesting beach fauna and breeding migratory volant fauna, triggers a high requirement for a pre-clearing fauna survey and associated spotter catcher requirements during the duration of clearing.

3.2.5. Essential Habitat.

The AOI contains Essential Habitat (Map 5) for most of the taxa listed in Table 6.



Map 5. Essential Habitat map for the AOI.

Essential habitat is – natural habitat, essential for the dispersal and day to day life requirements of a species, including temporary breeding or foraging habitat.

Category X vegetation within the AOI may also contain suitable habitat for volant marine fauna ground nesting requirements.

3.2.6 Wetlands.

RE 7.2.8 is a known Palustrine Wetland type.

Palustrine wetlands encompass what is often conventionally envisioned as a wetland type. They consist of vegetated areas that are not part of a river or channel system. Palustrine wetlands include various features such as billabongs, swamps, bogs, springs, and soaks, among others, and they exhibit more than 30% coverage of emergent vegetation. These wetlands hold significant ecological importance within the landscape, serving as essential habitats and breeding grounds for a diverse range of species.

3.2.7. Watercourses and Riparian Corridors.

The AOI does not contain any areas mapped as watercourses or riparian corridors.

3.2.8. Connectivity.

The AOI provides connectivity and habitat for terrestrial requirements of volant marine species, especially those listed in Table 6.



3.2.9. State Wildlife Corridors.

The AOI is located at the outskirts of the expanding urban area of Port Douglas. It lies adjacent to two significant wildlife corridors, namely the Coral Sea beaches and the Mowbray River to the south, which facilitate wildlife movement and connectivity. Additionally, the Mowbray River serves as a conduit to the major wildlife corridors found in the coastal hills and scarps of the Wet Tropics World Heritage Area and the Great Barrier Reef World Heritage Area.

The presence of these natural connections suggests the likelihood of "fauna spillover" from these areas into the AOI. This underscores the importance of conducting a thorough pre-clearing fauna survey and implementing necessary spotter catcher protocols during the clearing process.

3.2.10. Koala Priority Areas.

There are no known Koala Priority Areas in this part of Queensland.

3.3. Matters of National Environmental Significance (MNES).

MNES that may influence the proposed RAL, groundworks, and subsequent land use within the AOI, is summarised in Table 7.

MNES	Potential Presence	Notes
1. World Heritage Properties (WHP)	None	Great Barrier Reef and Wet Tropics of Queensland in buffer area.
2. National Heritage Places (NHP)	None	Wet Tropics World Heritage Area (Indigenous Values) in buffer area also note above.
3. RAMSAR Wetlands	None	None in buffer area.
4. Great Barrier Reef Marine Park	None	Zones CP-16-4032 and MNP-16-1051 occurs in the buffer area.
5. Commonwealth Marine Areas	None	None
6. Listed Threatened Ecological Communities	One	Broad leaf tea-tea tree Threatened Ecological Community.
7. Listed Threatened Plant species	13	Terrestrial taxa only, obligate marine taxa excluded.
8. Listed Threatened Fauna species	29	Terrestrial taxa only, obligate marine taxa excluded.
9. Listed Migratory species	25	Terrestrial taxa only, obligate marine taxa excluded.
10.Commonwealth Lands	None	None
11. Commonwealth Heritage Places	None	None
12. Critical Habitat	None	None
13. Commonwealth Terrestrial Reserves	None	None

Table 7. List of MNES considered for the AOI.

3.3.1. Listed Threatened Ecological Communities.

A search for Threatened Ecological Communities as Vegetation Matters of National Significance, brought to light the potential presence of one EPBC listed TECs within the AOI.

1. Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland.

Known RE's from the AOI and comparative equivalents of mapped regional ecosystems to TEC's are shown in Table 8.

Table 8. Comparative equivalents of Threatened Ecological Communities.

Threatened Ecological	EPBC Status	Qld Regional	Known Site	Likelihood of
Community		Ecosystem	Regional	Occurrence
		Equivalents	Ecosystems	
Broad leaf tea-tree (Melaleuca	Endangered	7.3.8a-d., 7.5.4g.,	7.2.8, 7.2.2a	None
viridiflora) woodlands in high		8.3.2a., 8.5.2c.,		
rainfall coastal north		8.5.6.		
Queensland				

Therefore, the AOI does not contain any TEC's.

3.3.2. EPBC Listed Threatened Flora Species.

EPBC listed flora highlighted from the EPBC search tool are listed in Table 9. Thirteen species were considered.

Table 9. Flora Matters of National Environmental Significance that may be of importance to the site.

Taxon	EPBC Status	Habitat	Flowering/Fruiting	Likelihood
			time	of
				Occurrence
Acriopsis emarginata	Vulnerable	Palustrine Epiphyte	February onwards	Potentially
Bruguieria X hainesii	Critically	Mangroves	February onwards	Unlikely
	Endangered			
Canarium acutifolium	Vulnerable	Forest	February onwards	Unlikely
Cyclophyllum costatum	Vulnerable	Vine Thicket	August onwards	Potentially
Leichhardtia araujacea	Critically	Forest and Gallery	August onwards	Unlikely
	Endangered	Forest		
Myrmecodia beccarii	Vulnerable	Coastal Forest	February onwards	Potentially
Phaius pictus	Vulnerable	Swamps	February onwards	Unlikely
Phalaenopsis rosenstromii	Endangered	Gallery Forest	February onwards	Potentially
Phlegmariurus squarrosus	Critically	Forest	August onwards	Unlikely
	Endangered			
Toechima pterocarpum	Endangered	Forest and Gallery	August onwards	Unlikely
		Forest		
Vappodes lithocola	Endangered	Rock pavements	February onwards	Unlikely
Vappodes phalaenopsis	Vulnerable	Palustrine	February onwards	Unlikely
Zeuxine polygonoides	Vulnerable	Forest	February onwards	Unlikely

Most of these taxa can be excluded due to a lack of suitable habitat within the AOI, such as rock pavements or montane mist forests and mangroves.

Epiphytic species known to grow within Palustrine wetlands, Mangroves, Beach scrub and forest or associated with Tea Trees, such as *Acriopsis emarginata* and *Myrmecodia beccarii* probably have the highest probability of occurring within the AOI and must be confirmed in the field survey.

3.3.3. EPBC Listed Threatened Fauna Species.

3.3.3.i. General Fauna.

A list of fauna considered for presence on site is provided in Table 10. Most of the taxa are unlikely to occur due to a lack of suitable habitat, or the site not being core habitat.

Table 10. Terrestrial, Fauna of National Significance which were considered for potential occurrence on Site.

Taxon	EPBC Status	Likelihood of Occurrence
Calidris canutus	Endangered	Potentially
Calidris ferruginea	Critically Endangered	Potentially
Casuarius casuarius johnsonii	Endangered	Unlikely
Charadrius leschenaultii	Vulnerable	Unlikely
Charadrius mongolus	Endangered	Unlikely
Dasyurus hallucatus	Endangered	Unlikely
Dasyurus maculatus gracilis	Endangered	Unlikely
Egernia rugosa	Vulnerable	Unlikely
Erythrotriorchis radiatus	Vulnerable	Unlikely
Falco hypoleucos	Vulnerable	Unlikely
Fregetta grallaria grallaria	Vulnerable	Unlikely
Hipposideros semoni	Vulnerable	Unlikely
Hirundapus caudacutus	Vulnerable	Unlikely
Limosa lapponica baueri	Vulnerable	Potentially
Litoria dayi	Vulnerable	Unlikely
Litoria nyakalensis	Critically Endangered	Unlikely
Macroderma gigas	Vulnerable	Unlikely
Mesembriomys gouldii rattoides	Vulnerable	Unlikely
Numenius madagascariensis	Critically Endangered	Likely
Petauroides minor	Vulnerable	Unlikely
Phascolarctos cinereus	Vulnerable	Unlikely
Pteropus conspicillatus	Endangered	Potentially
Rhinolophus robertsi	Vulnerable	Unlikely
Rostratula australis	Endangered	Unlikely
Saccolaimus saccolaimus nudicluniatus	Vulnerable	Potentially
Stiphodon semoni	Critically Endangered	Unlikely
Turnix olivii	Endangered	Unlikely
Tyto novaehollandiae kimberli	Vulnerable	Potentially
Xeromys myoides	Vulnerable	Potentially

Additional species, not dealt with under MSES, include the bat *Saccolaimus saccolaimus* and the Water Mouse (*Xeromys myoides*) which have a significant potential for occurrence on site and must be targeted during the field survey.

3.3.3. ii. Listed Migratory Species.

Non marine migratory fauna species considered for occurrence on site are listed in Table 11. Several of the species have also been dealt under MSES.

Taxon	EPBC Status	Likelihood of
		Occurrence
Actitis hypoleucos	Migratory	Unlikely
Apus pacificus	Migratory	Unlikely
Calidris acuminata	Migratory	Unlikely
Calidris canutes	Migratory	Unlikely

Taxon	EPBC Status	Likelihood of
		Occurrence
Calidris ferruginea	Migratory	Unlikely
Calidris melanotus	Migratory	Unlikely
Cecropis daurica	Migratory	Unlikely
Charadrius leschenaultii	Migratory	Likely
Cuculus optatus	Migratory	Unlikely
Gallinago harwickii	Migratory	Unlikely
Hirundapus caudacutus	Vulnerable	Unlikely
Hirundo rustica	Migratory	Unlikely
Limnodromus semipalmatus	Migratory	Unlikely
Limosa lapponica	Migratory	Likely
Monarcha frater	Migratory	Unlikely
Monarcha melanopsis	Migratory	Potentially
Motacilla flava	Migratory	Unlikely
Myiagra cyanoleuca	Migratory	Unlikely
Numenius madagascariensis	Critically Endangered	Unlikely
Pandion haliaetus	Migratory	Unlikely
Rhipidura rufifrons	Migratory	Potentially
Rostratula australis	Endangered	Unlikely
Sternula albifrons	Migratory	Unlikely
Symposiachrus trivirgatus	Migratory	Unlikely
Tringa nebularia	Migratory	Potentially

The Rufous Fantail and Black-faced Monarch could potentially occur in the Palustrine scrub and several shore birds have a high likelihood for roosting, resting, or breeding on site.

3.4. Matters of Local Significance (MLES).

The majority of DSC MLES have been covered under the headings of MSES and MNES.

3.4.1. Local Conservation Zoning.

The site does not contain any mapped DSC LGA conservation zones.

3.4.2. Local Protected Areas.

The AOI is not a known locally protected area.

3.4.3. Local Fauna Congregation Areas.

There are no known local fauna congregation areas on the AOI.

3.4.4. Local Fauna Crossing Areas.

There are no known or marked fauna crossings on or around the AOI.

4. Field Survey Results.

Field surveys were conducted between 2 September 2023 and 19 September 2023, the surveys were primarily conducted for the purpose of detecting Protected Fauna and Flora species and a vegetation classification survey.

Notes on aquatic and insect fauna were serendipitous and confined to what was evidenced by observations during the execution of meanders to inform on vegetation, flora and fauna targeted by the results of the desktop analysis.

4.1. Summary of Results.

- Vegetation was found to be the same as that mapped for the AOI (Map 4) in State mapping.
- The AOI contains palustrine wetland elements.
- Myrmecodia beccarii, an EPBC listed EVNT flora species, was found to be present as epiphytes in the older larger, trees. Both on and surrounding the AOI on adjacent properties. By default, it can also be assumed that the Apollo Jewel Butterfly, which is protected under the NCA (1992) also occurs in the AOI.
- Lantana camara is a weed of national significance and is present in the AOI.

4.2. Survey Effort.

4.2.1. Vegetation and Flora Survey Effort.

4.2.1.1. Vegetation Transects.

Three Quaternary Survey Transects were executed (Map 6).



Map 6. Ground Survey Effort.

4.2.1.2. Survey Meanders.

Two diurnal survey meanders were executed (Map 6).

4.2.1.3. Photo Points.

More than 100 photo points were collected showing vegetation, plant species or aerial views of the AOI vegetation.

4.2.2. Fauna Survey Effort.

4.2.2.1. Nocturnal Transects.

Five nocturnal transects were driven and walked within the AOI or its perimeter. Transects generally started at dusk and kept on until 22:00 (10pm) and included all roads and tracks as well as walking transects in vegetated areas.

4.2.2.2. Stationary Fauna Monitoring Sites.

Three stationary monitoring sites, utilising the same locations as the Quaternary Vegetation Survey Sites (Map 6) were set up and monitored over 15 nights to collect data for fauna potentially missed during the diurnal survey meanders and nocturnal Anabat walking transects, specially to monitor for the presence of the Northern Masked Owl (*Tyto novaehollandiae kimberli*).

4.3. Vegetation and Flora.

4.3.1. Vegetation.

The analyses of the three, vegetation transects confirm that there are two distinct vegetation types within the IA.

4.3.1.i. Vegetation Type One (Table 12).

Is dominated by non-remnant species, including common lawn grasses and weeds with some amenity horticulture.

Table 12. Vegetation Type One description.



Tier	Species Composition	Height (m)	Cover
T1	Melaleuca leucadendra, Ficus benjamina, Alphitonia petriei,	10-25	<5%
	Cocos nucifera, Melaleuca dealbata		
S1	Megathyrsus maximus*, Lantana camara*, Stachytarpheta	1-3	10-20%
	cayennensis*, Chamaechrista rotundifolia*, Triumfetta		
	rhomboidei*		
G1	Axonopus compressus*, Urochloa (Brachiaria) decumbens*,	0.5-1	80%
	Melinis repens*, Tridax procumbens*, Sphagneticola trilobata*		

4.3.1. ii. Vegetation Type Two (Table 12).

This vegetation type is associated with palustrine wetland zones within the AOI.

Table 13. Vegetation Type Two description.



4.3.2. Conservation Significant Vegetation.

Vegetation Type Two can be aligned with vegetation expected on RE 7.2.8, palustrine wetland vegetation and essential habitat for the taxa discussed in 3.2.5. Essential Habitat.

4.3.3. Flora.

4.3.3.1. Conservation Significant Flora.

The field survey found that many of the large emergent trees within both Vegetation Type One and Vegetation Type Two contained Ant Plants (*Myrmecodia beccarii*) (Table 9) (Map 7).



Map 7. Observed Ant Plant locations during this survey.

4.3.3.2. Weeds.

The AOI has a ground cover of many nuisance weedy species throughout both vegetation types, but most notably in Vegetation Type One.

Significant weed species located during the survey is listed in Table 14.

Most notable is the presence of *Lantana camara**, a weed of national significance and Sickle Pod (*Senna obtusifolia**).

Taxon	Common Name	National Status	Queensland Status
Lantana camara	Lantana	Declared Weed of	Restricted Cat 3
		National Significance	
Spathodea campanulata	African Tulip Tree	No	Restricted Cat 3
Senna obtusifolia	Sickle Pod	No	Restricted Cat 3
Sphagneticola trilobata	Singapore Daisy	No	Restricted Cat 3

Table 14. Significant weed species found within the AOI.

4.4. Fauna.

4.4.1. Threatened Fauna.

No threatened or protected fauna were detected during the survey as was expected. The potential presence of threatened fauna within the AOI is adequately addressed within the desktop survey and will consist of mainly summer/wet season migrants and shore birds.

4.4.2. Bio-acoustic analyses.

Bio-acoustic data did not find the presence of any threatened bat species, with the most detected species being *Miniopterus australis*, *Rhinolophus megaphyllus* and *Austronomus australis* for the AOI.

4.4.3. Insects.

The presence of Ant Plants within the AOI indicates a very high probability that the Apollo Jewel butterfly (*Hypochrysops apollo*) could be present within the AOI. This species could very well be recorded during the wet season and just post wet season and larvae would currently be inside the ant plants being tended by ants.

The Apollo Jewel has a NCA (1992) conservation status of Vulnerable and is dependent on a unique relationship between the Ant Plant and the Golden Ant (*Iridiomyrex cordatus*).

4.4.4. Reptiles.

The survey timing was not optimal for many snake species; however, the onset of the dry season and end of winter does allow for the detection of many skink species, seldom detected during the hot dry summer. The most common species observed included, *Ctenotus spaldingii, Carlia longipes, Cryptoblepharus virgatus* and *Lepidodactylus lugubris.*

4.4.5. Mammals.

The only mammals detected were the presence of a few (less than 5) Agile Wallabies (*Notamacropus agilis*) and a Northern Brown Bandicoot (*Isoodon macrourus*).

4.4.6. Birds.

The most frequently encountered birds were the Blue-faced Honeyeater, Bush Thick-knee, Australian Ibis, Straw-necked Ibis, Orange-footed Megapode and Spotted Dove.

5. Impact assessment.

A short impact assessment of the proposed development, based on this report results, is presented in Table 15.

The taking of Ant Plants or their destruction for this development proposal will require a detailed survey of trees with protected plants in them and a proposal as to how the Protected Plants and their host trees will be protected and managed during clearing.

Although no major or residual impact can be foreseen on any MSES or MNES, useful mitigation measures exist that can be applied to mitigate the impact of the development and is discussed further below.

Table 15. Impact Assessment of the proposed development.

Significant Impact Criteria	Likelihood of
	Occurrence
Will the action lead to a long-term decrease in the size of a threatened taxon.	No
Will the action reduce the area of occupancy of a threatened taxon.	No

EcoRex

Significant Impact Criteria	Likelihood of
	Occurrence
Will the action fragment an existing threatened taxon population into two or more populations.	No
Will the action adversely affect habitat critical to the survival of a threatened taxon.	No
Will the action disrupt the breeding cycle of a taxon.	No
Will the action modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the taxon is likely to decline.	No
Will the action result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No
Will the action introduce disease that may cause the taxon to decline.	No
Will the action interfere with the recovery of a threatened taxon.	No

6. Mitigation Measures to Consider.

6.1. Avoidance Options.

- Reconsider the number of lots and or extent of clearing proposed to Category X Vegetation only.
- Incorporate trees with their Tree Protection Zones (TPZ) into the landscape design and clear only outside the TPZ of any relevant trees containing protected flora.

6.2. Translocation Options.

- Translocation of Ant plants to suitable trees within a 100-meter radius of the AOI can be considered if approved by the EPBC.
- With EPBC approval protected plants could be moved to community nurseries or other not for profit organization nurseries for establishment and later re-establishment within the general coastal scrub in suitable positions around Port Douglas, with the developer being responsible for their maintenance.

6.3. Financial Offsets.

• A financial offset could be considered based on the number of Ant Plants present on site and that may be lost due to clearing – financial options will normally start at around \$1000-00 per individual plant and will be set by the assessing authority.

7. Recommendations.

- The development will have to be reviewed by SARA for approval due to the presence of Ant Plants within the AOI even if approved by an LGA.
- Clearing of trees on the development must take care not to encroach on to the TPZ's of trees containing protected plants along the property boundary and adjacent properties. These TPZ's may extent into the AOI and IA. Damage to host tree TPZ's and subsequent irreversible damage to host trees will be seen as taking of the Ant Plants.
- A qualified and licenced fauna spotter catcher must be present during clearing and tasked with rescuing fauna and conservation significant flora for translocation.

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EcoRex

Approved Conservation Advise for Myrmecodia beccarii.

PTO

This Conservation Advice was approved by the Minister / Delegate of the Minister on: 16/12/2008

Approved Conservation Advice (s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

<u>Approved Conservation Advice for</u> <u>Myrmecodia beccarii</u>

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

Description

Myrmecodia beccarii, Family Rubiaceae, also known as Ant Plant, is a tuberous epiphyte. Tubers are irregularly cylindrical, 30 cm long, 21 cm wide, pale grey and covered in short, stout spines borne on mounds with pore and entrance holes absent. Within the tuber chambers up to 1 cm across occur with 0.5–1.5 cm of tissue between chambers. Several stems arise from the tuber and are freely branched, up to 15 cm long and 3 cm wide. Leaves are fleshy and succulent, elliptic to oblanceolate, 1–9 cm long, 1.4–4.5 cm wide and pale green on stalks 3-45 mm long. Flowers are white, about 1 cm long, with a ring of hairs just below the middle of the tube. Anthers are near the opening of the tube and blue coloured, and the style is 4-lobed. Fruit are white, up to 13 mm long, 5 mm wide and contain four pyrenes (Huxley & Jebb, 1993; Forster, 2000).

This species has a unique association with the Golden Ant (*Iridiomyrmex cordatus*) and the Apollo Jewel butterfly (*Hypochrysops apollo apollo*) (Forster, 2000).

Conservation Status

Myrmecodia beccarii is listed as **vulnerable**. This species is eligible for listing as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). *Myrmecodia beccarii* is also listed as vulnerable under the *Nature Conservation Act 1992* (Queensland).

Distribution and Habitat

Myrmecodia beccarii is known from the coastal woodlands between Cooktown and Ingham in Queensland. This species occurs in open woodland dominated by *Melaleuca viridiflora* or mangroves (Forster, 2000). The species is conserved within the Girringun National Park (NP), Daintree NP and Edmund Kennedy NP. This species has a minimum area of occupancy of 7000 km², a minimum range of 350 km and is known from 10 locations (Landsberg & Clarkson, 2004). This species occurs within the Wet Tropics and Cape York (Queensland) Natural Resource Management Regions.

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

Threats

The main identified threats to *M. beccarii* are clearing of the lowland paperbark woodlands; localised settlement pressures; and the removal or destruction of plants by plant and butterfly collectors (Forster, 2000; Landsberg & Clarkson, 2004).

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Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Investigate the potential and efficacy of DNA-based or other approaches for the identification of individual plants and/or populations to provide a means for detecting and prosecuting illegal collection from the wild (for example see Palsboll et al., 2006).

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of *M. beccarii*.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Ensure road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where *M. beccarii* occurs do not adversely impact on known populations.
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

Conservation Information

• Raise awareness of *M. beccarii* within the local community.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed and mycorrhizal fungi collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

This list does not necessarily encompass all actions that may be of benefit to *M. beccarii*, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Cape York Back on Track Biodiversity Action Plan (EPA, 2008),
- Wet Tropics Conservation Strategy (WTMA, 2004),
- Sustaining the Wet Tropics: A Regional Plan for Natural Resource Management 2004-2008 (FNQ NRM Ltd. & Rainforest CRC, 2004),
- Cape York Peninsula natural resource management plan (Earth Tech, 2005), and

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• Management Program for Protected Plants in Queensland 2006–2010 (EPA, 2006).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

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Concept Landscape Plans Annexure 5:



Mitre Street/IR

MITRE STREET CONCEPT

mas the



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LANDSCAPE DESIGN REPORT







Prepared for:

Allaro Homes

Site Location:

42-52 Mitre Street, Port Douglas

Prepared by:

RPS AAP CONSULTING PTY LTD

Unit 1, 5-7 Barlow Street South Townsville QLD 4810 Australia

Telephone: +61 7 4724 4244

ABN: 97 117 883 173

rpsgroup.com

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CONCEPT DESIGN



The works within the Douglas Shire Council road reserves will be provided in accordance with the requirements of Landscaping code 9.4.6. and planning Scheme policy SC6.7 in so far that:

1. Will soften the build form and provide a secluded landscape (P01)

2. Screen view between the site and the adjacent resort to the west of the site. (P01) 3. Provide privacy within the site (P01)

4. The external landscape will contribute to the sense of place being within a beachside location (PO2 and PO3)

5. The plant species selected for the external works consider the scale and form of the development, screening and buffering (P04)

6. Shade trees will be retained around external carparking areas on Sagiba Avenue (P05)

7. Are maintained in line with current levels of maintenance for Sagiba Avenue and /mitre Street frontages (P06, P08 and P10)

8. Maintains safety and reduces the potential for crime and vandalism (P09)

ESIGN\012479.001 MITRE STREET - LANDSCAPE DESIGN REPORT.INDD

With the common property the vision is for a landscape with an iconic and distinct character, that minimises maintenance and befitting on the sub-tropical modernist building style of the development. The overall proposed planting will be 60% native species.

Area

3 Entry Statement Locations

5 Pump Station Buffer Zone /Large Backyard Area

be Retained



8 Existing Carparking to be Retained

7 Development Entry/ Main Street

9 Future Development







PERSPECTIVES 1

PERSPECTIVES 2



1.5 ESTATE PERSPECTIVES

PLANTING PALETTE



PANDOREA pandorana - Wonga Wonga Vine (NATIVE)



PHOENIX dactylifera - Date Palm



PHOENIX canariensis - Canary Island Date Palm



XANTHORROEA johnsonii - Grass Tree (NATIVE)



BEAUCARNEA recurvata - Ponytail Palm





ZAMIA furfuracea - Cardboard Palm



ARCHONTOPHOENIX alexandrae - Alexandra Palm (NATIVE)



DIANELLA caerulea - Little Jess (NATIVE)





LICUALA ramsayi - Australian Fan Palm (NATIVE)



AGAVE desmettiana - Variegated Smooth Agave



PANDANUS baptistii - Variegated Dwarf Pandanus (NATIVE)



VITEX rotundifolia - Single-Leaf Chastetree (NATIVE)

CYCAS media subsp. banksii - Australian Nut Palm (NATIVE)

LOMANDRA confertifolia - Mat Rush (NATIVE)