



SUPPORTING INFORMATION

for respective items considered at

Coordination Committee Meeting

26 March 2019

SUPPORTING INFORMATION

Ref: [A18346636](#)

The following list of supporting information is provided for:

**ITEM 1.1
DELEGATION - BUILDING REGULATION 2006 - REGIONAL**

#1 Schedule - Building Regulation 2006

ITEM 1.1 - DELEGATION - BUILDING REGULATION 2006 - REGIONAL - A18346598 (Cont.)

1 Schedule Building Regulation 2006

Schedule to Delegation
Council-?

Reference to a statute, regulation, industry standard, code or other law or a provision of any of them includes:

- (a) any amendment or replacement of it; and
- (b) another regulation or other statutory instrument made under it, or made under it as amended or replaced.

Building Regulation 2006

Schedule of powers delegated from Council to the CEO for sub-delegation as appropriate

Building Regulation 2006	
Description of Power delegated from Council to CEO	Section of the Regulation
Power as the owner of a private building to: (a) register, by using the online system, the owner's name and the address of the owner's private building; and (b) give a copy of a completed combustible cladding checklist (part 1) for the building to the QBCC by using the online system.	Section 16Q(1)
Power as the owner of a private building to apply to the QBCC commissioner to extend the period for complying with subsection 16Q(1).	Section 16Q(2)
Power as the owner of a private building to give to the QBCC, by using the online system, a copy of: (a) a completed combustible cladding checklist (part 2) for the owner's private building; and (b) a statement, complying with subsection 16T(2), about whether or not the building may be an affected private building (a building industry professional statement).	Section 16T(1)
Power as the owner of a private building to apply to the QBCC commissioner to extend the period for complying with subsection 16T(1).	Section 16T(3)
Power as the owner of a private building to give to the QBCC, by using the online system, the name and registration number of the fire engineer engaged by the owner for complying with part 4A, division 2, subdivision 3 of the Act.	Section 16W(1)
Power as the owner of a private building to apply to the QBCC commissioner to extend the period for complying with subsection 16W(1).	Section 16W(2)
Power as the owner of a private building to give to the QBCC, by using the online system, a copy of each of the following documents for the owner's private building— (a) a completed combustible cladding checklist (part 3); (b) a report, complying with subsection 16X(2), about the cladding forming part of, or attached or applied to, an external wall or another external part of the building other than the roof (a building fire safety risk assessment); (c) a statement, complying with subsection 16X(3), about the building fire safety risk assessment (a fire engineer statement).	Section 16X(1)
Power as the owner of a private building to apply to the QBCC commissioner to extend the period for complying with subsection 16X(1).	Section 16X(4)

Moreton Bay Regional Council

ITEM 1.1 - DELEGATION - BUILDING REGULATION 2006 - REGIONAL - A18346598 (Cont.)

Building Regulation 2006	
Description of Power delegated from Council to CEO	Section of the Regulation
Before ownership of the building changes, power as the original owner of a private building to: <ul style="list-style-type: none"> (a) give the new owner— <ul style="list-style-type: none"> (i) a notice, in the approved form, about the extent to which the original owner has complied with part 4A of the Act; and (ii) a copy of each document given by or to the original owner under part 4A of the Act; and (b) give the QBCC a copy of the notice that is given to the new owner under paragraph (a)(i). 	Section 16ZD(2)

Document Control: Schedule to Delegation - Council-?			
Version	Revision/Version Comment	Adopted (Date)	Document ref.
V1			

SUPPORTING INFORMATION

Ref: [A18270066](#), [A18293869](#), [A18293877](#), [A18293881](#), [A18293882](#)

The following list of supporting information is provided for:

ITEM 2.1

DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP

#1 Locality Plan

#2 Aerial Photograph

#3 Zoning Plan

#4 Approved Plans

#5 Amended Plans required

#6 Referral Agency Response

#7 Submissions

ITEM 2.1 -DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD AND DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD AND DRINK OUTLET AND SHOP, LOCATED AT 92 AND 94-96 HORNIBROOK ESPLANADE, CLONTARF – DIVISION 6 (CONT.)

#1 Locality plan



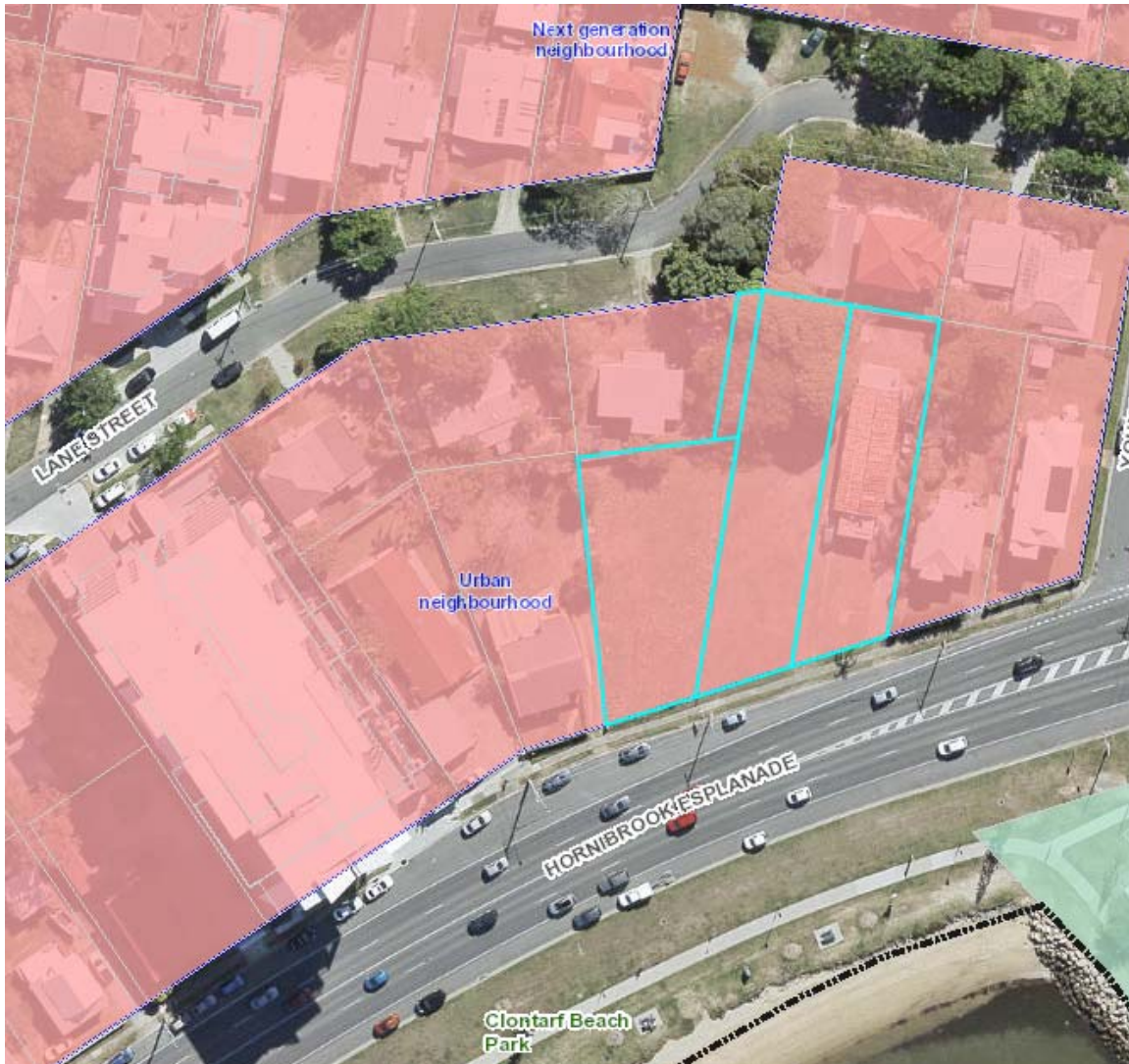
ITEM 2.1 -DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD AND DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD AND DRINK OUTLET AND SHOP, LOCATED AT 92 AND 94-96 HORNIBROOK ESPLANADE, CLONTARF – DIVISION 6 (CONT.)

#2 Aerial Photograph



ITEM 2.1 -DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD AND DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD AND DRINK OUTLET AND SHOP, LOCATED AT 92 AND 94-96 HORNIBROOK ESPLANADE, CLONTARF – DIVISION 6 (CONT.)

#3 Zoning Plan



Zones	
■	General residential
■	Centre
■	Recreation and open space
■	Environmental management and conservation
■	Industry
■	Community facilities
■	Emerging community
■	Extractive industry
■	Limited development
■	Rural
■	Rural residential
■	Township

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

#4 Approved Plans



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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 900

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 901

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

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DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 902

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 903

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

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Scale: NTS
SK - 904

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BUILDING PERSPECTIVES
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Clontarf

DA INFO RESPONSE

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Scale: NTS
SK - 905

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BUILDING PERSPECTIVES
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 906

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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STREET CONTEXT PERSPECTIVE
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

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Date: 15.11.18
Scale: NTS
SK - 907

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



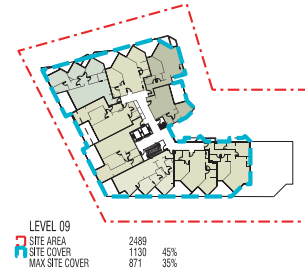
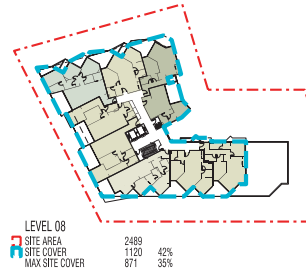
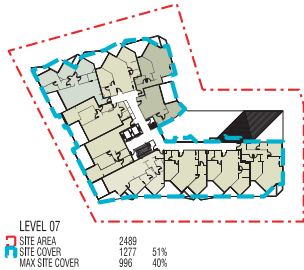
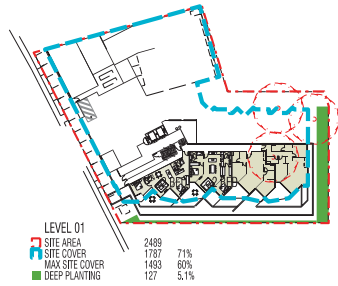
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STREET CONTEXT PERSPECTIVE
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

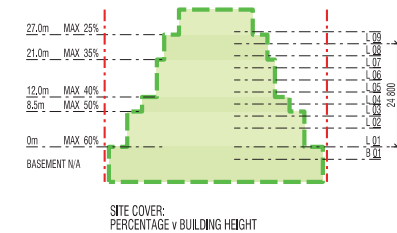
Project No: 17567
Date: 15.11.18
Scale: NTS
SK - 908

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

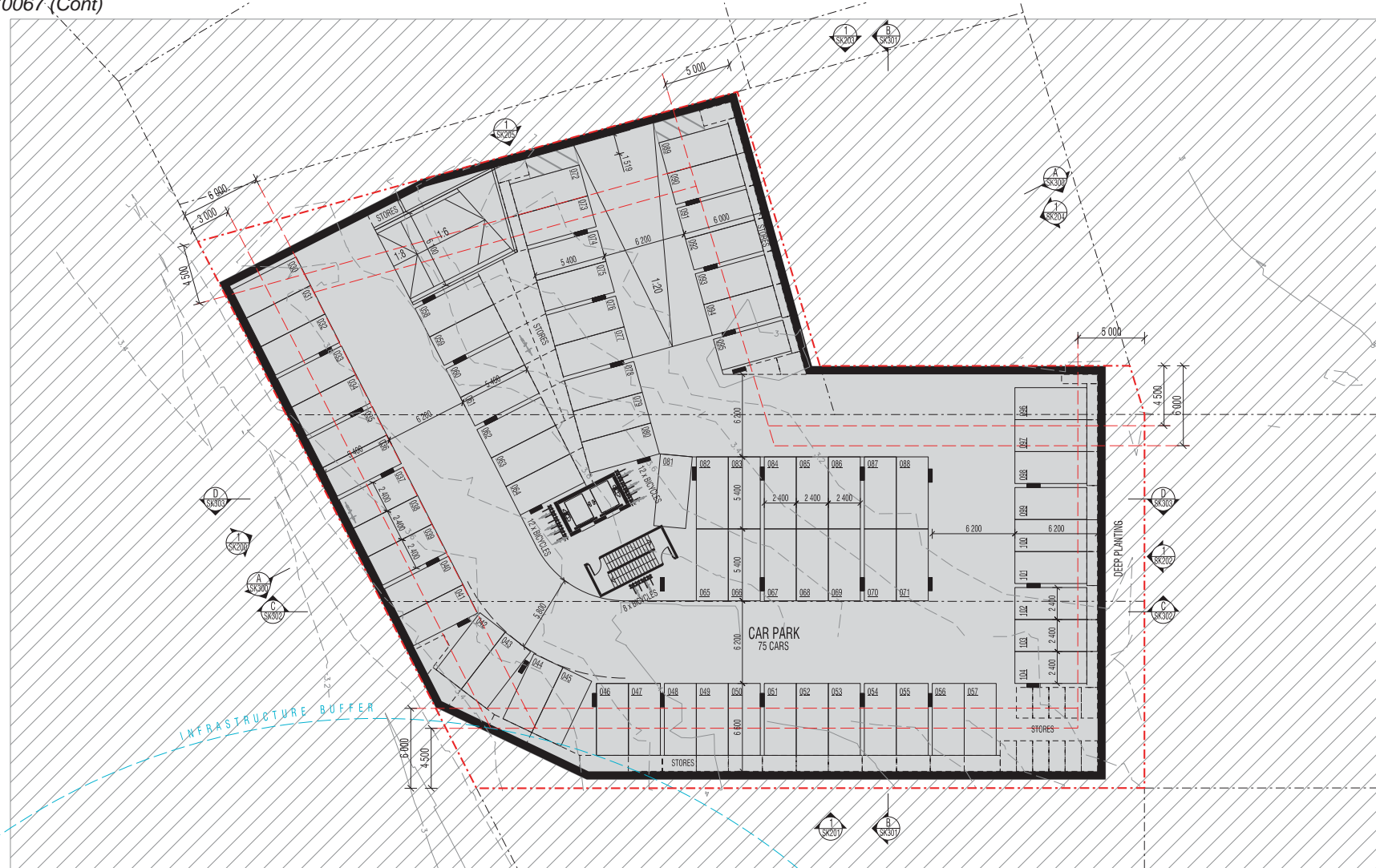


DEVELOPMENT SUMMARY					
Level	Commercial m ²	Residential			Total
		1 Bed 60	2 Bed 90-100	3 Bed 125	
01	90		4		4
02		5	7	1	13
03		5	7	1	13
04		5	7	1	13
05		4	7	1	12
06		2	7	1	10
07		2	7	1	10
08		2	6	1	9
09		2	6	1	9
Total	90	27	58	8	93
		29%	62%	9%	100%

CAR PARKING SUMMARY		
Commercial	Residential	Total
MBRC Rate 5/100m ²	1	
Sub Total 4.5	93	97.5
MBRC Total		97.5
Provided		104 Cars



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BASEMENT LEVEL
 92-96 Hornibrook Esplanade,
 Clontarf

DA INFO RESPONSE

Project No: 17567
 Date: 15.11.18
 Scale: 1:250 @ A3
 SK - 101

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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GROUND LEVEL 01
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
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Scale: 1:250 @ A3
SK - 102

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP LANE STREET - A18270067 (Cont)



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LEVEL 02
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DA INFO RESPONSE

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SK - 103

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LEVEL 03
92-96 Hornibrook Esplanade,
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DA INFO RESPONSE

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SK - 104

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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LEVEL 04
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DA INFO RESPONSE

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SK - 105

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- A18270067 (Cont)



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LEVEL 05
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SK - 106

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LEVEL 06
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
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SK - 107

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- A18270067 (Cont)



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LEVEL 07
 92-96 Hornibrook Esplanade,
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DA INFO RESPONSE

Project No: 17567
 Date: 15.11.18
 Scale: 1:250 @ A3
 SK - 108

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP LANE STREET - A18270067 - (Cont)



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LEVEL 08
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 109

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- A18270067 (Cont)



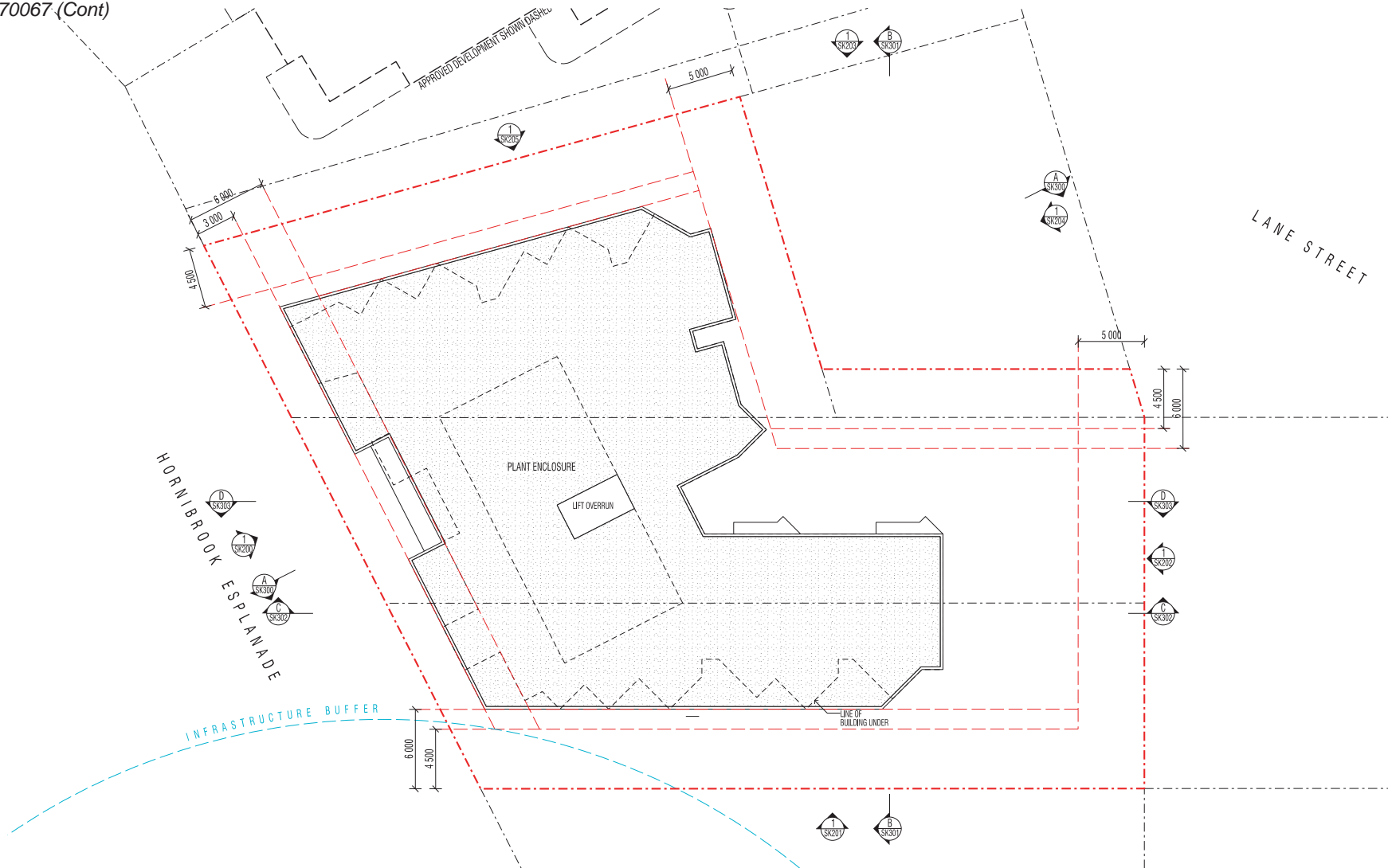
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LEVEL 09
 92-96 Hornibrook Esplanade,
 Clontarf

DA INFO RESPONSE

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 SK - 110

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ROOF PLAN
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE



Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 111

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

- LEGEND
- BAL-1 GLASS AND ALUMINIUM BALUSTRADE
 - BAL-2 POWDERCOAT ALUMINIUM BALUSTRADE
 - BRK BRICKWORK/BRICK TILE
 - GLZ GLAZING
 - P/C PRECAST CONCRETE PANEL
 - RM RENDERED MASONRY
 - SCN ALUMINIUM SCREENING
 - TRL TRELLIS WIRES



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BUILDING ELEVATIONS - SOUTH
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 200

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

- LEGEND
- BAL-1 GLASS AND ALUMINIUM BALUSTRADE
 - BAL-2 POWDERCOAT ALUMINIUM BALUSTRADE
 - BRK BRICKWORK/BRICK TILE
 - GLZ GLAZING
 - P/C PRECAST CONCRETE PANEL
 - RM RENDERED MASONRY
 - SCN ALUMINIUM SCREENING
 - TRL TRELLIS WIRES



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BUILDING ELEVATIONS - EAST
92-96 Hornibrook Esplanade,
Clontarf

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Scale: 1:250 @ A3

SK - 201

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

- LEGEND
- BAL-1 GLASS AND ALUMINIUM BALUSTRADE
 - BAL-2 POWDERCOAT ALUMINIUM BALUSTRADE
 - BRK BRICKWORK/BRICK TILE
 - GLZ GLAZING
 - P/C PRECAST CONCRETE PANEL
 - RM RENDERED MASONRY
 - SCN ALUMINIUM SCREENING
 - TRL TRELLIS WIRES



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BUILDING ELEVATIONS - WEST
92-96 Hornibrook Esplanade,
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DA INFO RESPONSE

Project No: 17567
Date: 15,11,18
Scale: 1:250 @ A3
SK - 202

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING ELEVATIONS - WEST
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DA INFO RESPONSE

Project No: 17567
 Date: 15.11.18
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- LEGEND
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 - BRK BRICKWORK/BRICK TILE
/>
 - GLZ GLAZING
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BUILDING ELEVATIONS - NORTH
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Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 204

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

- LEGEND
- BAL-1 GLASS AND ALUMINIUM BALUSTRADE
 - BAL-2 POWDERCOAT ALUMINIUM BALUSTRADE
 - BRK BRICKWORK/BRICK TILE
/>
 - GLZ GLAZING
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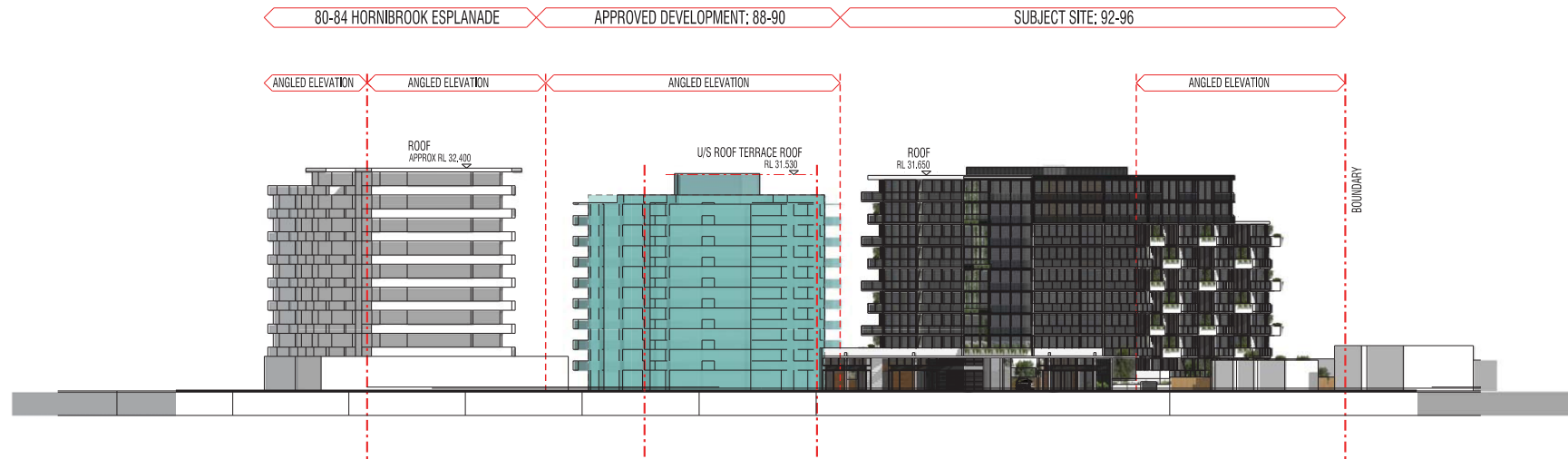
BUILDING ELEVATIONS - WEST
 92-96 Hornibrook Esplanade,
 Clontarf

DA INFO RESPONSE

Project No: 17567
 Date: 15.11.18
 Scale: 1:250 @ A3

SK - 205

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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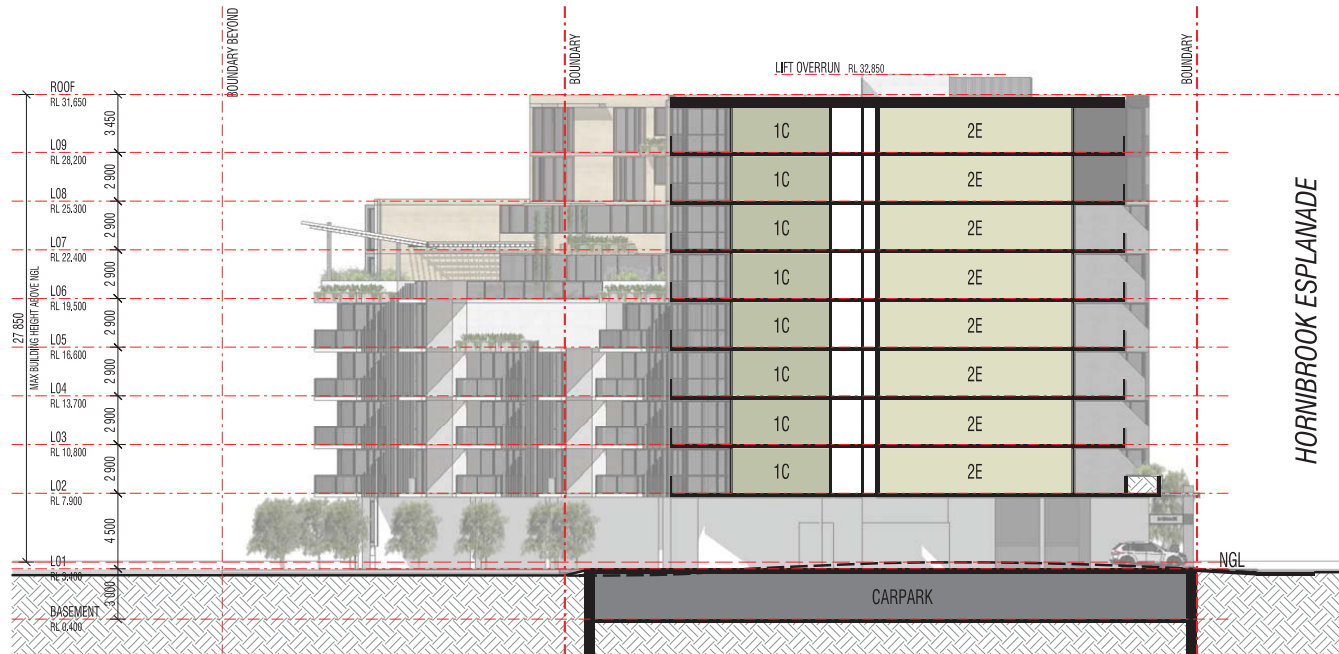
STREET ELEVATION
92-96 Hornibrook Esplanade,
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DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
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SK - 210

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BUILDING SECTIONS
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SK - 300

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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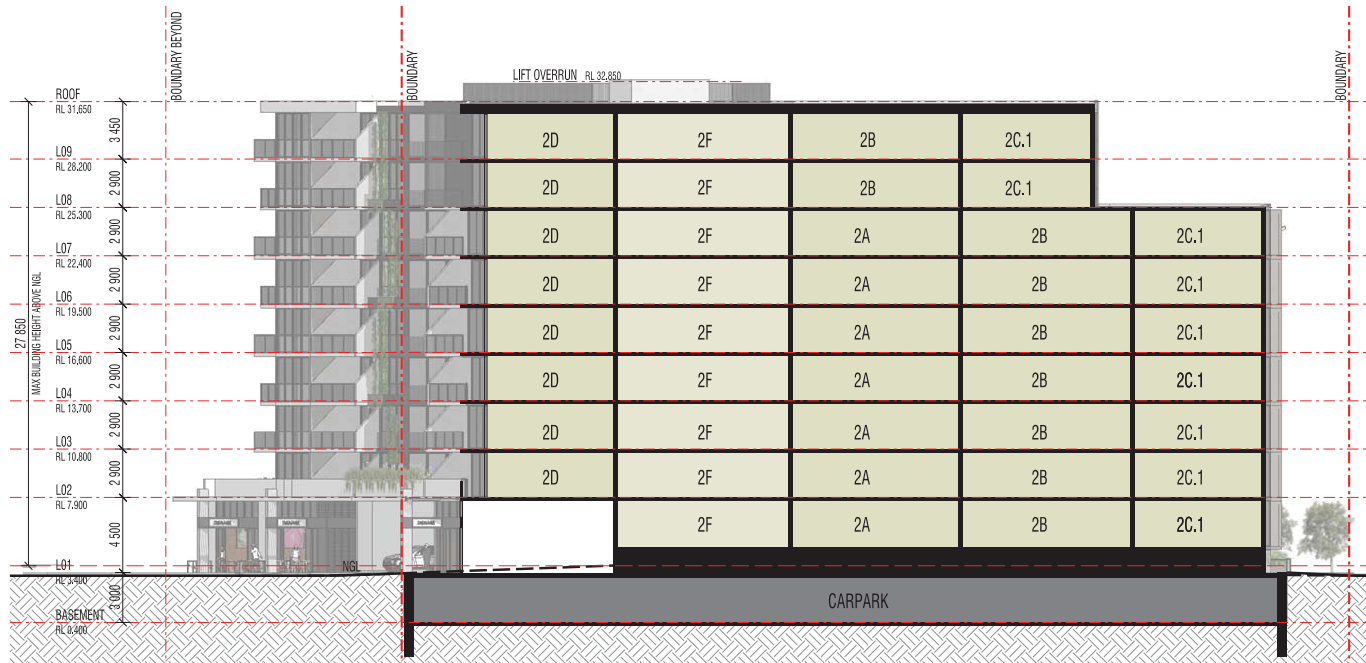
BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

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DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 301

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

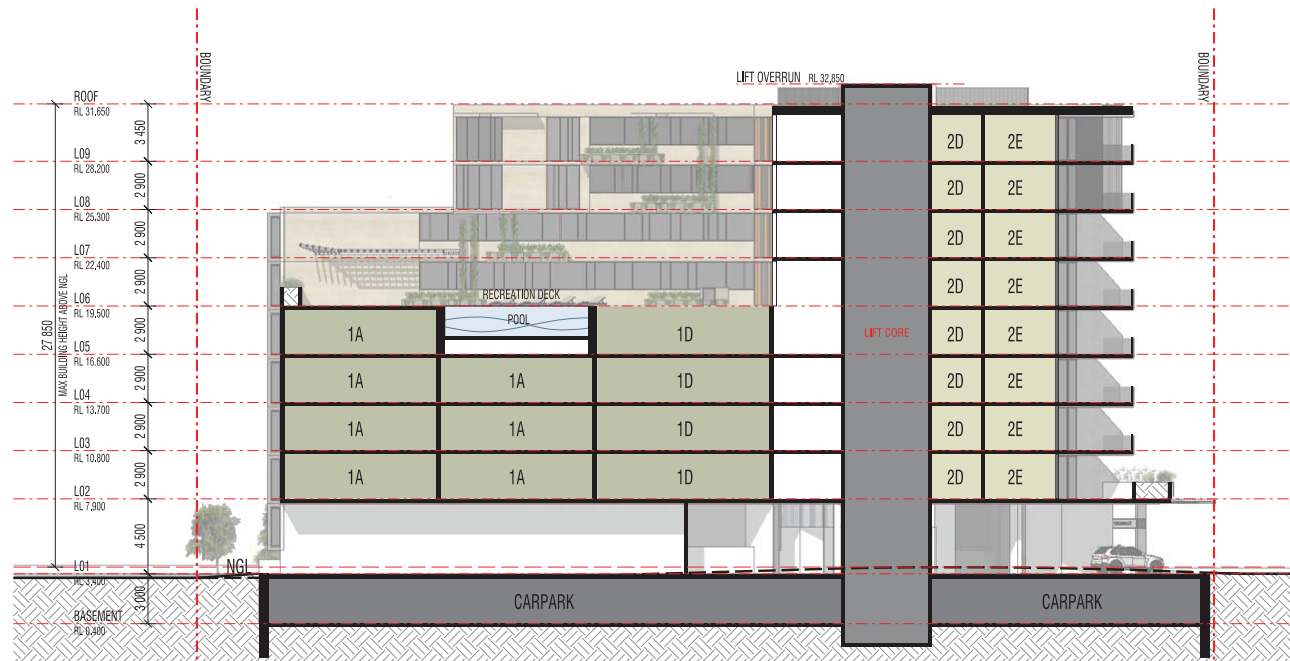
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DA INFO RESPONSE

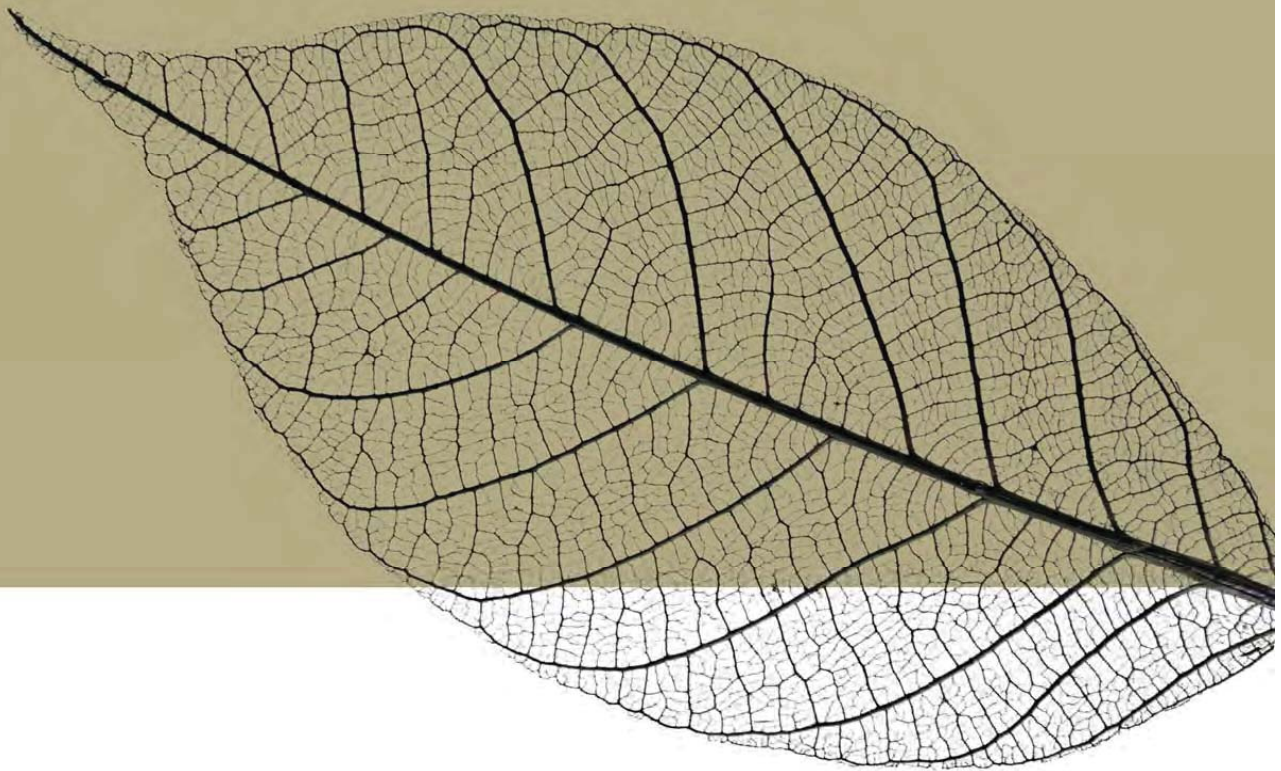
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Date: 15.11.18
Scale: 1:250 @ A3

SK - 302

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ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



TRAFFIC ENGINEERING
ASSESSMENT REPORT

PROPOSED RESIDENTIAL DEVELOPMENT
WITH GROUND LEVEL ACTIVATION

92 – 96 HORNIBROOK ESPLANADE,
CLONTARF

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ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

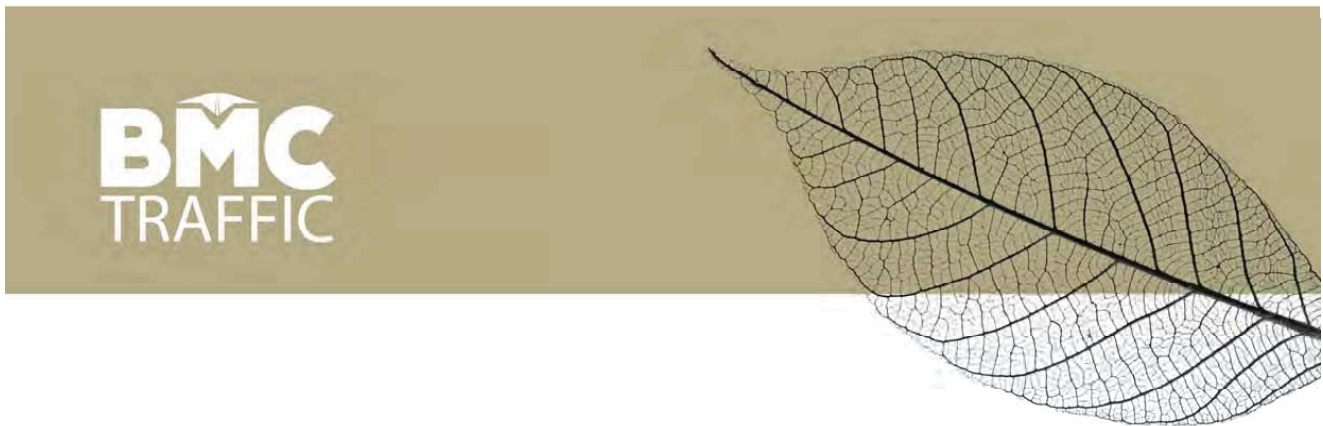


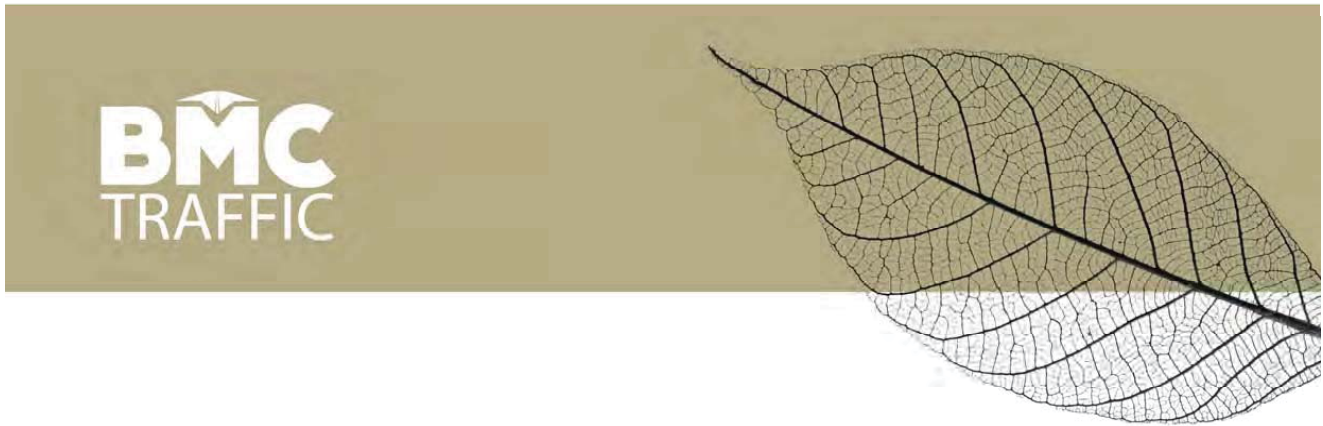
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APPENDICES

- A Proposed Development Plans
- B Code Response Tables
- C Swept Paths

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



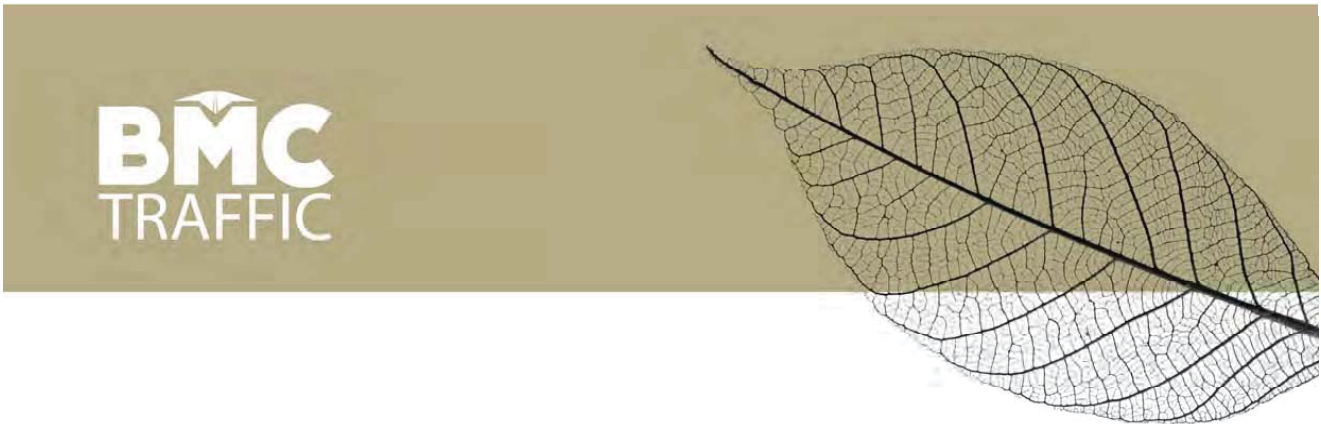
DOCUMENT CONTROL

20 November 2018

A handwritten signature in blue ink that reads 'Beth Meehan'. The signature is written in a cursive, flowing style.

Beth Meehan
Traffic Engineer
BE(Civil)(Hons), RPEQ #8373, MAITPM

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



**CERTIFICATION OF TRAFFIC IMPACT ASSESSMENT REPORT
REGISTERED PROFESSIONAL ENGINEER QUEENSLAND**
For

92 – 96 Hornibrook Esplanade, Clontarf

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

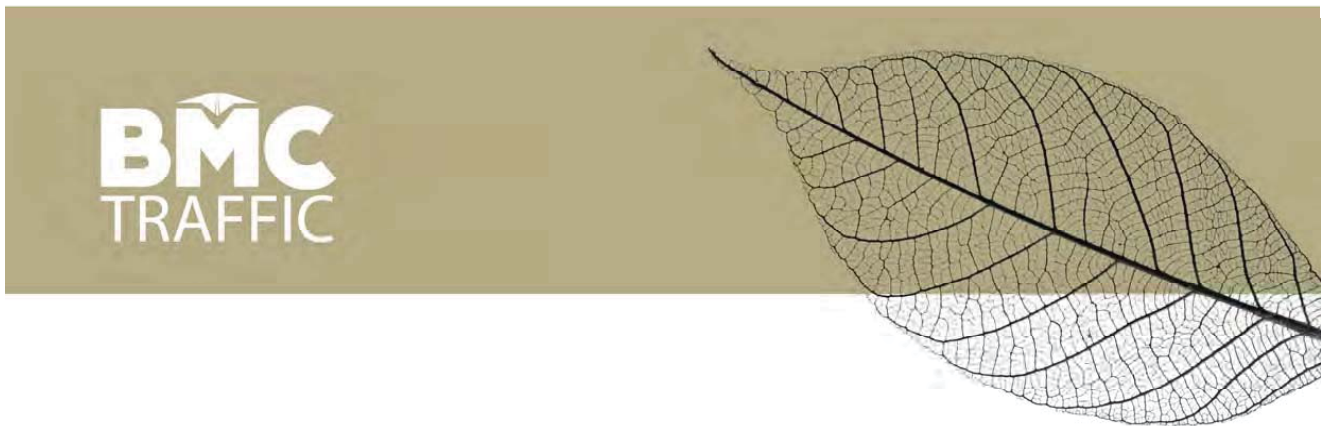
- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

- i. I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and
- ii. where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that
- iii. the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that
- iv. I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Beth Meehan	RPEQ No:	8373
RPEQ competencies:	Civil Engineering (Traffic)		
Signature:		Date:	20 November 2018
Postal address:	PO Box 399, CARINA QLD 4152		
Email:	beth@bmctrffic.com.au		

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1 Introduction

1.1 Purpose of this Report

This report provides details of an updated assessment of the car parking and transport impacts of a proposed residential development at 92 – 96 Hornibrook Esplanade, Clontarf. The subject development includes a total of 93 residential apartments, with 90sq.m GFA of commercial use at the ground level and is supported by 104 car parking spaces.

In preparing this report, reference has been made to:

- Moreton Bay Regional Council's (MBRC's) PDOnline services, including Planning Scheme and Code Response tables and online mapping.
- MBRC's Information Request, dated 26 September 2018.
- State Development Assessment Provisions, specifically State Code 1.
- Queensland Government's Development Assessment Mapping System (DAMS).
- The Department of State Development, Manufacturing, Infrastructure and Planning's (DSDMIP's) Conditions of Approval dated 30 October 2018.
- Plans of the proposed development prepared by MODE Design, with a copy of relevant drawings provided at Appendix A to this report.
- An inspection of the site and its surrounds undertaken in August 2018.

An assessment of the proposed development against the relevant Code response tables is provided at Appendix B to this report.

1.2 Background and Site Context

Planning permission is sought for the development of land located at 92 – 96 Hornibrook Esplanade, Clontarf for the purpose of a residential building. This land is currently occupied by a single dwelling, with two of the land parcels being currently vacant.

Bus stops exist on Hornibrook Esplanade within 100m of the site, servicing routes 690, 691 and 694. The site is also opposite an existing bicycle path and is therefore accessible by public and active transport.

Hornibrook Esplanade is a Major Road comprised of a two-way, four-lane undivided roadway. A single unbroken central line opposite the site permits full turning movements at the site access. Kerbside parking is permitted, with a marked parking lane adjacent to the site. A pedestrian path exists along the site frontage.

Lane Street is a Minor Road, with a two-way undivided carriageway. On-street parking is permitted, however there is no formal pedestrian path.

The site is shown on Figure 1.

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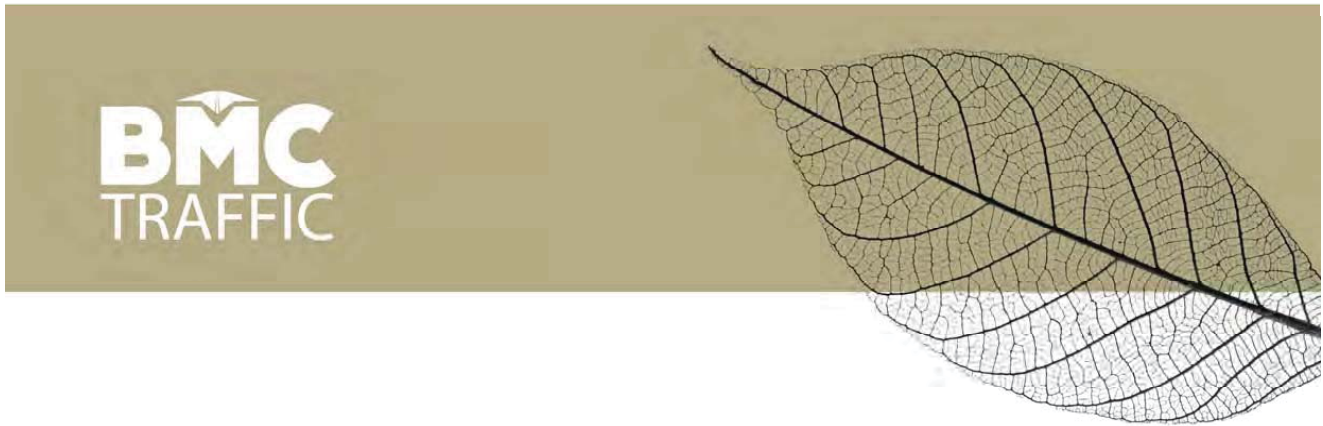
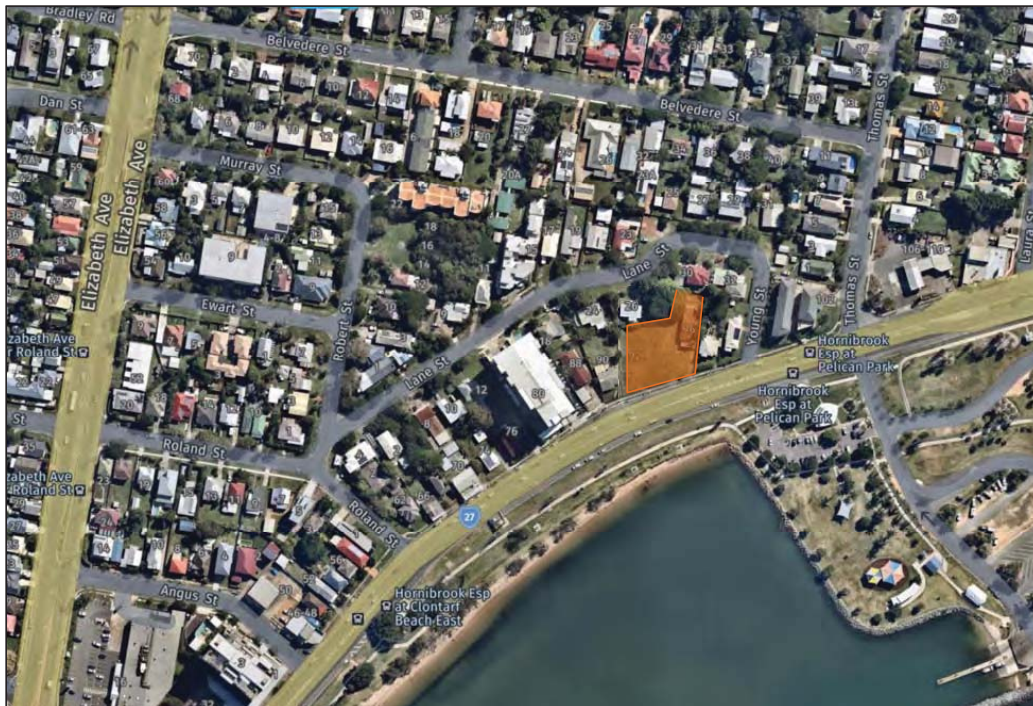
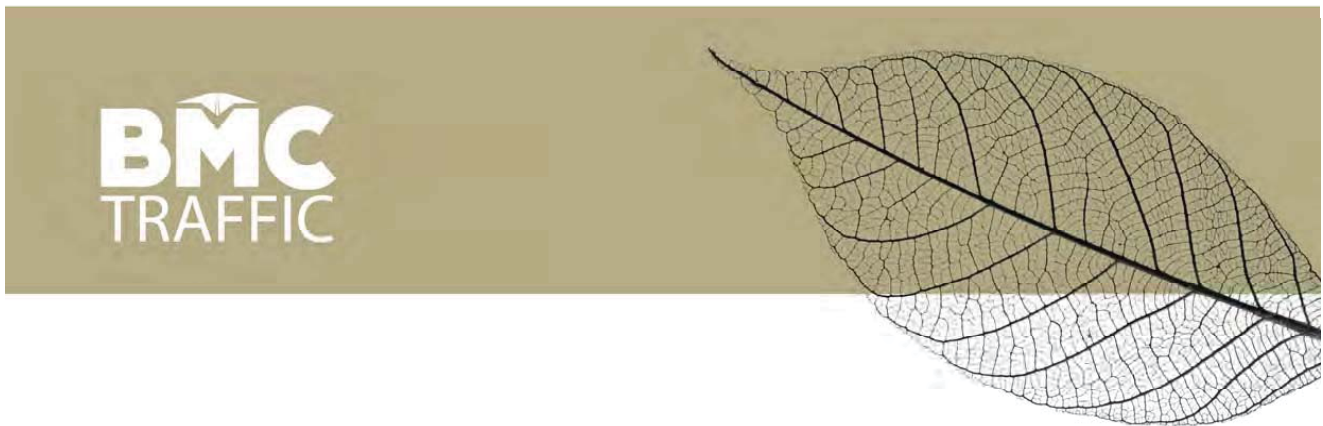


Figure 1: Subject Site and Surroundings

Source: NearMap (Image Date Monday 16 April 2018)



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2 Development Proposal

The proposal includes the development of a total of 93 residential units, including:

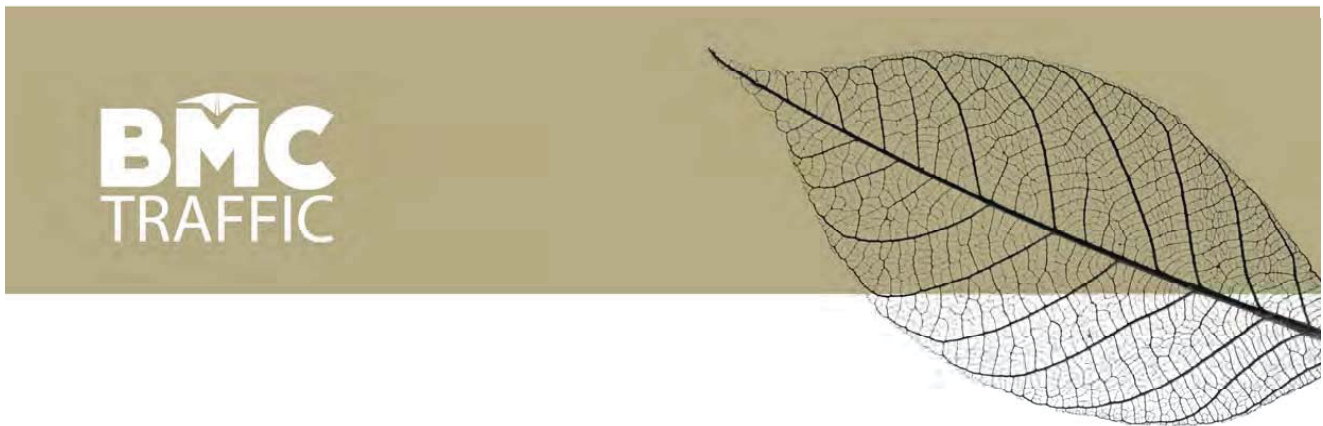
- 27 x one-bedroom units.
- 58 x two-bedroom units.
- 8 x three-bedroom units.

In addition to the above, there is a commercial tenancy fronting Hornibrook Esplanade, of 90sq.m GFA.

A total of 104 car parking spaces are proposed to accompany the development.

In response to the Conditions which are imposed by DTMR, a left-in / left-out access is proposed to Hornibrook Esplanade, with an “exit only” crossover proposed to Lane Street.

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



3 Car Parking Assessment

3.1 Council Requirements

The applicable car parking requirement rates for this development are:

- Residential: 1 space / dwelling.
- Commercial: 1 space / 20sq.m GFA.

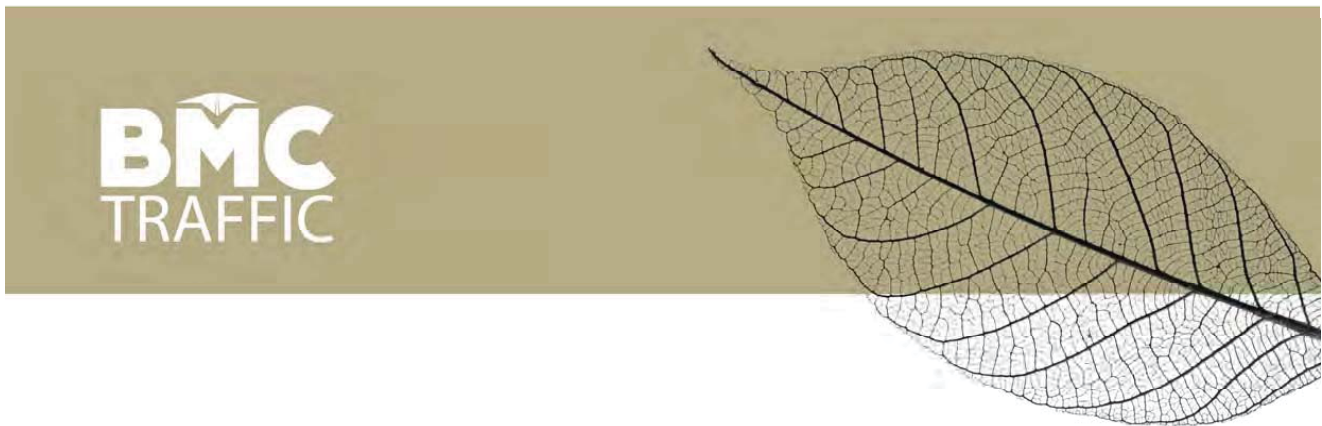
Application of the above car parking rates results in the following requirement:

- 93 residential car parking spaces.
- 5 commercial car parking spaces.
- 98 total car parking spaces.

3.2 Suitability of Car Parking Provision

The development proposal meets the Statutory parking requirements, with 104 cars provided.

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4 Traffic Impact Assessment

4.1 Traffic Generation

The proposed development includes a total of 93 residential units (167 bedrooms), plus 100sq.m GFA of commercial area.

Recent data in the Department of Transport and Main Roads' *Traffic Generation Data – 2006 – 2017 (Queensland) Open Data* includes trip generation data recorded at five 'high rise residential' sites. These surveys were undertaken in 2010 and the surveyed developments varied in size from 52 units to 423 units and the following 85th percentile trip generation was observed:

- 0.23 trips / bedroom / hour in the peak hour.
- 2.36 trips / bedroom / day.

Application of these rates to the proposed residential component of the development anticipates:

- 38 trips in the peak hour.
- 394 trips per day.

Adopting typical trip generation rates for commercial, of 2 trips / 100sq.m in the road network peak hour and 10 trips / 100sq.m per day, anticipates 2 peak trips, and 10 daily trips for this component. The overall development traffic generation is therefore:

- 40 trips / hour (peak).
- 404 trips / day.

4.2 Traffic Distribution

To determine turning movements at the site accesses, the following assumption have been made:

- In/out traffic split:
 - AM Peak Hour: 30%in / 70%out.
 - PM Peak Hour: 70%in / 30% out.
- Directional distribution:
 - **East: 20%.**
This traffic redistributes via the network to the north to access from the west.
 - **West, including southwest and northwest: 80%.**
*This traffic enters from Hornibrook Esplanade from the west.
This traffic exits via Lane Street.*

Adopting the above, the anticipated traffic generation in the road network AM and PM peak hour attributable to the development are shown on Figure 4.1 and Figure 4.2.

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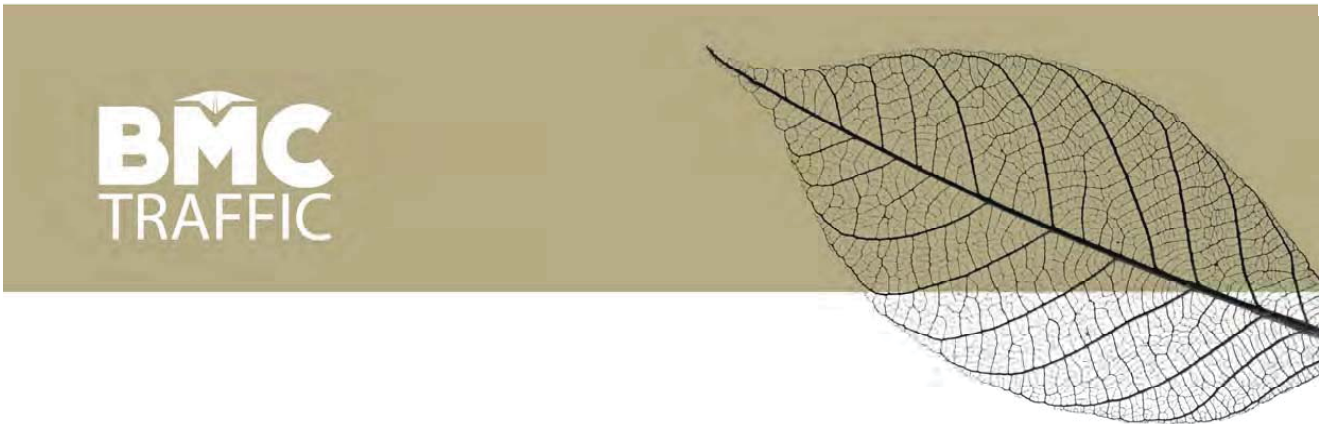


Figure 4.1: AM Peak Hour Site Generated Movements

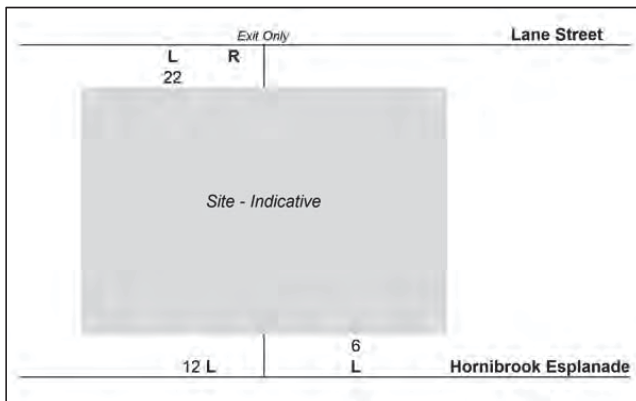
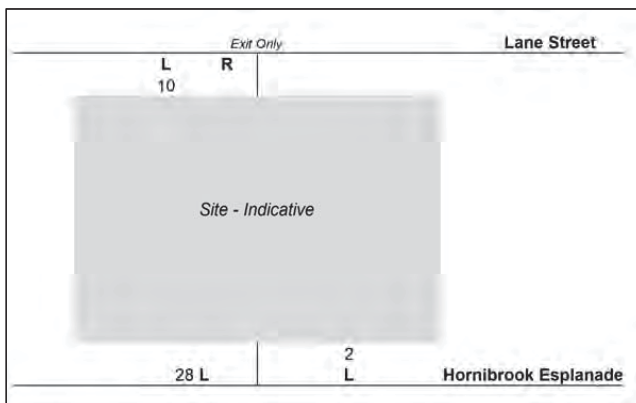
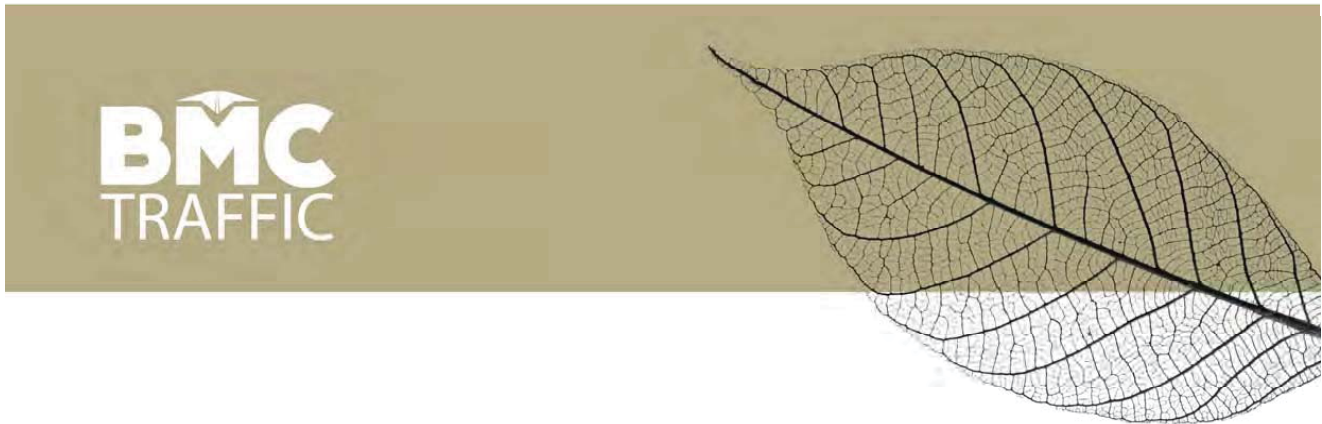


Figure 4.2: PM Peak Hour Site Generated Movements



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4.3 Commentary on Impacts

Left turn movements into the site are unopposed and will have minimal impact on through traffic flow.

There is a component of traffic which will re-route on the surrounding road network to access the site, as a result of the turning movement restrictions imposed by DTMR. These movements include:

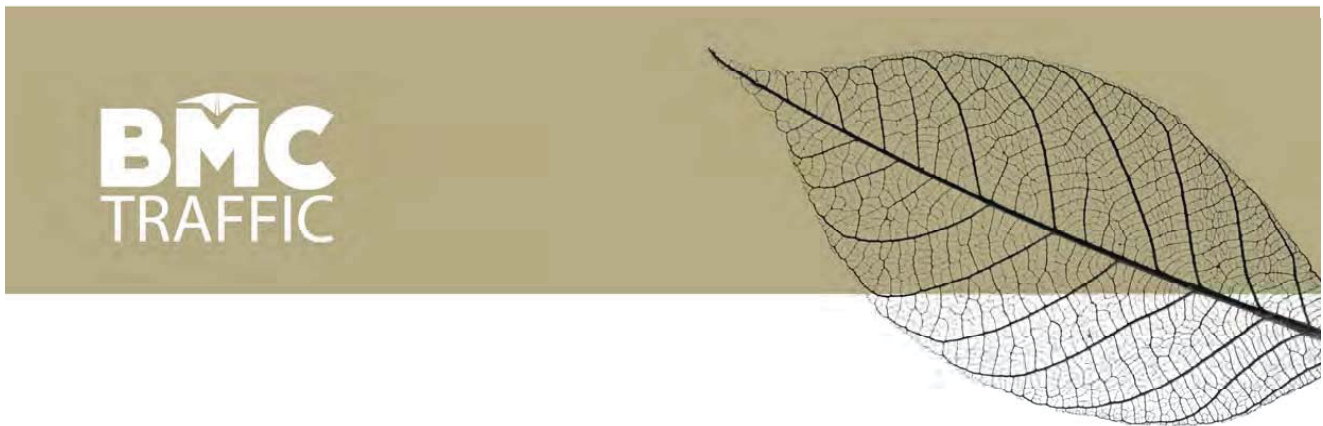
- Traffic with an origin from the east: 2 vehicles AM peak / 6 vehicles PM peak.
- Traffic with a destination to the west: 22 vehicles AM peak / 10 vehicles PM peak.

In relation to the traffic with an origin from the east, this traffic accounts for on average one vehicle every 10 minutes in the critical PM peak hour. This traffic could utilise various alternates to access the site, including Thomas Street / Belvedere Street / Elizabeth Avenue, and Maine Road / Cornelius Street / Elizabeth Avenue. As such, the traffic impact will be diluted and readily accommodated by the network.

Vehicles exiting the site with a destination towards the west, including the city and northwest, this traffic will utilise Lane Street and either Roland Street or Ewart Street to access either Elizabeth Avenue or Hornibrook Esplanade. The level of traffic generated represents on average one vehicle every three minutes in the critical AM peak hour, and is expected to be accommodated by the network, noting the various options available. As these vehicles will be regular users, familiar with the typical peak hour operations of the surrounding road network, they will utilise the route with the least typical delays for their intended destination.

On the basis of the above, the traffic generated by the development is expected to be capable of being accommodated by the surrounding road network.

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5 Assessment of Site Layout

5.1 Car Parking

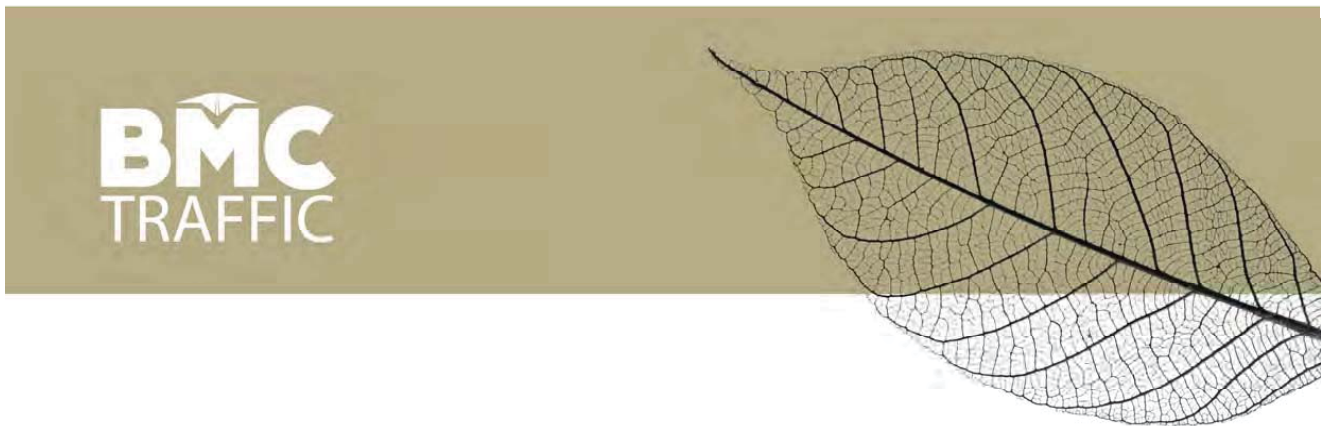
A review of the proposed car parking layout against the requirements of the Australian Standard for Off Street Car Parking (AS/NZS2890.1-2004) is summarised in Table 5.1.

Table 5.1: Car Parking Layout Review Summary

Design Element	Design Requirement - Australian Standard (AS)	Complies	Comment
Car bay width and length (Resident and Visitor)	2.4m (W) x 5.4m (L)	Complies	
PWD parking bay width and length	2.4m (W) x 5.4m (L) Adjacent to equally sized shared zone	Complies	
Aisle width	5.8m	Complies	
Gradient across bays	1:16	Complies	
Blind aisle	1m bay width increase	Complies	
Column location (Door opening clearance zones)	0.75m – 1.75m from aisle 0.0m – 1.75m from nose	Complies	
Ramp width	5.5m + 0.3m clearance each side (6.1m)	Complies	
Sight triangle (pedestrians)	2.5m x 5.0m	<i>Changes Required</i>	<i>This could be a Condition of Approval.</i>
Height clearance	2.2m	<i>To be confirmed</i>	<i>This could be a Condition of Approval.</i>

It is important to ensure that the constructed Security Gate and supporting infrastructure maintains a 0.3m clearance from the adjacent car bays.

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5.2 Gradients

A review of the on-site gradients against the requirements of the Australian Standard identifies the following:

- The entry queuing area meets the requirements of the Australian Standard, with this area expected to be generally flat.
- The maximum gradient across car parking spaces is 1:20, in accordance with the Australian Standard.
- The ramp is a maximum gradient of 1:6, which meets the requirements of the Australian Standard.
- The transition lengths include a change in gradient of 1:8 for a length of 2m, which meets the requirement of the Australian Standard.

5.3 Servicing

The site access has been designed to accommodate service vehicles driving forward on and off the site. Accessibility has been tested utilising the computer programme AutoTRACK for a 12.5m Heavy Rigid Vehicle (HRV) tested, as defined by the Australian Standard.

The swept path assessment demonstrates that an HRV can drive forward on to the site from Hornibrook Esplanade and stand in a position which does not block site access by passenger vehicles. This vehicle will then exit via Lane Street. The supporting swept path assessments are shown at Appendix C to this report.

The truck manoeuvring areas is to be confirmed as having a minimum 4.5m height clearance, this can be a Condition of Approval. There is a section of access aisle on approach to Lane Street which has an unrestricted height clearance. This can be used for loading of bins into the truck, noting a 6.1m operating height is required.

5.4 Vehicle Access

Sight Lines

Hornibrook Esplanade

An inspection of the available sight lines at the site access to Hornibrook Esplanade identified that appropriate sight lines are achieved.

Lane Street

The sight lines to the east of the proposed site access to Lane Street are restricted by the road alignment. These sight lines are improved by visibility through the adjoining property's front yard and fence. Given Lane Street is a local street, with a significant bend to the east of the site, traffic speeds are expected to be low. Reduced speeds provide drivers with increased reaction time with a lesser sight distance required.

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Design

Vehicle access is proposed via a 9.5m wide left-in / left-out crossover to Hornibrook Esplanade.

5.5 Pedestrian Access

A direct pedestrian connection is proposed from Hornibrook Esplanade to the building lobby for the residential apartments.

Direct pedestrian access from the footpath is anticipated for the commercial tenancy fronting Hornibrook Esplanade.

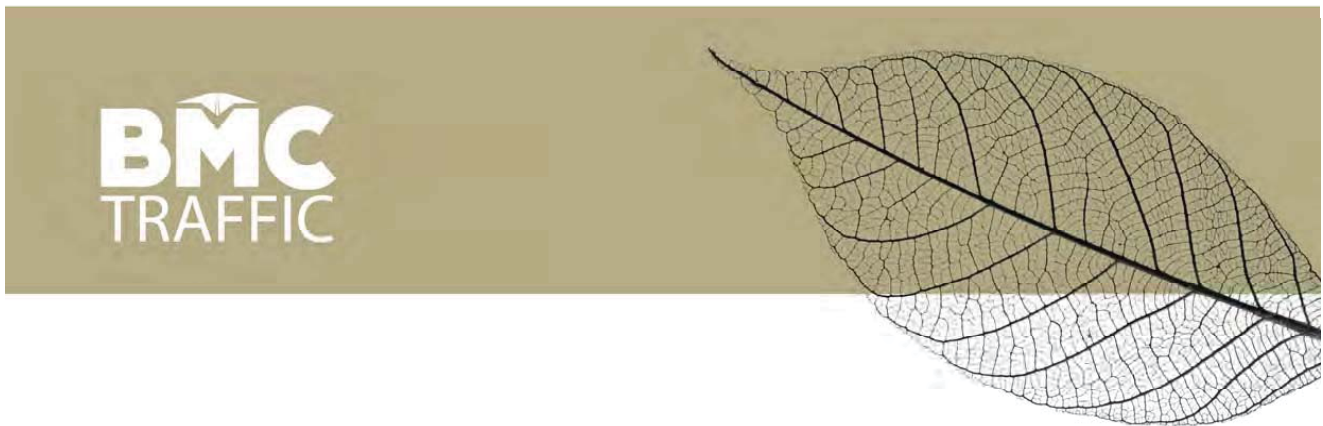
5.6 Bicycle Parking

Council's Planning Scheme requires bicycle parking to be provided at a rate of 1 bicycle per unit.

Bicycle parking is included on development plans throughout the basement, with additional bicycle parking to be provided at the wall end of parking bays. Appropriate bicycle parking is capable of being achieved as part of this development.

It is noted that end of bay bicycle parking will need to be vertically hung at the corner of car parking spaces, typically in the column area, to avoid restricting the length and functionality of the car bay.

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6 Response to Information Request

An Information Request was issued by MBRC on 26 September 2018 and this report has been updated to address this request. For ease of review, the traffic engineering items are also reproduced assessed, below.

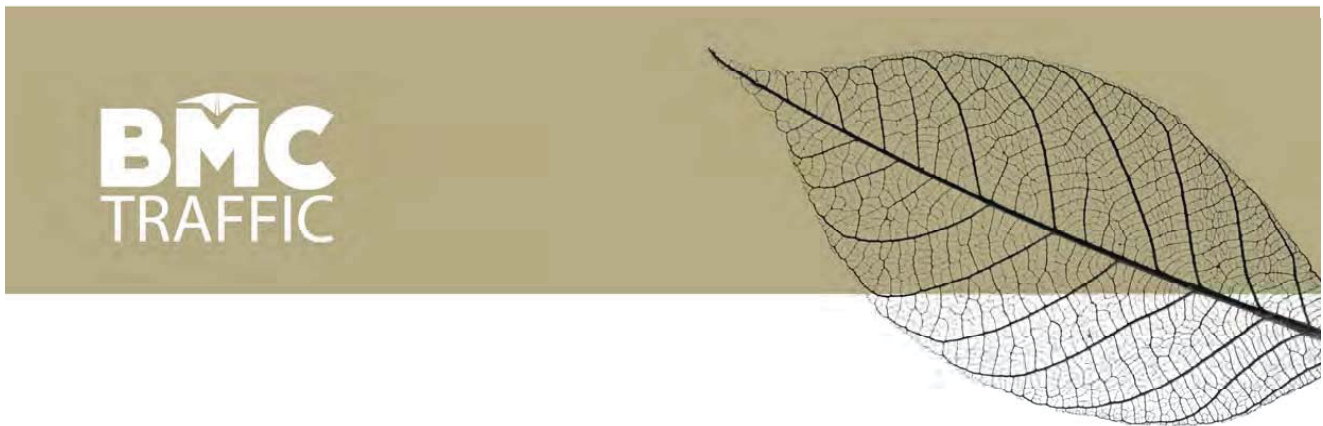
Item 8: The proposed reverse movement of the HRV and refuse vehicle from Hornibrook Esplanade against oncoming traffic, across the pedestrian footpath (adjoining retail tenancies), into the site is not considered safe. Alternative servicing arrangements are required.

The accessibility has been modified, with the HRV to enter and exit in a forward gear, travelling through the site in a forward gear only.

Item 9: In the event that all turns movements access onto Hornibrook Esplanade is not granted by the Department of Transport and Main Roads (DTMR), the applicant will need to amend the Integrated Transport Assessment (ITA) to redistribute the traffic with amended access and demonstrate there are no adverse impacts to the local road network.

DTMR has imposed a Condition for left-in/left-out access to Hornibrook Esplanade and the traffic assessment provided in Section 4 has been modified accordingly.

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7 Conclusions

Following the assessment and analyses presented in this report, it is concluded that:

- The car parking requirement for the development is 98 car parking spaces.
- The proposed parking supply of 104 spaces meets the site's parking requirement.
- The site is expected to generate some 40 vehicle trips in the road network peak hours in, which can be absorbed by the surrounding road network.
- The car parking layout generally meets the requirements of the Australian Standard, as outlined in this report. Appropriate operation and accessibility are anticipated.
- The vehicle crossovers provide appropriate access to the proposed development.
- Appropriate on-site servicing can be achieved, with swept path assessments demonstrating forward-in / forward-out access of an HRV.
- Bicycle parking will be provided in accordance with the requirements of the Planning Scheme.

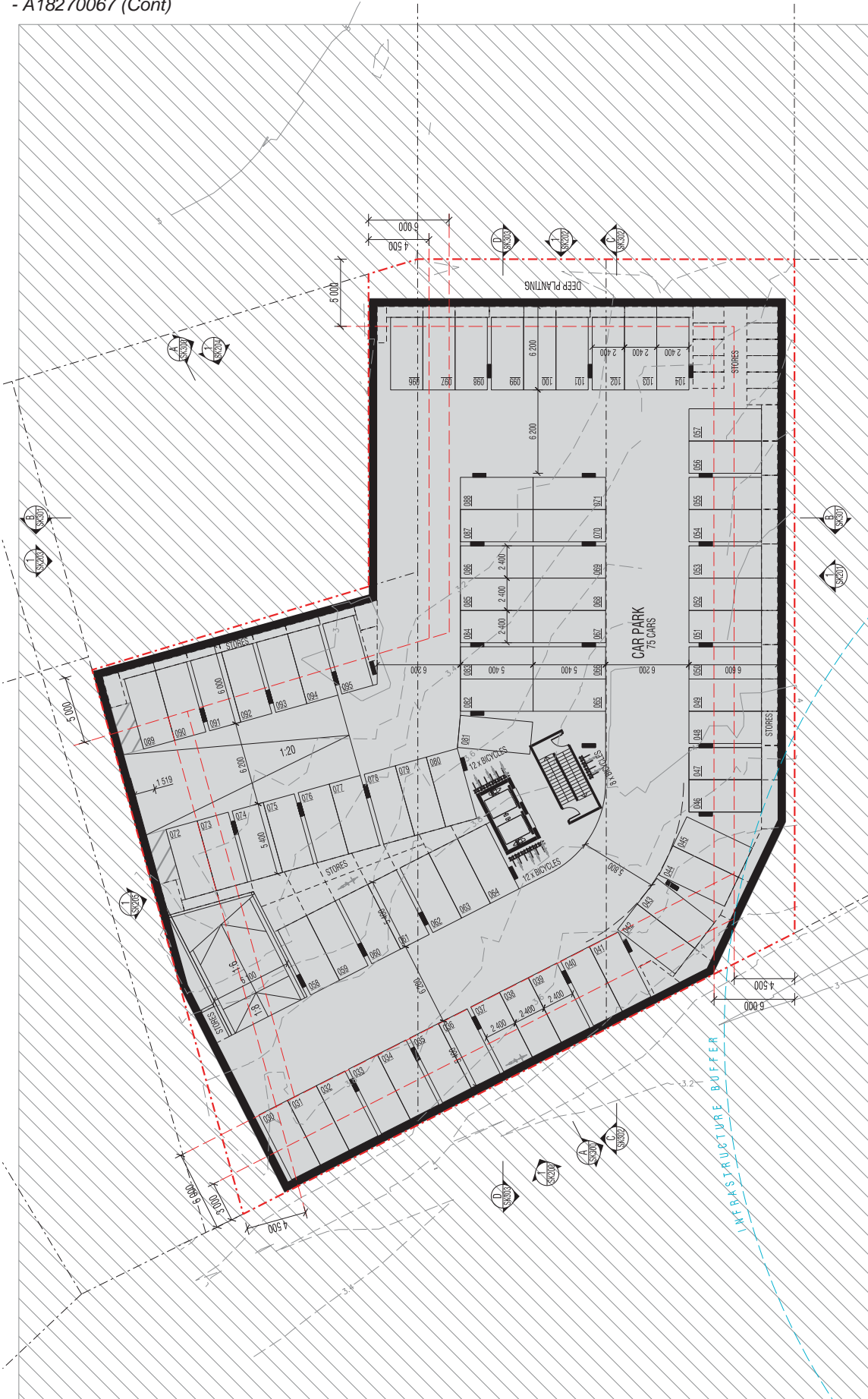
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



Appendix A

Development Plans

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17567
15/11/18
1:250 @ A3

Project No:
Date:
Scale:
SK - 101

DA INFO RESPONSE

BASEMENT LEVEL
92-96 Hornibrook Esplanade,
Clontarf

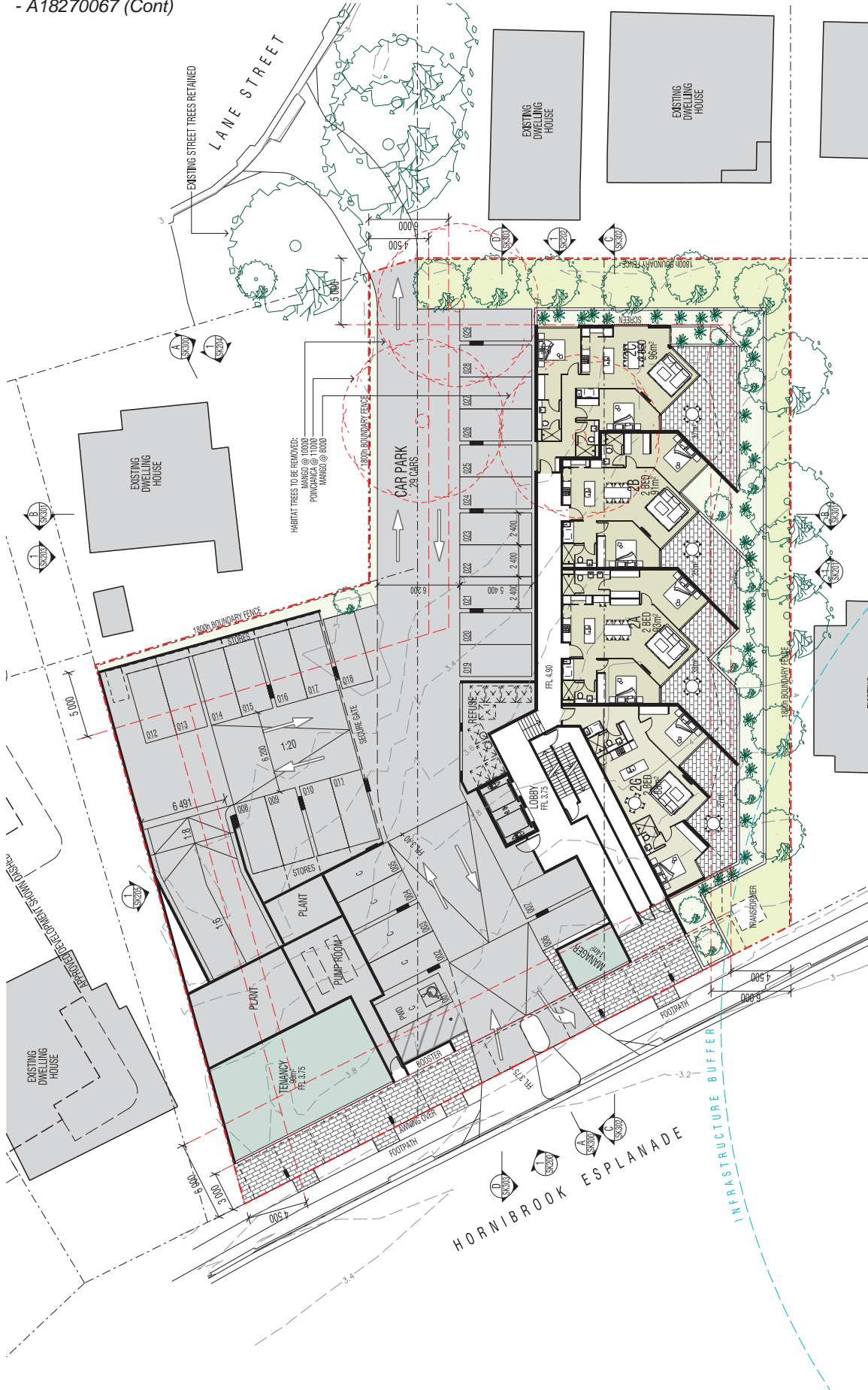
BRISBANE
Plaza Level, Mosaic
826 Ann St
Fortitude Valley, QLD 4006
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Project No: 17567
Date: 15/11/18
Scale: 1:250 @ A3
SK - 102

DA INFO RESPONSE

GROUND LEVEL 01
92-96 Hornibrook Esplanade,
Clontarf

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Appendix B

Code Response Tables

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Table 6.2.6.4.2 Assessable development - Urban neighbourhood precinct			
Performance outcomes	Examples that achieve aspects of the Performance Outcomes	Compliance – Yes – No See PO or – NA	Justification for compliance
General criteria			
Access			
PO23 Where required, access easements contain a driveway and provision for services appropriate to the use. The easement covers all works associated with the access in accordance with Planning scheme policy - Integrated design.	No example provided.	N/A	
PO24 The layout of the development does not compromise: a. the development of the road network in the area; b. the function or safety of the road network; c. the capacity of the road network. Note - The road hierarchy is mapped on Overlay map - Road hierarchy.	E24.1 Direct vehicle access for residential development does not occur from arterial or sub-arterial roads or a motorway. Editor's note - Residential developments should consider amalgamation with the lot to the rear and gaining access via a laneway. Note - The road hierarchy is mapped on Overlay map - Road hierarchy.	Alternate Solution	Due to the restricted width for access in Lane Street, access is required to Hornibrook Esplanade. The access to Hornibrook Esplanade is appropriately designed and has appropriate sight lines. Moreover, this access is restricted to left turns only.
	E24.2 The development provides for the extension of the road network in the area in accordance with Council's road network planning.	N/A	
	E24.3 The development does not compromise future road widening of frontage roads in accordance with the relevant standard and Council's road planning.	Yes	
	E24.4 The lot layout allows forward access to and from the site.	Yes	

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<p>PO25 Safe access is provided for all vehicles required to access the site.</p>	<p>E25.1 Site access and driveways are designed and located in accordance with: a. Where for a Council-controlled road, AS/NZS2890.1 section 3; or b. Where for a State-Controlled road, the Safe Intersection Sight Distance requirements in AustRoads and the appropriate IPWEAQ standard drawings, or a copy of a Transport Infrastructure Act 1994, section 62 approval.</p>	<p>Alternate Solution</p>	<p>Appropriate sight lines are available at Hornibrook Esplanade, however a slightly modified crossover is proposed to improve vehicle accessibility.</p> <p>Sight lines to Lane Street are restricted to the east, however, traffic speeds are expected to be low.</p>
	<p>E25.2 Internal driveways and access ways are designed and constructed in accordance with AS/NZS2890.1 Parking Facilities – Off street car parking and the relevant standards in Planning scheme policy - Integrated design. Note - This includes queue lengths (refer to Schedule 8 Service vehicle requirements), pavement widths and construction.</p>	<p>Alternate Solution</p>	<p>Aisle widths meet the requirements of the Australian Standard.</p> <p>Whilst on-site queuing does not meet the requirement of the Australian Standard, that standard does not give consideration to the car parking turnover. This development is anticipated to have less than one vehicle entering the site every two minutes (average) in the road network peak hour, as such, there is limited potential for queuing.</p>
	<p>E25.3 Access driveways, manoeuvring areas and loading facilities provide for service vehicles listed in Schedule 8 Service vehicle requirements for the relevant use. The on-site manoeuvring is to be in accordance with Schedule 8 Service vehicle requirements.</p>	<p>Alternate Solution</p>	<p>Service vehicles are expected to load from the aisle, noting that they are likely to require occasional access only.</p>
<p>PO26 Upgrade works (whether trunk or non-trunk) are provided where necessary to: a. ensure the type or volume of traffic generated by the development does not have a negative impact on the external road network; b. ensure the orderly and efficient continuation of the active transport network; c. ensure the site frontage is constructed to a suitable urban standard generally in accordance with Planning scheme policy - Integrated design.</p> <p>[TEXT DELETED]</p>	<p>No example provided.</p>	<p>Yes</p>	<p>The adjacent road network is not listed for upgrade works.</p>

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<p>PO64 Development provides functional and integrated car parking and vehicle access, that:</p> <ol style="list-style-type: none"> prioritises the movement and safety of pedestrians between the street frontage and the entrance to the building; provides safety and security of people and property at all times; does not impede active transport options; does not impact on the safe and efficient movement of traffic external to the site; is consolidated and shared with adjoining sites wherever possible. 	<p>No example provided.</p>	<p>Part Alternate Solution</p>	<p>Direct pedestrian entry is available for both the residential and commercial uses from the pedestrian path in Hornibrook Esplanade, which provides connectivity to existing public and active transport networks.</p> <p>The site provides one access to each frontage road, with appropriate sight lines available at the Hornibrook Esplanade frontage. Sight lines are restricted at Lane Street, however, traffic volumes and speeds at this location are expected to be low.</p>
<p>PO65 The safety and efficiency of pedestrian movement is prioritised in the design of car parking areas through providing pedestrian paths in car parking areas that are:</p> <ol style="list-style-type: none"> located along the most direct route between building entrances, car parks and adjoining uses; protected from vehicle intrusion through the use of physical and visual separation (e.g. wheel stops, trees etc); are of a width to allow safe and efficient access for prams and wheelchairs. 	<p>No example provided.</p>	<p>Alternate Solution</p>	<p>Pedestrian connectivity through the car park will share vehicle access areas.</p>
<p>PO66 The number of car parking spaces is managed to:</p> <ol style="list-style-type: none"> avoid significant impacts on the safety and efficiency of the road network; avoid an oversupply of car parking spaces; avoid the visual impact of large areas of open car parking from road frontages and public areas; promote active and public transport options; promote innovative solutions, including on-street parking and shared parking areas. <p>Note - Refer to Planning scheme policy - Integrated transport assessment for guidance on how to achieve compliance with this outcome.</p>	<p>E66.1 Car parking is provided in accordance with Table 6.2.6.4.5 'Car parking spaces'. Note - The above rates exclude car parking spaces for people with a disability required by Disability Discrimination Act 1992 or the relevant disability discrimination legislation and standards.</p>	<p>Yes</p>	
	<p>E66.2 All car parking areas are designed and constructed in accordance with Australian Standard AS2890.1.</p>	<p>Yes</p>	

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<p>PO67</p> <p>a. End of trip facilities are provided for employees or occupants, in the building or on-site within a reasonable walking distance, and include:</p> <ul style="list-style-type: none"> i. adequate bicycle parking and storage facilities; and ii. adequate provision for securing belongings; and iii. change rooms that include adequate showers, sanitary compartments, wash basins and mirrors. <p>b. Notwithstanding a. there is no requirement to provide end of trip facilities if it would be unreasonable to provide these facilities having regard to:</p> <ul style="list-style-type: none"> i. the projected population growth and forward planning for road upgrading and development of cycle paths; or whether it would be practical to commute to and from the building on a bicycle, having regard to the likely commute distances and nature of the terrain; or ii. the condition of the road and the nature and amount of traffic potentially affecting the safety of commuters. <p>Editor's note - The intent of b above is to ensure the requirements for bicycle parking and end of trip facilities are not applied in unreasonable circumstances. For example these requirements should not, and do not apply in the Rural zone or the Rural residential zone etc.</p> <p>Editor's note – [text deleted]</p>	<p>E67.1</p> <p>Minimum bicycle parking facilities are provided in accordance with the table below (rounded up to the nearest whole number).</p> <table border="1" data-bbox="730 379 1402 619"> <thead> <tr> <th>Use</th> <th>Minimum Bicycle Parking</th> </tr> </thead> <tbody> <tr> <td>Residential uses comprised of dwellings</td> <td>Minimum 1 space per dwelling</td> </tr> <tr> <td>All other residential uses</td> <td>Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking</td> </tr> <tr> <td>Non-residential uses</td> <td>Minimum 1 space per 200m2 of GFA</td> </tr> </tbody> </table> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is a combination of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	Use	Minimum Bicycle Parking	Residential uses comprised of dwellings	Minimum 1 space per dwelling	All other residential uses	Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking	Non-residential uses	Minimum 1 space per 200m2 of GFA	<p>Yes</p>	
Use	Minimum Bicycle Parking										
Residential uses comprised of dwellings	Minimum 1 space per dwelling										
All other residential uses	Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking										
Non-residential uses	Minimum 1 space per 200m2 of GFA										
	<p>E67.2</p> <p>Bicycle parking is:</p> <ul style="list-style-type: none"> a. provided in accordance with <i>Austroads (2008), Guide to Traffic Management - Part 11: Parking</i>; b. protected from the weather by its location or a dedicated roof structure; c. located within the building or in a dedicated, secure structure for residents and staff; d. adjacent to building entrances or in public areas for customers and visitors. <p>Note - Bicycle parking structures are to be constructed to the standards prescribed in AS2890.3.</p> <p>Note - Bicycle parking and end of trip facilities provided for residential and non-residential activities may be pooled, provided they are within 100 metres of the entrance to the building.</p> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is an amalgamation of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	<p>Can Comply</p>	<p>Over the nose bicycle parking can be modified to be located in the corner of car parking bays and vertically mounted, particularly utilising the column zone. This will limit impact on the car parking bay function.</p>								

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	<p>E67.3 For non-residential uses, storage lockers:</p> <ol style="list-style-type: none"> a. are provide at a rate of 1.6 per bicycle parking space (rounded up to the nearest whole number); b. have minimum dimensions of 900mm (height) x 300mm (width) x 450mm (depth). <p>Note - Storage lockers may be pooled across multiple sites and activities when within 100 metres of the entrance to the building and within 50 metres of bicycle parking and storage facilities.</p> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is an amalgamation of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	N/A	
	<p>E67.4 For non-residential uses, changing rooms:</p> <ol style="list-style-type: none"> a. are provided at a rate of 1 per 10 bicycle parking spaces; b. are fitted with a lockable door or otherwise screened from public view; c. are provided with shower(s), sanitary compartment(s) and wash basin(s) in accordance with the table below: d. are provided with: <ol style="list-style-type: none"> i. a mirror located above each wash basin; ii. a hook and bench seating within each shower compartment; iii. a socket-outlet located adjacent to each wash basin. <p>Note - Change rooms may be pooled across multiple sites, residential and non-residential activities when within 100 metres of the entrance to the building and within 50 metres of bicycle parking and storage facilities</p> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is an amalgamation of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	N/A	
<p>PO68 Loading and servicing areas:</p> <ol style="list-style-type: none"> a. are not visible from the street frontage; b. are integrated into the design of the building; c. include screening and buffers to reduce negative impacts on adjoining sensitive land uses; d. where possible loading and servicing areas are consolidated and shared with adjoining sites. 	<p>No example provided.</p>	Alternate Solution	<p>Dedicated loading facilities are not proposed, with loading to occur in an occasional manner from the car parking aisle. This area is screened from neighbouring properties, being in the middle of the development.</p>

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<p>PO69 Bins and bin storage areas are provided, designed and managed in accordance with Planning scheme policy – Waste.</p>	<p>No example provided.</p>	<p>Yes</p>	<p>A bin storage area is proposed within the development.</p>
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Table 6.2.6.4.5 Car parking spaces			
Site proximity	Land use	Maximum number of car spaces to be provided	Minimum number of car Spaces to be provided
<p>Within 800m walkable Catchment* of a higher order centre</p>	<p>Non-residential</p>	<p>1 per 30m² GFA</p>	<p>1 per 50m² GFA</p>
	<p>Residential – permanent/long term</p>	<p>N/A</p>	<p>1 per dwelling</p>
	<p>Residential – serviced/short term</p>	<p>3 per 4 dwellings + staff spaces</p>	<p>1 per 5 dwellings + staff spaces</p>
<p>Other (Wider catchment)</p>	<p>Non-residential</p>	<p>1 per 20m² GFA</p>	<p>1 per 30m² GFA</p>
	<p>Residential – permanent/long term</p>	<p>N/A</p>	<p>1 per dwelling</p>
	<p>Residential – serviced/short term</p>	<p>1 per dwelling + staff spaces</p>	<p>1 per 5 dwellings + staff spaces</p>

Note - Car parking rates are to be rounded up to the nearest whole number.

Note - Allocation of car parking spaces to dwellings is at the discretion of the developer.

Note - Residential - Permanent/long term includes: Multiple dwelling⁽⁴⁹⁾, Relocatable home park⁽⁶²⁾, Residential care facility⁽⁶⁵⁾, Retirement facility⁽⁶⁷⁾.

Note - Residential - Services/short term includes: Rooming accommodation⁽⁶⁹⁾ or Short-term accommodation⁽⁷⁷⁾.

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Table 9.3.2.3 Criteria for assessable development									
Performance outcomes	Examples that achieve aspects of the Performance Outcomes	E Compliance – Yes – No See PO or – NA	Justification for compliance						
Car parking									
<p>PO4 Car parking is provided on-site that provides for the number and type of vehicles anticipated to access the lot, ensuring a surplus of car parking is avoided.</p>	<p>E4 Car parking spaces are provided in accordance with:</p> <ul style="list-style-type: none"> a. Emerging community zone – Transition precinct (developed lot) - Table 9.3.2.4 b. General residential zone - Next generation neighbourhood and Urban neighbourhood precincts - Table 9.3.2.4 c. General residential zone - Coastal communities and Suburban neighbourhood precincts - Table 9.3.2.5 d. Township zone Table 9.3.2.5 e. Centre zone - Caboolture and Strathpine centre precincts - Table 9.3.2.6 f. Centre zone - District and Local centre precincts - Table 9.3.2.7 g. Redcliffe Kippa-Ring local plan - Redcliffe seaside village and Kippa-Ring village precincts - Table 9.3.2.7 h. Caboolture West local plan - Table 9.3.2.7 <p>Note - The above rates exclude car parking spaces for people with a disability required by Disability Discrimination Act 1992 or the relevant disability discrimination legislation and standards.</p>	<p>Yes</p>	<p>A minor surplus of 6 spaces, which can assist in accommodating visitor parking.</p>						
<p>PO5 Car parking areas do not adjoin the street frontage or public open space areas, or are designed to:</p> <ul style="list-style-type: none"> a. not dominate the street frontage; b. maintain active frontages; c. contribute to the intended character of the streetscape; d. not compromise on-site landscaping. <p>Note - Refer to Planning scheme policy - Residential design for details and examples.</p> <p>Note - Where screening of car parking areas is proposed as an alternative, screening is to be in the form of an architectural feature of the building, not simply a screen and landscaping.</p>	<p>E5.1 Garage and carport openings are no greater than:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Primary lot frontage</th> <th style="text-align: center;">Covered car space opening(s) per street frontage and location of car parking areas</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">15m or greater</td> <td> <ul style="list-style-type: none"> a. 3m for every 7.5m of street frontage; b. every 6m of opening is separated by a minimum of 6m </td> </tr> <tr> <td style="text-align: center;">Less than 15m</td> <td> <ul style="list-style-type: none"> a. Single level: 3.0m wide; b. Double level: 6.0m and recessed 1.0m behind the front wall or balcony of upper level. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> a. For a laneway lot (Single or double level): 6m wide </td> </tr> </tbody> </table> <p>Note - Refer to Planning scheme policy - Residential design for details and examples.</p>	Primary lot frontage	Covered car space opening(s) per street frontage and location of car parking areas	15m or greater	<ul style="list-style-type: none"> a. 3m for every 7.5m of street frontage; b. every 6m of opening is separated by a minimum of 6m 	Less than 15m	<ul style="list-style-type: none"> a. Single level: 3.0m wide; b. Double level: 6.0m and recessed 1.0m behind the front wall or balcony of upper level. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> a. For a laneway lot (Single or double level): 6m wide 	<p>Yes</p>	<p>Activation of the street frontage and pedestrian entries to the lobby reduce the visual impact of the car park.</p>
Primary lot frontage	Covered car space opening(s) per street frontage and location of car parking areas								
15m or greater	<ul style="list-style-type: none"> a. 3m for every 7.5m of street frontage; b. every 6m of opening is separated by a minimum of 6m 								
Less than 15m	<ul style="list-style-type: none"> a. Single level: 3.0m wide; b. Double level: 6.0m and recessed 1.0m behind the front wall or balcony of upper level. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> a. For a laneway lot (Single or double level): 6m wide 								

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	<p>E5.2 For townhouses: a. parking spaces gain access via internal driveways; or b. car parking areas are located behind the front of the building. Note - Refer to Planning scheme policy - Residential design for details and examples.</p>	N/A	
	<p>E5.3 For low, medium and high rise apartment buildings: a. parking spaces are located in basements or semi-basements; or b. are located behind dwellings and not adjoining the frontage. Note - Refer to Planning scheme policy - Residential design for details and examples.</p>	Yes	Activation of the street frontage and pedestrian entries to the lobby reduce the visual impact of the car park.
	<p>E5.4 Basement car parking does not extend to within deep planting zones.</p>	Yes	
<p>PO6 Car parking areas and structures are designed and located to reduce noise and lighting impacts on dwellings within the lot and adjoining properties.</p>	No example provided.	Further detail required	This can be responded to by the project architect.

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Bicycle parking and end of trip facilities									
<p>PO7</p> <p>a. End of trip facilities are provided for employees or occupants, in the building or on-site within a reasonable walking distance, and include:</p> <ul style="list-style-type: none"> i. adequate bicycle parking and storage facilities; and ii. adequate provision for securing belongings; and iii. change rooms that include adequate showers, sanitary compartments, wash basins and mirrors. <p>b. Notwithstanding a. there is no requirement to provide end of trip facilities if it would be unreasonable to provide these facilities having regard to:</p> <ul style="list-style-type: none"> i. the projected population growth and forward planning for road upgrading and development of cycle paths; or ii. whether it would be practical to commute to and from the building on a bicycle, having regard to the likely commute distances and nature of the terrain; or iii. the condition of the road and the nature and amount of traffic potentially affecting the safety of commuters. <p>Editor's note - The intent of b above is to ensure the requirements for bicycle parking and end of trip facilities are not applied in unreasonable circumstances. For example these requirements should not, and do not apply in the Rural zone or the Rural residential zone etc.</p> <p>Editor's note – [text deleted]</p>	<p>E7.1</p> <p>Minimum bicycle parking facilities are provided in accordance with the table below (rounded up to the nearest whole number).</p> <table border="1"> <thead> <tr> <th>Use</th> <th>Minimum Bicycle Parking</th> </tr> </thead> <tbody> <tr> <td>Dwellings</td> <td>Minimum 1 space per dwelling</td> </tr> <tr> <td>All other residential uses</td> <td>Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking</td> </tr> </tbody> </table> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is a combination of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	Use	Minimum Bicycle Parking	Dwellings	Minimum 1 space per dwelling	All other residential uses	Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking	<p>Yes</p>	
	Use	Minimum Bicycle Parking							
Dwellings	Minimum 1 space per dwelling								
All other residential uses	Minimum 1 space per 2 car parking spaces identified in Schedule 7 – car parking								
	<p>E7.2</p> <p>Bicycle parking is:</p> <ul style="list-style-type: none"> a. provided in accordance with <i>Austroroads (2008), Guide to Traffic Management - Part 11: Parking</i>; b. protected from the weather by its location or a dedicated roof structure; c. located within the building or in a dedicated, secure structure for residents and staff; d. adjacent to building entrances or in public areas for customers and visitors. <p>Note - Bicycle parking structures are to be constructed to the standards prescribed in AS2890.3.</p> <p>Note - Bicycle parking and end of trip facilities provided for residential and non-residential activities may be pooled, provided they are within 100 metres of the entrance to the building.</p> <p>Editor's note - The examples for end of trip facilities prescribed under the Queensland Development Code permit a local planning instrument to prescribe facility levels higher than the default levels identified in those acceptable solutions. This example is an amalgamation of the default levels set for end of trip facilities in the Queensland Development Code and the additional facilities required by Council.</p>	<p>Can Comply</p>	<p>Bicycle parking can be accommodated appropriately.</p>						

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	<p>E7.3 For non-residential uses, storage lockers:</p> <ul style="list-style-type: none"> a. are provide at a rate of 1.6 per bicycle parking space (rounded up to the nearest whole number); b. have minimum dimensions of 900mm (height) x 300mm (width) x 450mm (depth). <p>Note - Storage lockers may be pooled across multiple sites and activities when within 100 metres of the entrance to the building and within 50 metres of bicycle parking and storage facilities.</p>	N/A	
	<p>E7.4 For non-residential uses, changing rooms:</p> <ul style="list-style-type: none"> a. are provided at a rate of 1 per 10 bicycle parking spaces; b. are fitted with a lockable door or otherwise screened from public view; c. are provided with shower(s), sanitary compartment(s) and wash basin(s) in accordance with the table below: [TABLE REMOVED] d. are provided with: <ul style="list-style-type: none"> i. a mirror located above each wash basin; ii. a hook and bench seating within each shower compartment; iii. a socket-outlet located adjacent to each wash basin. <p>Note - Change rooms may be pooled across multiple sites, residential and non-residential activities when within 100 metres of the entrance to the building and within 50 metres of bicycle parking and storage facilities</p>	N/A	

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Access and driveways			
<p>PO8 Driveways, pedestrian entries and internal access ways are located and designed to:</p> <ul style="list-style-type: none"> a. provide lawful access; b. not detract from the creation of active street frontages and positively contribute to the intended streetscape character; c. not negatively impact adjoining uses; d. provide a safe pedestrian environment; e. not result in excessive crossovers and hardstand areas; f. provide safe access onto an appropriate order road; g. not interfere with infrastructure owned by Council or a utility provider; h. allow adequate space for on-street parking; i. allow adequate space for street planting and street trees; j. allow for garbage collection and street infrastructure. <p>Note - Refer to Planning scheme policy - Integrated design for details and examples.</p>	<p>E8.1 Dual occupancies⁽²¹⁾ provide:</p> <ul style="list-style-type: none"> a. a maximum crossover width of 4m or for a shared driveway a maximum crossover width of 5m; b. a maximum of one crossover per street frontage; or where more than 1 crossover per street frontage, they are to be at least 12m apart to allow for on-street parking and street trees. <p>Note - Refer to Planning scheme policy - Integrated design or Planning scheme policy - Residential design for details and examples.</p> <p>Note - Laneway development provides access from the lane only in accordance with laneway development provisions AO27-AO29.</p>	N/A	
	<p>E8.2 Development provides crossovers with:</p> <ul style="list-style-type: none"> a. a maximum width of 5.5m for a shared driveway; or b. a maximum of 1, 3m wide crossover for every 7.5m of primary road frontage. <p>Note - Refer to Planning scheme policy - Integrated design for details and examples.</p> <p>Note - Development on a laneway provides access from the lane only in accordance with laneway development provisions.</p>	Alternate Solution	The Hornibrook Esplanade driveway is 9.5m wide and provides appropriate accessibility. This is not expected to visually dominate the site frontage.
	<p>E8.3 Where more than two driveway crossovers are provided per street frontage, crossovers are paired up and separated by a minimum distance of 6m to facilitate on-street parking and street trees.</p>	Yes	Only one driveway is provided per frontage
	<p>E8.4 Where dwellings have access via a shared driveway the driveway is not to be located within 3m of a side boundary containing a residential use.</p> <p>Note - Refer to Planning scheme policy - Integrated design for details and examples.</p>	Alternate Solution	Complies for Hornibrook Esplanade. Lane Street has a limited frontage and a 3m setback from the site boundary is not possible.
	<p>E8.5 Development provides vehicular crossovers that comply with Planning scheme policy - Integrated design.</p>	Alternate Solution	The Hornibrook Esplanade driveway is 9.5m wide and provides appropriate accessibility. This is not expected to visually dominate the site frontage or compromise the experience for other users

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Supporting Information

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	E8.6 Driveways do not include a reversing bay, manoeuvring area or visitor parking spaces (other than tandem spaces) in the front setback.	Alternate Solution	A commercial car parking bay is provided within the setback. This could be allocated to staff to minimise associated traffic movements within the setback.
PO9 Dwellings are identifiable from the street by way of: a. street numbers; b. for development with internal roads, a site plan of on-site dwellings and facilities is provided at all vehicular entry points to the lot to facilitate the effective operation of emergency services personnel in carrying out their designated duties and to aid in the direction of other visitors around the site.	No example provided.	Yes	Confusion with the site layout is not anticipated.
Waste			
PO21 Bins and bin storage areas are provided, designed and managed so as to: a. be accessible for collection; b. be maintained (including cleaning); c. not have a negative impact on the amenity of the streetscape or adjoining properties. Note - Refer to Planning scheme policy - Waste for storage, design and management methods.	E21 Bins and bin storage areas are provided, designed and managed in accordance with Planning scheme policy - Waste.	Yes	
PO22 Waste storage areas are: a. not located in front of the main building line; or b. are screened and aesthetically treated (e.g. with landscaping) to not dominate the streetscape. Note - Refer to Planning scheme policy - Residential design for details and examples.	No example provided.	Yes	

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State code 1: Development in a state-controlled road environment

Table 1.2.1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Vehicular access to a state-controlled road		
<p>PO15 Vehicular access to a state-controlled road that is a limited access road is consistent with government policy for the management of limited access roads.</p> <p>Note: Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.</p>	<p>AO15.1 Development does not require new or changed access to a limited access road.</p> <p>Note: Limited access roads are declared by the transport chief executive under section 54 of the <i>Transport Infrastructure Act 1994</i> and are identified in the DA mapping system.</p> <p>OR</p>	<p>N/A</p> <p>Hornibrook Esplanade is not a Limited Access Road.</p>
	<p>AO15.2 A new or changed access to a limited access road is consistent with the limited access policy for the state-controlled road.</p> <p>Note: Limited access policies for limited access roads declared under the <i>Transport Infrastructure Act 1994</i> can be obtained by contacting the relevant Department of Transport and Main Roads regional office.</p> <p>AND</p>	<p>N/A</p> <p>Hornibrook Esplanade is not a Limited Access Road.</p>
	<p>AO15.3 Where a new or changed access is for a service centre, access is consistent with the Service centre policy, Department of Transport and Main Roads, 2013 and the Access policy for roadside service centre facilities on limited access roads, Department of Transport and Main Roads, 2013, and the Service centre strategy for the state-controlled road.</p> <p>Note: The Service centre policy, Department of Transport and Main Roads, 2013, Access policy for roadside service centre facilities, Department of Transport and Main Roads, 2013 and the relevant Service centre strategy for a state-controlled road can be accessed by contacting the relevant Department of Transport and Main Roads regional office.</p>	<p>N/A</p> <p>Hornibrook Esplanade is not a Limited Access Road.</p>

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Performance outcomes	Acceptable outcomes	Response
<p>PO16 The location and design of vehicular access to a state-controlled road (including access to a limited access road) does not create a safety hazard for users of a state-controlled road or result in a worsening of operating conditions on a state-controlled road.</p> <p>Note: Where a new or changed access between the premises and a state-controlled road is proposed, the Department of Transport and Main Roads will need to assess the proposal to determine if the vehicular access for the development is safe. An assessment can be made by Department of Transport and Main Roads as part of the development assessment process and a decision under section 62 of <i>Transport Infrastructure Act 1994</i> issued.</p> <p>Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.</p>	<p>AO16.1 Vehicular access is provided from a local road.</p>	<p>Alternate Solution</p> <p>Due to the restricted width in Lane Street, access is required to Hornibrook Esplanade. The access to Hornibrook Esplanade is appropriately designed and has appropriate sight lines. As per Conditions, this access will be restricted to left turns only.</p>
	<p>OR all of the following acceptable outcomes apply:</p> <p>AO16.2 Vehicular access for the development is consistent with the function and design of the state-controlled road.</p> <p>AND</p>	<p>Alternate Solution</p> <p>See above.</p>
	<p>AO16.3 Development does not require new or changed access between the premises and the state-controlled road.</p> <p>Note: A decision under section 62 of the <i>Transport Infrastructure Act 1994</i> outlines the approved conditions for use of an existing vehicular access to a state-controlled road. Current section 62 decisions can be obtained from the relevant Department of Transport and Main Roads regional office.</p> <p>AND</p>	<p>Alternate Solution</p> <p>See above.</p>
	<p>AO16.4 Use of any existing vehicular access to the development is consistent with a decision under section 62 of the <i>Transport Infrastructure Act 1994</i>.</p> <p>Note: The development which is the subject of the application must be of an equivalent use and intensity for which the section 62 approval was issued and the section 62 approval must have been granted no more than 5 years prior to the lodgement of the application.</p> <p>AND</p>	<p>N/A</p>
	<p>AO16.5 On-site vehicle circulation is designed to give priority to entering vehicles at all times so vehicles do not queue in a road intersection or on the state-controlled road.</p>	<p>Alternate Solution</p> <p>The site has a low traffic generating potential, with left turns only. This level of traffic is not expected to create queuing impacts on the external road network as a result of car park positioning.</p> <p>Moreover, it is possible to pass a service vehicle whilst it is loading within the driveway.</p>

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Performance outcomes	Acceptable outcomes	Response
Public passenger transport infrastructure on state-controlled roads		
<p>PO18 Development does not damage or interfere with public passenger transport infrastructure, public passenger services or pedestrian or cycle access to public passenger transport infrastructure and public passenger services.</p> <p>Note: Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.</p>	<p>AO18.1 Vehicular access and associated road access works are not located within 5 metres of existing public passenger transport infrastructure. AND</p>	Complies with AO
	<p>AO18.2 Development does not necessitate the relocation of existing public passenger transport infrastructure. AND</p>	Complies with AO
	<p>AO18.3 On-site vehicle circulation is designed to give priority to entering vehicles at all times so vehicles using a vehicular access do not obstruct public passenger transport infrastructure and public passenger services or obstruct pedestrian or cycle access to public passenger transport infrastructure and public passenger services. AND</p>	<p>Alternate Solution</p> <p>The site has a low traffic generating potential, with up to 28 vehicles entering the site in the road network peak hour. This level of traffic is not expected to create queuing impacts on the external road network as a result of car park positioning. Moreover, it is possible to pass a service vehicle whilst it is loading within the driveway.</p>
	<p>AO18.4 The normal operation of public passenger transport infrastructure or public passenger services is not interrupted during construction of the development.</p>	Complies with AO
Planned upgrades		
<p>PO19 Development does not impede delivery of planned upgrades of state-controlled roads.</p>	<p>AO19.1 Development is not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road. Note: Land required for the planned upgrade of a state-controlled road is identified in the DA mapping system. OR</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>
	<p>AO19.2 Development is sited and designed so that permanent buildings, structures, infrastructure, services or utilities are not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road.</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>

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Performance outcomes	Acceptable outcomes	Response
	<p>OR all of the following acceptable outcomes apply:</p> <p>AO19.3 Structures and infrastructure located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road are able to be readily relocated or removed without materially affecting the viability or functionality of the development.</p> <p>AND</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>
	<p>AO19.4 Vehicular access for the development is consistent with the function and design of the planned upgrade of the state-controlled road.</p> <p>AND</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>
	<p>AO19.5 Development does not involve filling and excavation of, or material changes to, land required for a planned upgrade to a state-controlled road.</p> <p>AND</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>
	<p>AO19.6 Land is able to be reinstated to the pre-development condition at the completion of the use.</p>	<p>Complies with AO</p> <p>The site is not shown as being impacted by Planned Upgrades.</p>
Network impacts		
<p>PO20 Development does not result in a worsening of operating conditions on the state-controlled road network.</p> <p><small>Note: To demonstrate compliance with this performance outcome, it is recommended that an RPEQ certified traffic impact assessment is provided. Please refer to the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.</small></p>	<p>No acceptable outcome is prescribed.</p>	<p>Alternate Solution</p> <p>The site has a low traffic generating potential, with up to 28 vehicles entering the site in the road network peak hour. This traffic is restricted to left turns only.</p>
<p>PO21 Development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network.</p>	<p>AO21.1 The layout and design of the development directs traffic generated by the development to the local road network.</p>	<p>Alternate Solution</p> <p>Due to the restricted width for access in Lane Street, access is required to Hornibrook Esplanade. The access to Hornibrook Esplanade is appropriately designed, restricted to left turns and has appropriate sight lines.</p>

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Performance outcomes	Acceptable outcomes	Response
<p>PO22 Upgrade works on, or associated with, a state-controlled road are built in accordance with Queensland road design standards.</p>	<p>AO22.1 Upgrade works required as a result of the development are designed and constructed in accordance with the <i>Road Planning and Design Manual</i>, 2nd edition, Department of Transport and Main Roads, 2016.</p> <p>Note: Road works in a state-controlled road require approval under section 33 of the <i>Transport Infrastructure Act 1994</i> before the works commence.</p>	<p>N/A</p>

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Appendix C

Swept Path Assessments

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(07) 3398 4649
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12.5m Heavy Rigid Vehicle
Australian Standard AS/NZS2890.2-2002

Scale 1:400 at A4

92 - 96 Hornibrook Espl, Clontarf

Drawing No: BMC18146-ATR07 Version: 1

Prepared By: Beth Meehan RPEQ #8373 Date: 20/11/18

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Residential - Multistorey | Hornibrook Esplanade | Clontarf

Stormwater Management Plan

Date 20 Dec 2018

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REPORT CONTROL SHEET

RMA ref. no:	13809
Project name:	Residential - Multistorey Hornibrook Esplanade Clontarf
Report title:	Stormwater Management Plan
Report author:	Caleb Schipplock

Document control						
Revision	Author	Reviewer	Approved for issue			
			Name	RPEQ no.	Signature	Date
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0	Caleb Schipplock	Joshua Goodall	Joshua Goodall	18370		20/12/18

Disclaimer:

This report is a professional opinion based on the information available at the time of writing. It is not intended as a quote, guarantee or warranty and does not cover any latent defects.

This report will comment on the Civil infrastructure to the project and may outline probable costs but the extent of the commission of RMA does not extend to detailed cost feasibility, as such the costs should not be relied on for financing arrangements.

The conclusions in this report should not be read in isolation. We recommend that its contents be reviewed in person with the author so that the assumptions and available information can be discussed in detail to enable the reader to make their own risk assessment in conjunction with information from other sources.

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Supporting Information

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1. Introduction

1.1 General

RMA Engineers Pty Ltd has been commissioned by Hastone Australia Pty Ltd to prepare a Stormwater Management Plan and Overland Flow Study to support a development application for material change of use over the following land:

- Lot 1 on RP97183
- Lot 2 on RP84520
- Lot 3 & 4 on RP51637

The following items will be addressed in this report:

- a) Management of post-development stormwater discharge rates including:
 - a. Calculation of existing peak discharge rates for all standard Annual Exceedance Probabilities (AEP's) up to and including 1%
 - b. Overland flow modelling to assess changes resulting from the development
- b) State Planning Policy (SPP) water quality objectives
- c) Overland flow assessment

This report is client/site specific for the intended project only and is solely for the use of providing engineering advice on the above issues for consideration by the client and Moreton Bay Regional Council (Council). It should be noted that this report has been compiled based on information current at the time of the report printing and the recommendations supplied within this report are based solely on the above.

1.2 Basis of report

This report has been compiled based on:

- Discussions between RMA and the Architect
- Discussions between RMA and Council
- Survey prepared by Saunders Havill Group Pty Ltd
- LiDAR data
- Stormwater as constructed drainage details provided by Council (**Appendix E**)
- Australian Rainfall and Runoff (AR&R), 1987
- A detailed site inspection undertaken by RMA Engineers Pty Ltd
- Queensland Urban Drainage Manual (QUDM), Volume 1, Fourth Edition 2016
- Software:
 - › TUFLOW Version 2018.03.AC iSP (HPC)
 - › DRAINS Version 2018.09 (64 bit) – 30 November 2018

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2. Site characteristics

2.1 Location and description

The site is located at 92-94 Hornibrook Esplanade, Clontarf, QLD 4019 on land described as Lot 1 on RP97183, Lot 2 on RP84520, Lot 3 on RP51637 and Lot 4 on RP51637. An aerial image of the site is shown below in **Figure 1**.

The site is located between Hornibrook Esplanade and Lane Street and zoned within the General Residential Zone under the MBRC Planning Scheme. In addition, the site is included in the Urban Neighbourhood Precinct.

This site comprises a total area of approximately 2,486m².

Adjoining land to the east and west of the site, along Hornibrook Esplanade, currently comprises existing residential properties and newly developed general residential type allotments of similar size to the proposed development site.



Figure 1: Site Locality Plan

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2.2 Existing development

There is an existing residential building on Lot 4 on RP51637. The remaining allotments are vacant. Refer to **Figure 2** below for the current site.



Figure 2: Current Site (2018)

Mapping from 1981 indicates that residential buildings previously existed on the site, refer to **Figure 3**.

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Figure 3: Site (1981)

2.3 Topography

Site contours derived from Saunders Havill Group are shown on the Survey Plan provided in **Appendix A**. Key features of the survey are highlighted in **Figure 4** below.

The key features of the site’s topography are:

- There is a ridgeline across the front of the site. The levels on site along the ridgeline vary from RL 3.89 to RL 4.12.
- The frontage to Hornibrook Esplanade varies from RL 3.72 (West) to RL 3.36 (East).
- The rear of the site is generally lower than the front, with a low point RL 2.87 along the rear boundary (Local undrained sag).
- A small portion of the site falls from the ridgeline towards Hornibrook Esplanade. Most of the site fall towards the rear boundary, and then into Lane St.
- There is a sag in Lane St near the site. The lowest two pits are SL 2.87 as highlighted.

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- A18270067 (Cont)

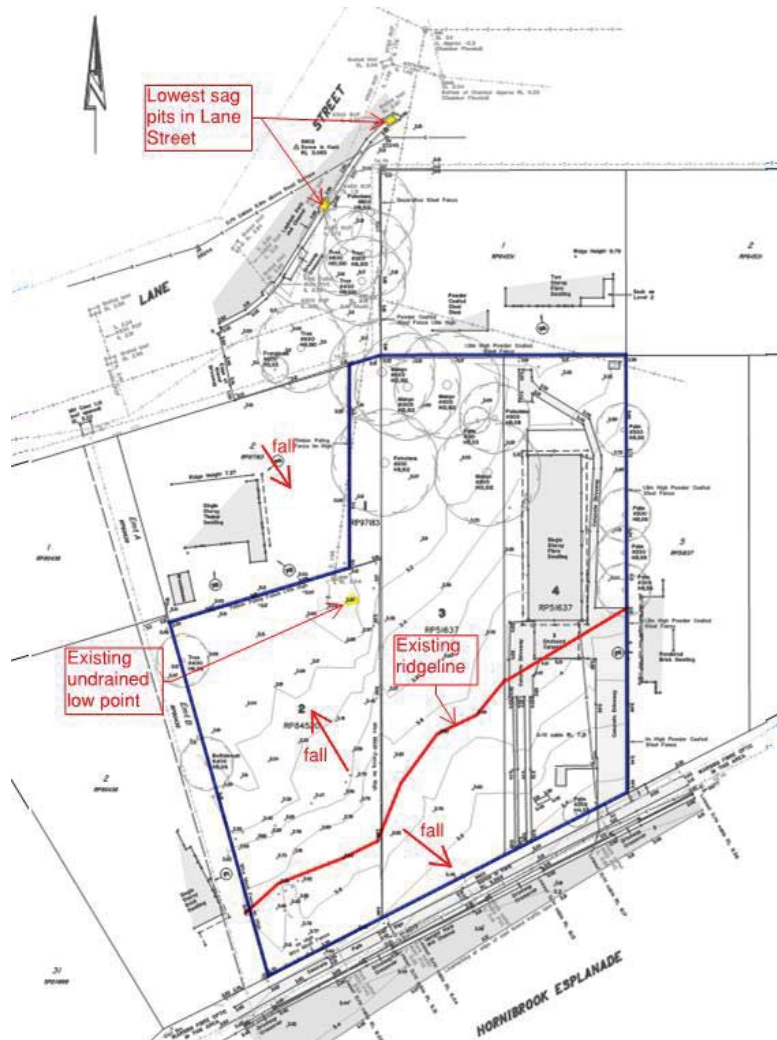


Figure 4: Site Topography Features

Lidar was obtained for the local area, as shown in **Figure 5** below.

The key features of the Lidar local topography are:

- The ridgeline appears to extend locally beyond the site to the east and west.
- The lowest crest level in the ridgeline appears at the corner of Lane Street and Young Street. The level is approximately RL 3.45. Further to the west, a higher crest exists at the intersection of Lane Street and Roland Street.
- The lowest overtopping crest level in the immediate area however appears to be located through residential properties to the north, in the order of RL 3.23.

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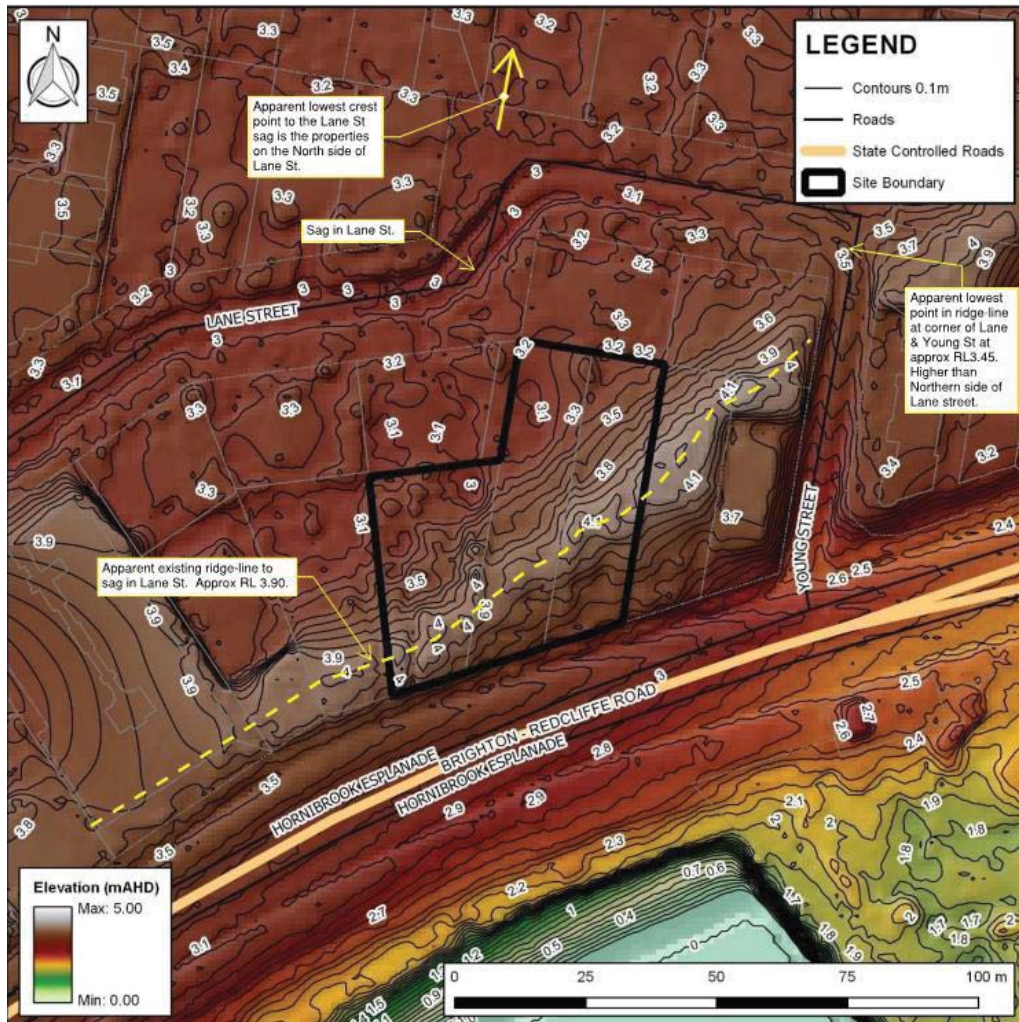


Figure 5: Local Topography Features

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2.4 Flooding and Overland Flow

A review of MBRC information has been undertaken, which has been summarised in the following sections.

2.4.1 Flood Check Property Report

A Flood Check Property Report has also been generated for the subject sites and can be found in **Appendix D**.

The report can be summarised as:

- o Flood - The site is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP flood events
- o Overland Flow - Parts of the property are within or adjacent to Council’s known Overland Flow mapping extents.
- o Tidal Inundation - The property is above the estimated level of Highest Astronomical Tide (HAT).
- o Storm Tide - This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP storm tide events.

2.4.2 MBRC Flood Hazard Overlay Map.

The flood overlay does show the site included in the balance flood planning area, representing low or negligible risk.

Refer to **Figure 6** below taken from MBRC overlay map for flood hazard.

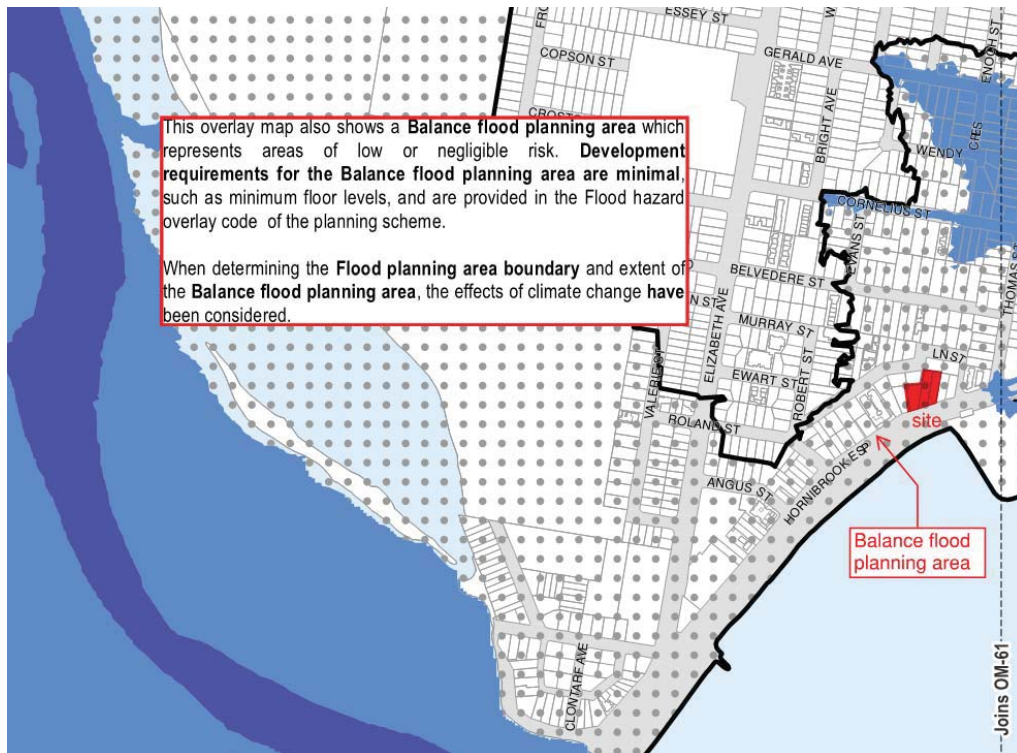


Figure 6: MBRC Flood Hazard Overlay Map

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2.4.3 MBRC Coastal Hazard Overlay Map (Storm Tide Inundation).

The site is subject to Coastal Hazard (storm tide inundation).

The site is in the balance coastal planning area, also representing low or negligible risk to coastal hazards.

Refer **Figure 7** below taken from MBRC overlay map for coastal hazard.

The Prelodgement meeting minutes provided by MBRC has provided a Defined Flood Level Event of 3.10m AHD. The minutes also state the development must achieve a Flood Planning Level of 3.4m AHD (including 300mm freeboard).

Council has confirmed that source for the Defined Flood Level Event is storm tide inundation.

The Flood Planning Level of 3.4m AHD is a minimum level only. Further investigation of Overland Flow may determine that a higher level needs to be adopted.

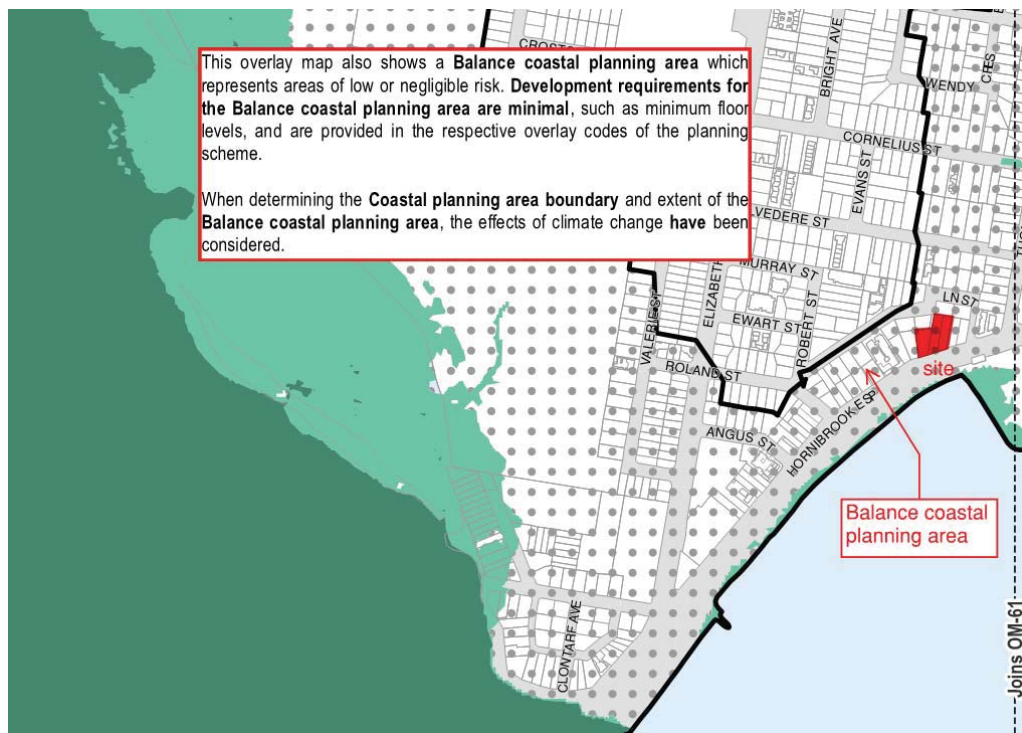


Figure 7: MBRC Coastal Hazard Overlay Map

The site is not flagged as being in the coastal hazard erosion prone area.

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2.4.4 MBRC Overland Flow Overlay Map.

The site contains an existing overland flow path.

Refer to **Figure 8** below taken from Council overlay map for overland flow.

Key features of the mapped overland flow extent include:

- Ponding in Lane Street.
- From Lane Street, it appears to extend through 26 Lane Street to encroach on the rear of the site.
- From the site and 26 Lane Street, it appears to extend to some neighbouring properties to the West.

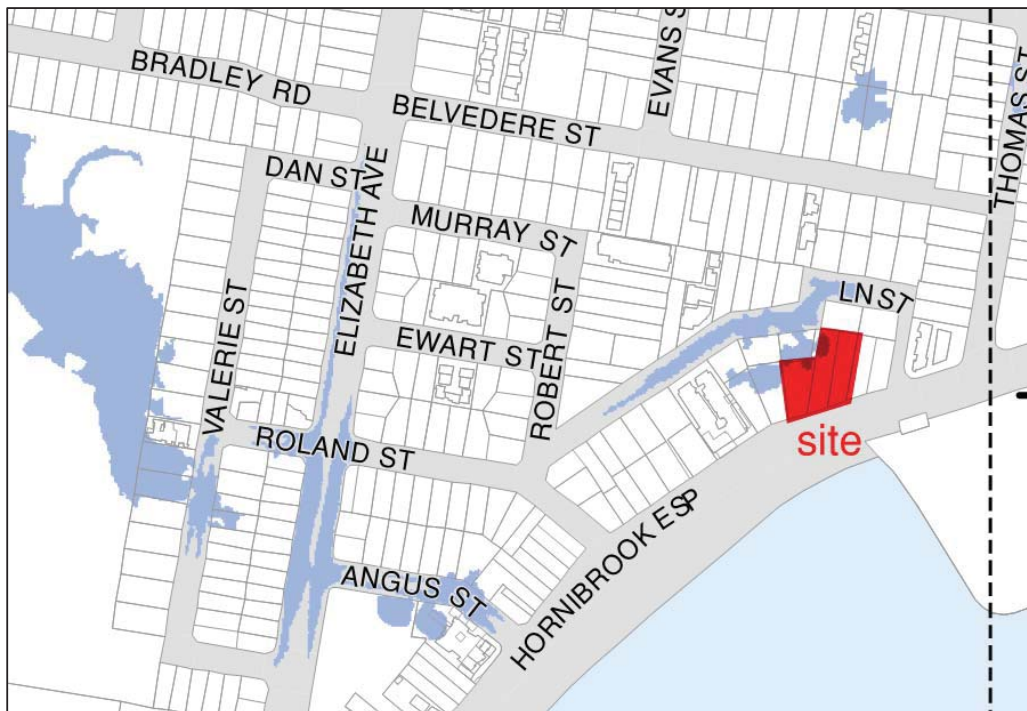


Figure 8: MBRC Overland Flow Overlay Map

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The extent of overland flow path coincides with a sag in Lane Street, which is located close to the rear of the site.

There are a number of pits in the Lane Street sag, which appear to discharge into two interconnected stormwater systems. The existing systems are shown in **Figure 9** below, taken from MBRC GIS information.

From the sag in Lane Street, the two interconnected systems drain away via different alignments being:

- o A Ø1650 pipe heads east along Lane Street, extending down Young Street to Hornibrook Esplanade.
- o A Ø900 pipe extends from Lane Street to Hornibrook Esplanade through a drainage easement (contained in the property directly to the west of the development site).

It appears the two pipe systems converge downstream on the southern side of Hornibrook Esplanade, before discharging to the ocean.

The detailed site survey notes that the chambers in Lane Street and Hornibrook Esplanade were flooded, likely due to the system being subject to tidal effects.

No council stormwater infrastructure appears to be located within the development site.



Figure 9: Existing Stormwater Infrastructure

From review of Lidar information, it appears the sag in Lane Street is trapped by a ridgeline that typically extends adjacent to Hornibrook Esplanade. Refer to **Figure 5** above.

In the event of blockage or insufficient capacity of the downstream system, it is assumed that the

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sag would pond until flows eventually overtop the lowest crest level.

Based on the Lidar information, it appears the lowest crest point would be the properties to the north (approximately 3.23 AHD). This will need to be verified with confirmation from council. After overtopping this point, flows would travel further north to land located in and around Cornelius Street, which is contained within council's flood hazard area. The flood hazard mapping shows flows from Cornelius Street likely then travel down Laura Street to Hornibrook Esplanade.

The Prelodgement meeting minutes requested that Overland Flow is addressed in a site-based stormwater management plan, specifically:

- Details of all overland flow stormwater coming to the site, flowing through and leaving the site.
- Demonstrate to Council that receiving infrastructure has sufficient capacity to convey the increase peak flows.

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3. Proposed development

3.1 General

The proposed development is for a residential multistorey building comprising of 93 units, a commercial space on the ground floor and 108 car parks as shown on the proposed development plan provided in **Appendix B**.

The proposed stormwater configuration for the site is generally shown in the figure below. The entire localised internal stormwater network has not been modelled and will be completed during detailed design of the site.

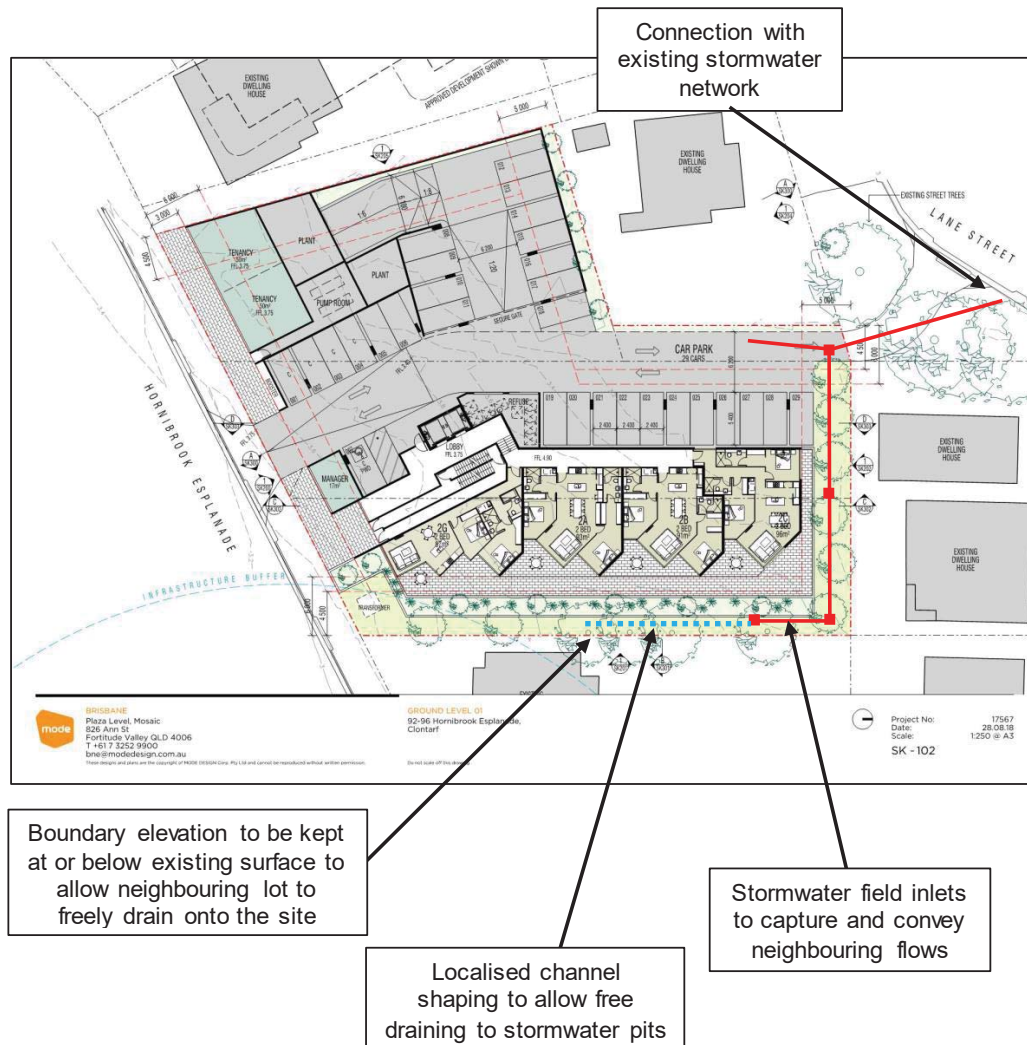


Figure 10: Proposed stormwater configuration

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4. Hydrologic approach

4.1.1 Rainfall

The average centroid of the contributing catchment’s latitude and longitude where used as inputs to the Australian Bureau of Meteorology website to extract the Intensity Frequency Duration (IFD) Table which was used within the TUFLOW model.

The Design Rainfall Data System (2016) was used to extract IFD tables for the very frequent to infrequent rainfall events.

The two adopted IFD tables are provided in **Figure 11** and **Figure 12**.

Duration	Exceedance per Year (EY)							
	12EY	6EY	4EY	3EY	2EY	1EY	0.5EY#	0.2EY*
1 min	1.16	1.35	1.66	1.89	2.20	2.77	3.46	4.29
2 min	2.11	2.41	2.91	3.27	3.79	4.72	5.89	7.35
3 min	2.93	3.35	4.07	4.58	5.32	6.60	8.26	10.3
4 min	3.64	4.19	5.12	5.78	6.72	8.35	10.4	13.0
5 min	4.28	4.94	6.07	6.87	7.99	9.94	12.4	15.4
10 min	6.63	7.75	9.67	11.0	12.9	16.2	20.2	25.1
15 min	8.22	9.65	12.1	13.9	16.4	20.6	25.7	31.9
20 min	9.40	11.1	14.0	16.0	19.0	24.0	29.9	37.1
25 min	10.3	12.2	15.4	17.7	21.0	26.7	33.3	41.3
30 min	11.1	13.1	16.6	19.2	22.7	28.9	36.1	44.8
45 min	12.8	15.2	19.3	22.3	26.5	34.0	42.5	52.9
1 hour	14.1	16.7	21.2	24.5	29.3	37.7	47.2	58.9
1.5 hour	15.9	18.8	24.0	27.8	33.3	43.2	54.1	67.9
2 hour	17.2	20.4	26.0	30.2	36.2	47.3	59.3	74.8
3 hour	19.2	22.7	29.1	33.8	40.8	53.5	67.3	85.6
4.5 hour	21.4	25.4	32.6	38.0	45.9	60.6	76.6	98.3
6 hour	23.2	27.5	35.4	41.3	50.1	66.4	84.1	109

Figure 11: IFD Very Frequent Depths Table (Australia Bureau of Meteorology)

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Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	2.77	3.12	4.20	4.94	5.65	6.59	7.31
2 min	4.72	5.31	7.20	8.52	9.82	11.6	13.1
3 min	6.60	7.44	10.1	11.9	13.7	16.2	18.1
4 min	8.35	9.40	12.7	15.0	17.2	20.2	22.6
5 min	9.94	11.2	15.1	17.8	20.4	23.9	26.6
10 min	16.2	18.2	24.6	28.8	32.9	38.2	42.3
15 min	20.6	23.2	31.2	36.6	41.8	48.6	53.6
20 min	24.0	27.0	36.3	42.6	48.7	56.6	62.6
25 min	26.7	30.0	40.5	47.5	54.3	63.3	70.1
30 min	28.9	32.6	43.9	51.6	59.1	69.0	76.6
45 min	34.0	38.3	51.9	61.1	70.3	82.5	91.9
1 hour	37.7	42.5	57.8	68.3	78.7	92.8	104
1.5 hour	43.2	48.7	66.6	79.0	91.5	109	122
2 hour	47.3	53.4	73.3	87.4	102	121	136
3 hour	53.5	60.6	83.9	101	117	141	159
4.5 hour	60.6	69.0	96.4	116	136	164	186
6 hour	66.4	75.8	107	129	152	183	208

Figure 12: IFD Infrequent Depths Table (Australia Bureau of Meteorology)

4.1.2 Temporal Patterns

Discussions with Council confirmed adopting the temporal patterns from AR&R 1987 would be sufficient for the analysis of the development. The temporal patterns adopted within the hydraulic models were taken from Table 3.2 of AR&R (1987) Volume 2. The site is situated in Zone 3 (North East Coast Division) of Figure 13.



Figure 13: Temporal pattern zones (AR&R 1987 – Volume 2)

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4.1.3 Rainfall losses

Storm losses and median preburst rainfall depths were extracted from the AR&R Data Hub to determine the rainfall initial loss and continuing loss parameters adopted within the model. The latitude and longitude inputs used within the AR&R Data Hub are shown in **Figure 14**.

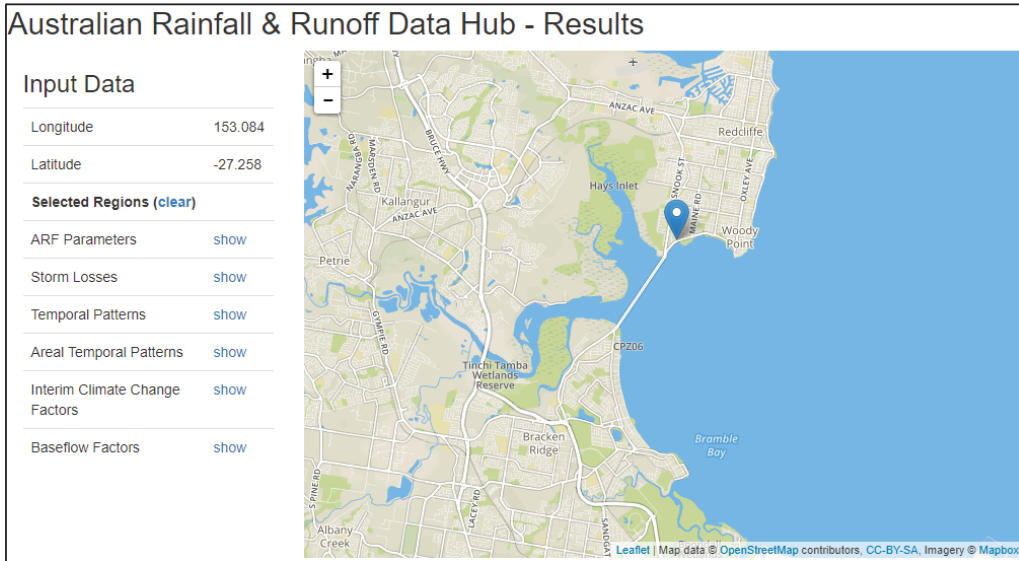


Figure 14: AR&R Data Hub Inputs

The storm losses from the AR&R datahub are shown in **Figure 15** and the median preburst rainfall depths for the 60 minute event are shown in **Figure 16**.

Storm Initial Losses (mm)	20.0
Storm Continuing Losses (mm/h)	2.4

Figure 15: AR&R Data Hub Storm Losses

Median Preburst Depths and Ratios						
Values are of the format depth (ratio) with depth in mm						
min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	3.8 (0.089)	6.5 (0.113)	9.1 (0.134)	11.6 (0.148)	10.2 (0.110)	12.1 (0.117)

Figure 16: AR&R Data Hub Preburst Depths

The rainfall initial loss and continuing loss values were applied to the pervious materials layers within the hydraulic models. A conservative approach was taken, adopting an initial loss value of 5.0mm within the hydraulic models, compared to 7.9mm (Storm Initial Loss – Preburst Depth). A continuing loss value of 2.5mm/hr was also adopted.

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5. Hydraulic model DRAINS

5.1 General

DRAINS program developed by Watercom Pty Ltd has been selected for the hydrologic analysis of the site using an initial loss and continuing loss model. A two-dimensional (2D) hydraulic model has been selected to assess the hydraulic conveyance of the local overland flow path and external stormwater infrastructure for the pre-developed and post-developed scenarios.

5.2 DRAINS model input parameters

The parameters defined within the DRAINS model are described in this section. Hydrological parameters adopted within the DRAINS model are described in **Section 4**. An initial loss continuing loss (IL-CL) hydrological model was used within DRAINS to compare the pre-developed and post-developed peak discharge rates from the site.

5.3 Catchment details

Fraction impervious values have been selected in accordance with Table 5.4.1 of QUDM 2016. Times of concentration have been estimated using the methodology outlined in Section 4.6.3 of QUDM 2016.

Three scenarios were assessed in DRAINS for the site which include the following:

- Pre-developed site of year 1981
- Pre-developed site of year 2018
- Post-developed site

Table 1 summarises the catchment parameters used within the DRAINS model.

Table 1: Catchment details

Description	Time of Concentration (mins)	Catchment Area (ha)	Impervious (%)
Pre-developed (1981)	5	0.2486	33.3
Pre-developed (2018)	5	0.2486	10.0
Post-developed	5	0.2486	85.0

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5.4 DRAINS results

A comparison of peak discharge rates from the site are provided in **Table 2**.

Table 2: DRAINS modelling IL-CL peak discharges (m³/s)

Rainfall Event	Pre-developed (1981)	Pre-developed (2018)	Post-developed
0.5 EY	0.107	0.106	0.107
0.2 EY	0.132	0.132	0.133
10% AEP	0.152	0.152	0.153
5% AEP	0.174	0.174	0.175
2% AEP	0.187	0.187	0.192
1% AEP	0.208	0.208	0.214

A slight increase in runoff is observed between the pre-developed and post-developed scenarios.

As a secondary check, the hydrologic model was changed to the Extended Rational Method (ERM). The following table compares the peak discharge rates calculated within the ERM model.

Both hydrologic model, ERM and IL+CL, indicate a slight increase in the post-development peak flow rates.

Table 3: Extended Rational Method comparison

Rainfall Event	Pre-developed (1981)	Pre-developed (2018)	Post-developed
0.5 EY	0.065	0.060	0.076
0.2 EY	0.090	0.083	0.105
10% AEP	0.109	0.101	0.128
5% AEP	0.131	0.122	0.154
2% AEP	0.169	0.156	0.197
1% AEP	0.196	0.181	0.220

5.5 Is detention desirable?

Developments generally increase impervious surfaces when compared to existing conditions. With the addition of impervious surfaces, peak flow rates generated from within a development are increased. To mitigate the increase in post-developed peaked flow rates, detention systems are generally incorporated into the developments. Detention systems generally throttle post-developed peak flow rates to less than or equal to the pre-developed peak flow rates.

Development sites located within close proximity to waterways have an issue where blindly adopting on-site detention may in fact create an actionable nuisance to neighbouring downstream properties. On-site detention manipulates the off-site runoff discharge hydrograph such that peak flow rates are reduced to pre-developed levels, however the time for flows to leave the site are delayed and extended.

Where a site is located close to a catchment outlet, as is the case for this site, off-site peaks delayed by a detention system may coincide with peaks from the upstream catchment, resulting in overall worsening of peak flow rates on surrounding properties.

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For that reason, locating detention systems close to a catchment outlet is generally considered undesirable.

Sites discharging to a neighbouring waterbody at the bottom of a catchment are often best left undetained.

In our opinion, a detention system should not be adopted for stormwater management within the development given the proximity of the Moreton Bay shorefront to the site and the relatively small scale of the development.

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6. Overland flow hydraulic modelling

6.1 General

It was difficult to determine the catchment boundaries and to effectively model the shallow overland flow path within the site topography with a traditional one dimensional hydraulic model. It was indicated through discussions with Council the most effective method to model the mapped overland flow path was by using a two dimensional hydraulic model (TUFLOW).

A Rain on Grid (RoG) hydraulic model was selected as the most suitable model type to represent the complex topography, intricate split system stormwater network and characteristics of the surrounding urban environment the site is situated in.

One metre LiDAR was used as the topographical model for the TUFLOW model. A one metre cell size resolution was adopted for the pre-developed and post-developed TUFLOW models.

6.2 Tailwater conditions

The Year 2100 Highest Astronomical Tide (HAT2100) has been adopted as the downstream boundary tailwater condition for both the pre-developed and post-developed TUFLOW modelling scenarios.

The HAT2100 was estimated using the Queensland Tide Tables Standard Port Tide Times (2018) from Maritime Safety Queensland. The following table outlines the details used to estimate the HAT2100 from the Semidiurnal Tidal Planes – 2018 tables.

Table 4: Semidiurnal Tidal Planes extract (Queensland Tide Tables Standard Port Tide Times)

Place	Latitude (South)	Longitude (East)	Mean Sea Level (m)	HAT (m)
Redcliffe	27 14	153 07	1.11	2.62

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Guide to Semidiurnal Tidal Planes

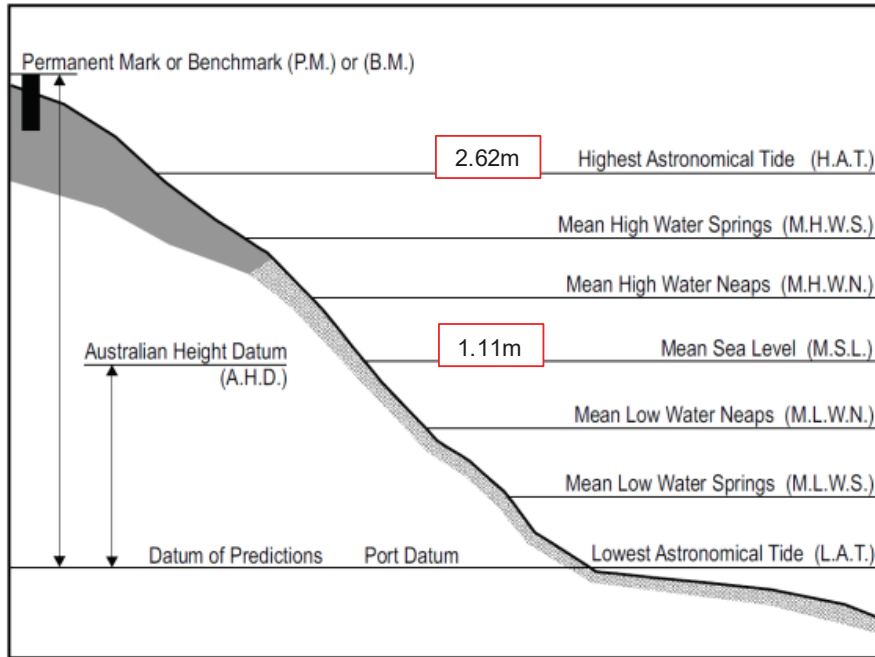


Figure 17: Guide to tidal planes extract (Queensland Tide Tables Standard Port Tide Times)

Based on the Climate Futures Tool from Climate Change in Australia mean sea levels are expected to rise by an additional 0.8m. Refer to Table 5 for the MSL, HAT and HAT2100 converted to the Australian Height Datum (AHD) and for the adopted TUFLOW tailwater condition.

Table 5: HAT AHD conversion

Place	Mean Sea Level (mAHD)	HAT (mAHD)	HAT2100 (mAHD)	TUFLOW Tailwater Level (mAHD)
Redcliffe	0.00	1.51	2.31	2.31

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6.3 Study area

The hydraulic study area is generally shown in **Figure 18**. The topography of the study area is complex with the land form falling in various directions as indicated in **Figure 18** by the yellow arrows.

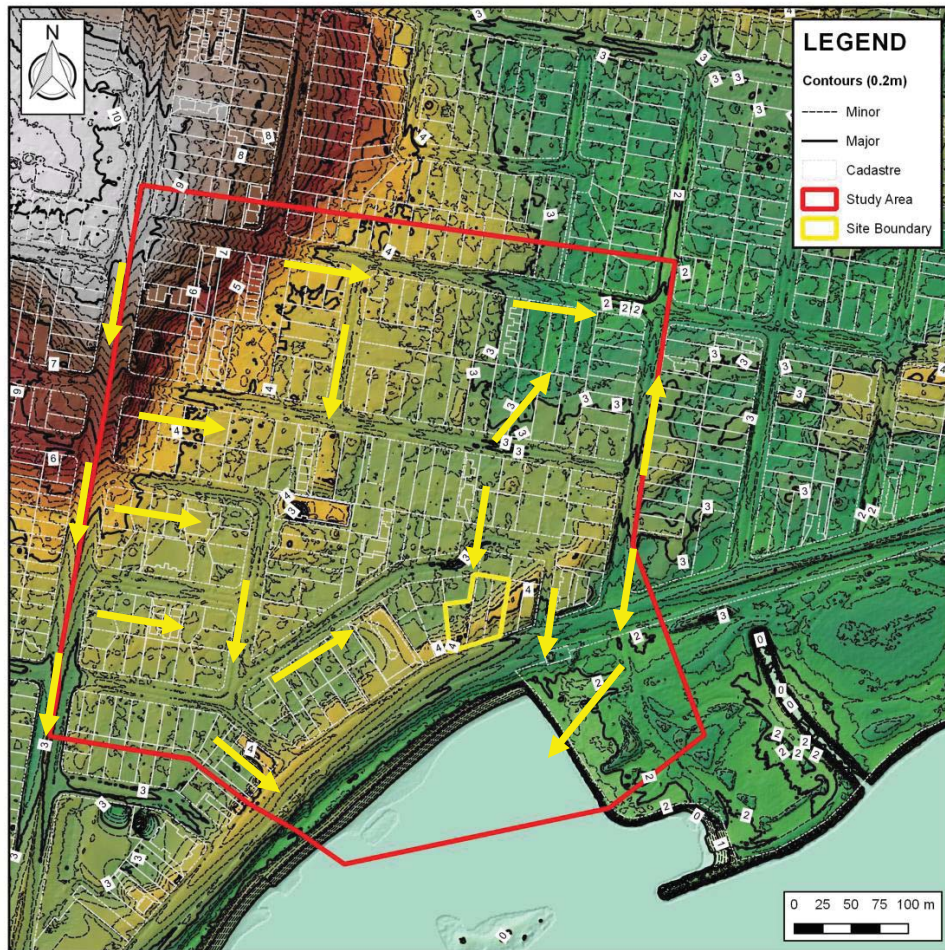


Figure 18: Hydraulic study area

6.4 Pre-developed model setup

6.4.1 Pre-developed TUFLOW boundary

The study area is predominantly developed with a few vacant land parcels upstream of the site (refer **Figure 19**). A large recreational park is located 40m south west (downstream) of the site and contains a large car park and information centre.

The site is located towards the downstream end of the study area with the Moreton Bay shorefront 40m south of the site.

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Figure 19: Pre-developed TUFLOW boundary and stormwater network

The existing stormwater network is generally shown in **Figure 19** and has been modelled in TUFLOW from As Constructed Drawings provided by Council. A site inspection also confirmed stormwater pit inlet types and the general network configuration where possible.

A TUFLOW rainfall polygon was applied to the entire study area with the rainfall values and temporal patterns described in **Section 4**.

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6.4.2 Pre-developed materials layer

The TUFLOW model consisted of five general materials types which are shown in **Figure 20** and should be read in conjunction with **Table 6**. A global manning's 'n' value of 0.035 was used within the areas not defined in **Figure 20**.

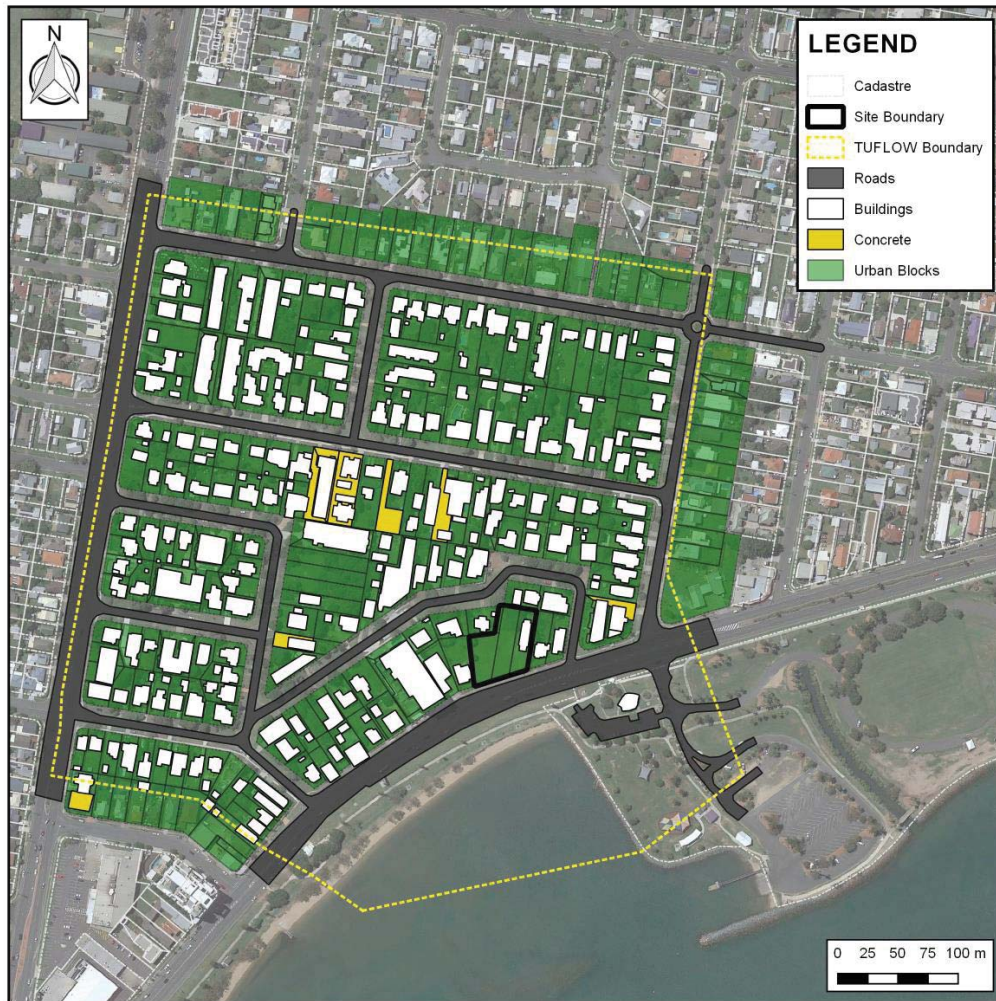


Figure 20: Pre-developed TUFLOW materials plan

A depth varied manning value was applied within the TUFLOW model to buildings to represent the effects of a faster runoff during low depths (ie for the roof) and slower runoff for larger depths (ie when a building is located on an overland flow path). The manning n values and rainfall loss values are shown in **Table 6**.

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Table 6: TUFLOW materials layer details

Description	Mannings 'n'	Initial Loss (mm)	Continuing Loss (mm/hr)
Concrete	0.013	0	0
Roads	0.022	0	0
Maintained Grass/Verge (Global)	0.035	5	2.5
Urban Areas	0.050	5	2.5
Buildings (depth varied mannings)	0.020 @ depth 0.03m 0.300 @ depth 0.10m	0	0

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6.5 Post-developed model setup

The post-developed TUFLOW model was virtually identical to the pre-developed TUFLOW model areas external to the site with exception to the proposed stormwater network and connection described in **Section 6.5.3**.

6.5.1 Post-developed TUFLOW boundary

The post-developed TUFLOW model boundary had the same extent as the pre-developed model with a difference being the boundary within the site. The proposed roofed and building pad areas of the site were switched off within the TUFLOW model (refer Internal TUFLOW boundary **Figure 21**) and were added as a direct inflow hydrograph into the proposed internal stormwater network. The TUFLOW boundaries are generally shown in **Figure 21** and the site inflow hydrographs are further discussed in **Section 6.5.4**.



Figure 21: Post-developed TUFLOW boundary

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6.5.2 Post-developed materials layer

The post-developed roughness plans are generally the same for the pre-developed and post-developed TUFLOW models with some changes made to areas within the site. The materials plan for the post-developed model can be seen in **Figure 22**.

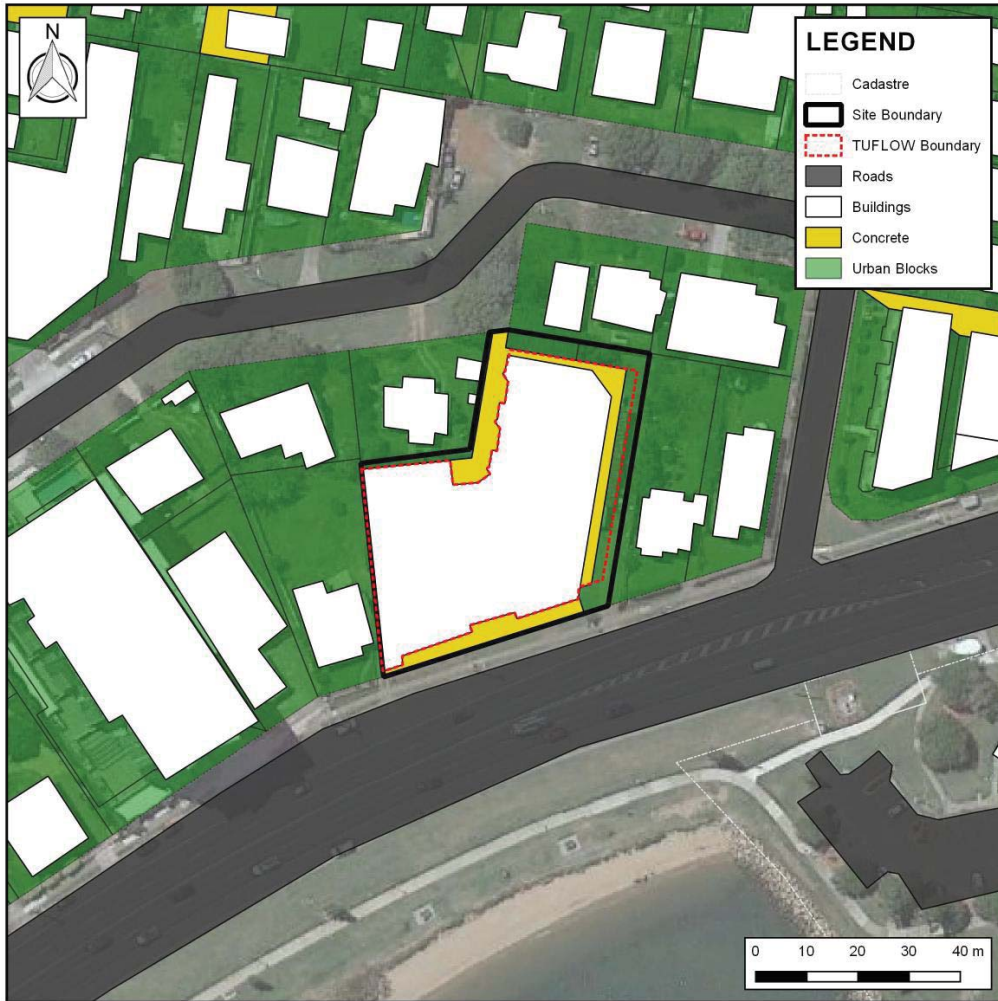


Figure 22: Post-developed TUFLOW materials plan

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6.5.3 Post-developed stormwater network

The post-developed stormwater network includes the addition of stormwater infrastructure internal to the site.

The existing and proposed post-developed stormwater infrastructure is generally shown in **Figure 23**.

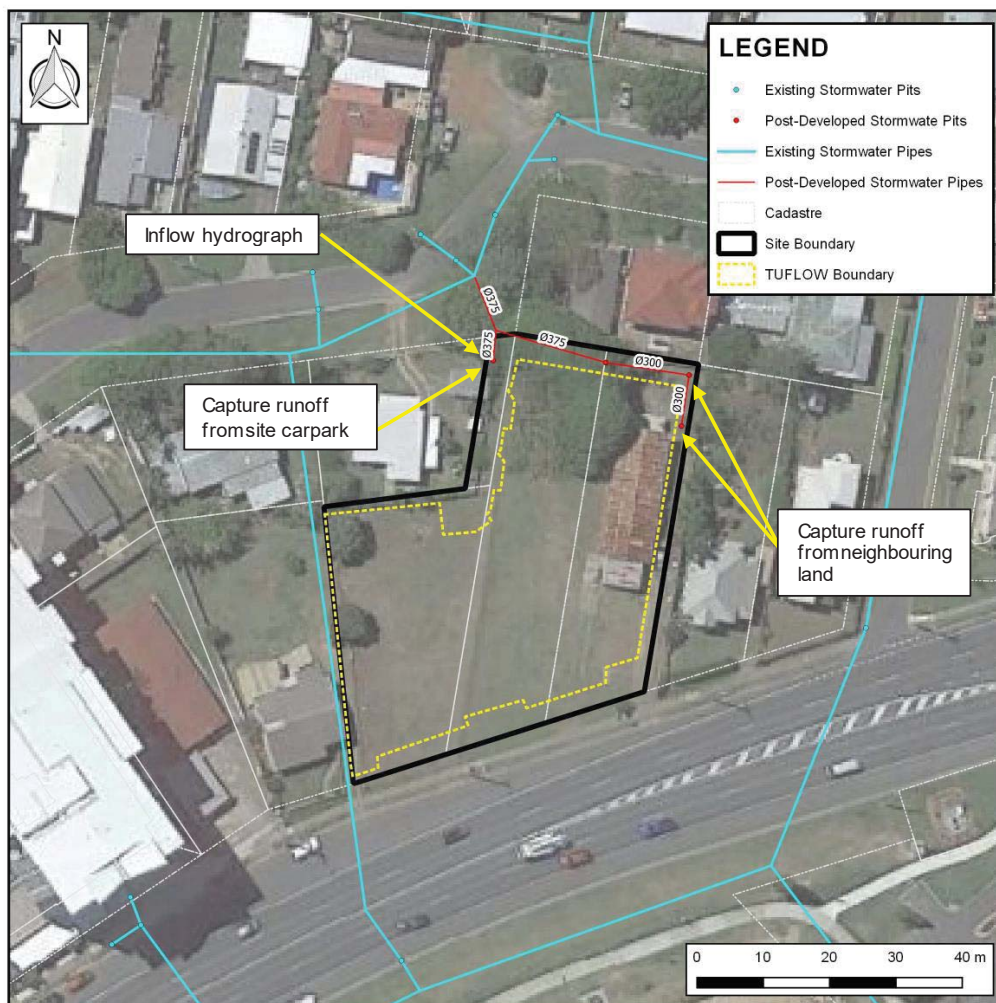


Figure 23: Post-developed stormwater network

Hydrographs were created using DRAINS software for the roofed and built up areas within the site. Inflow hydrographs were applied directly to the internal stormwater network as shown in **Figure 23** and details on the inflow hydrographs are further discussed in **Section 6.5.4**.

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6.5.4 DRAINS modelling hydrographs

Inflow hydrographs were developed using the DRAINS software for the internal site TUFLOW boundary described in **Section 6.5.1**. The hydrologic model parameters adopted within the DRAINS model were consistent with **Section 4**. The area, percent impervious and time of concentration values adopted within DRAINS are shown in **Table 7**.

Table 7: TUFLOW post-developed site catchment details

Catchment ID	Description	Impervious (%)	Area (ha)	Time of Concentration (mins)
Site_Impervious	Site Roof & Impervious Area's (TUFLOW Code off region)	100	0.1983	5

The DRAINS modelling outputs for the 0.5 EY and 1% AEP are shown in **Figure 24** and **Figure 25**.

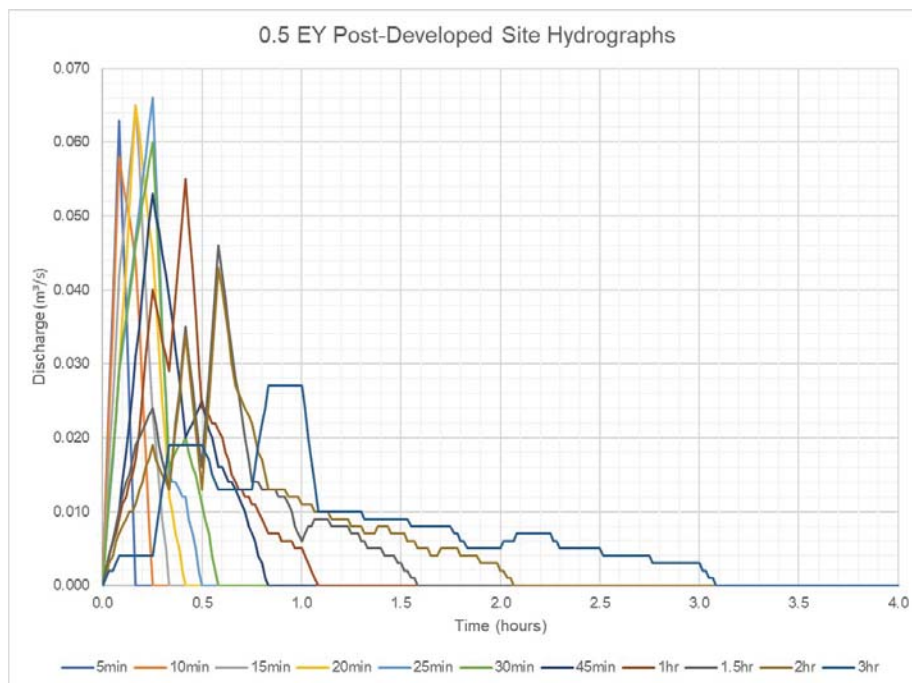


Figure 24: 0.5 EY post-developed site hydrograph

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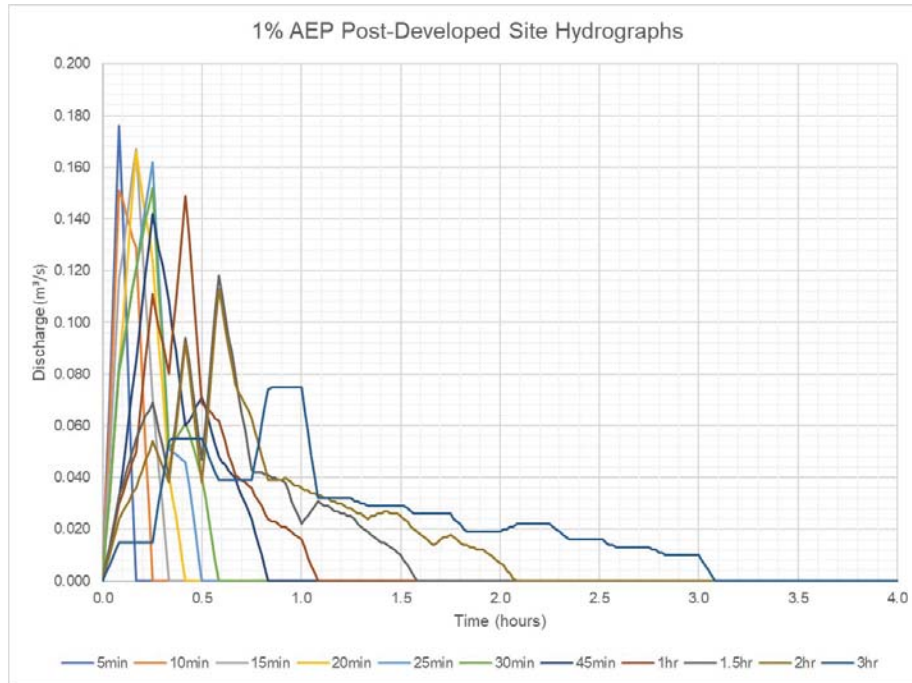


Figure 25: 1% AEP post-developed site hydrograph

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6.6 TUFLOW model results

The pre-developed and post-developed TUFLOW model results were compared for the 0.5 EY and 1% AEP rainfall events for all standard durations. The outcomes have been mapped in detail and are provided in **Appendix C**.

The 0.5 EY and 1% AEP water surface level (WSL) differences were compared and are shown in **Figure 26** and **Figure 27**. Both plans show a reduction in water surface levels along the north eastern boundary of the site where stormwater gully pits described in **Section 6.5.3** are proposed.

Reductions in WSL's are also shown on Hornibrook Esplanade for both the 0.5 EY and 1% AEP rainfall events.

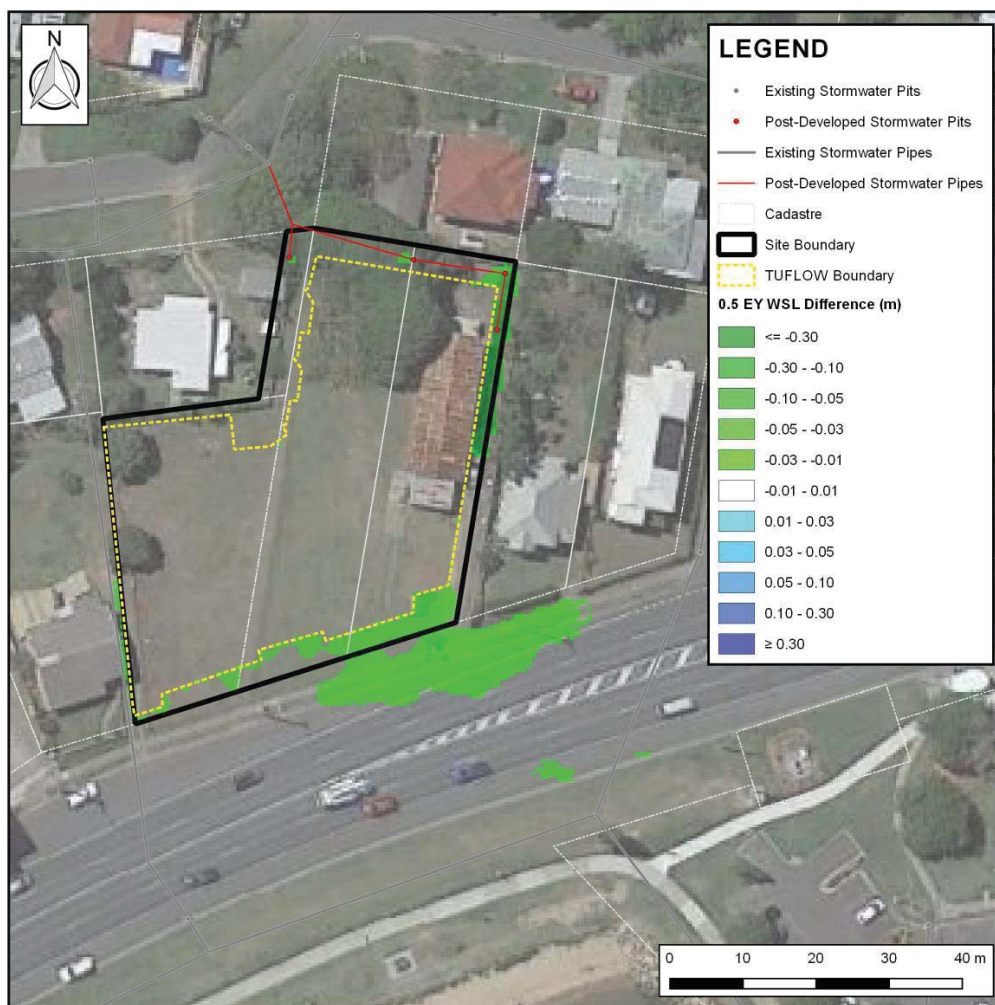


Figure 26: 0.5 EY water surface difference

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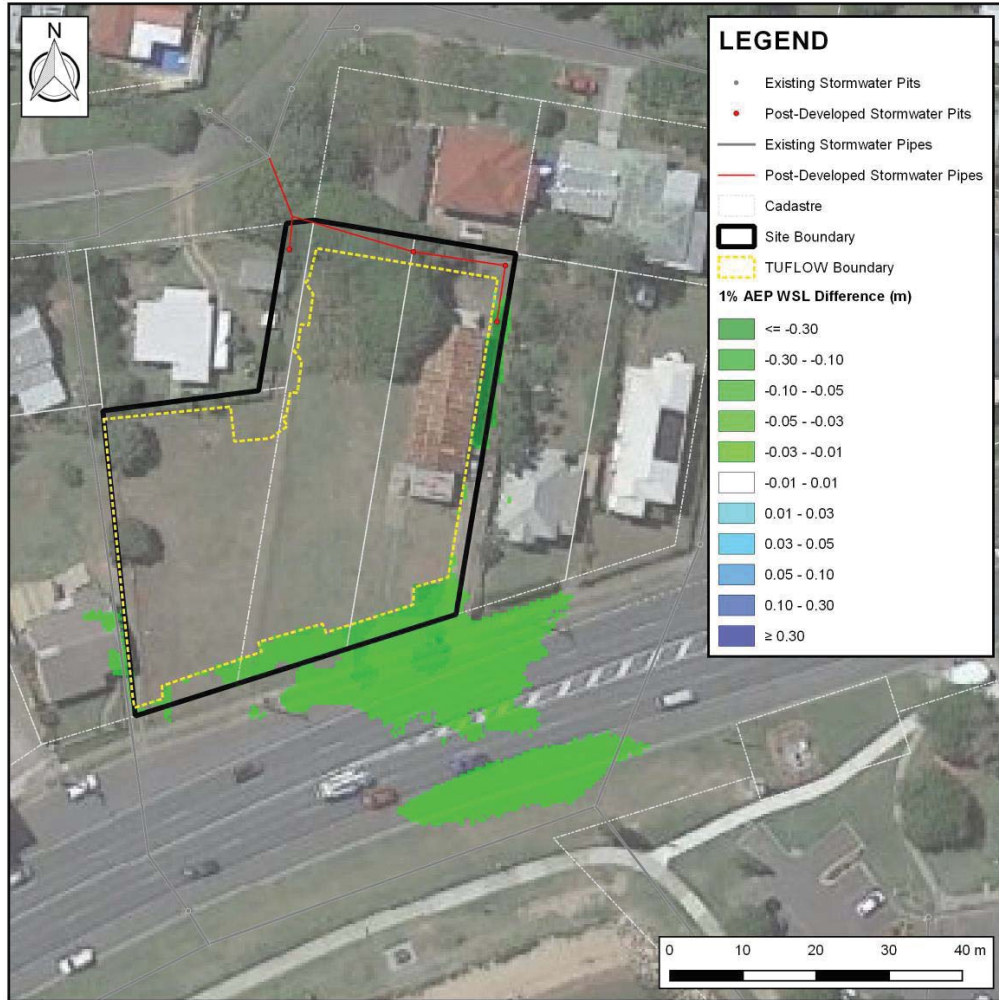


Figure 27: 1% AEP water surface difference

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6.7 Sensitivity analysis

6.7.1 Changes to blockage

A sensitivity analysis was undertaken assuming a 50% blockage to all stormwater pits to assess the impacts of the proposed development on the surrounding area.

The WSL differences were compared for the 50% blockage sensitivity analysis scenario. The sensitivity analysis scenario WSL differences between the pre-developed and post-developed TUFLOW models for the 0.5 EY and 1% AEP rainfall events are shown in **Figure 28** and **Figure 29**.

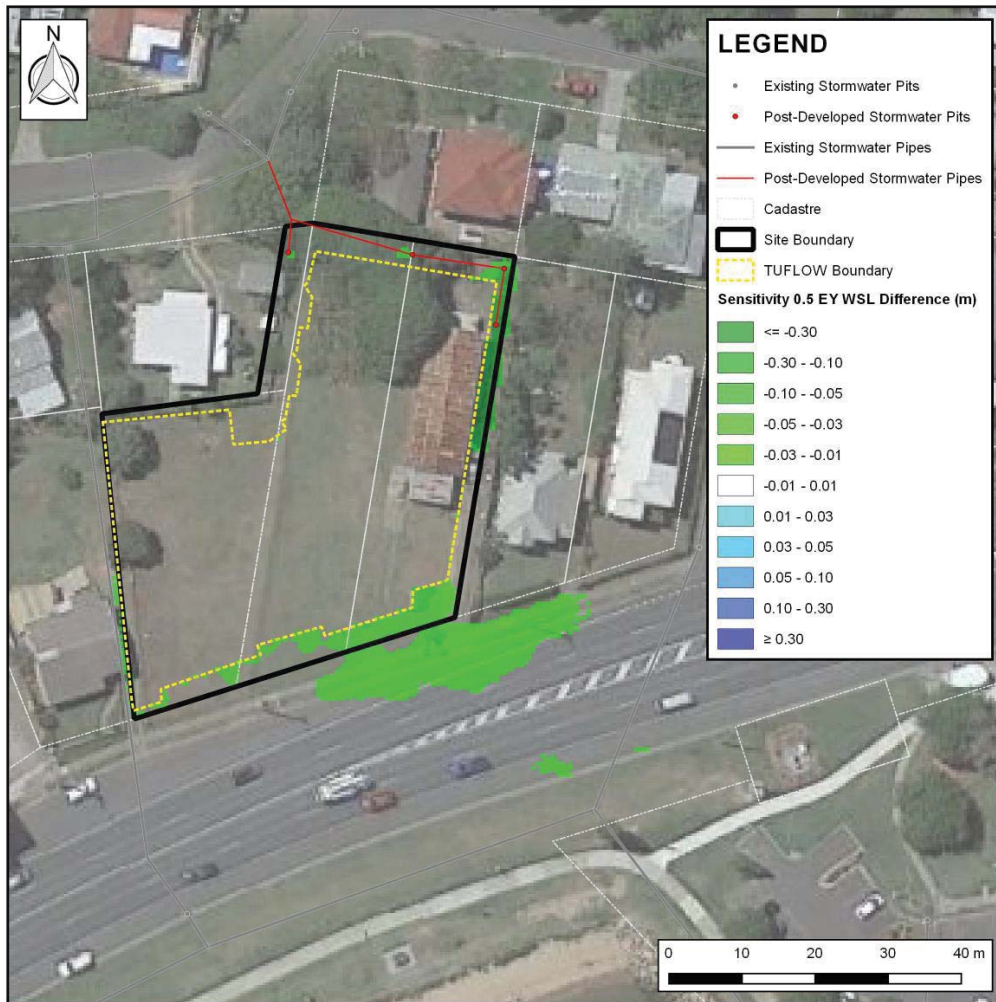


Figure 28: Sensitivity analysis 0.5 EY water surface difference 50% blockage

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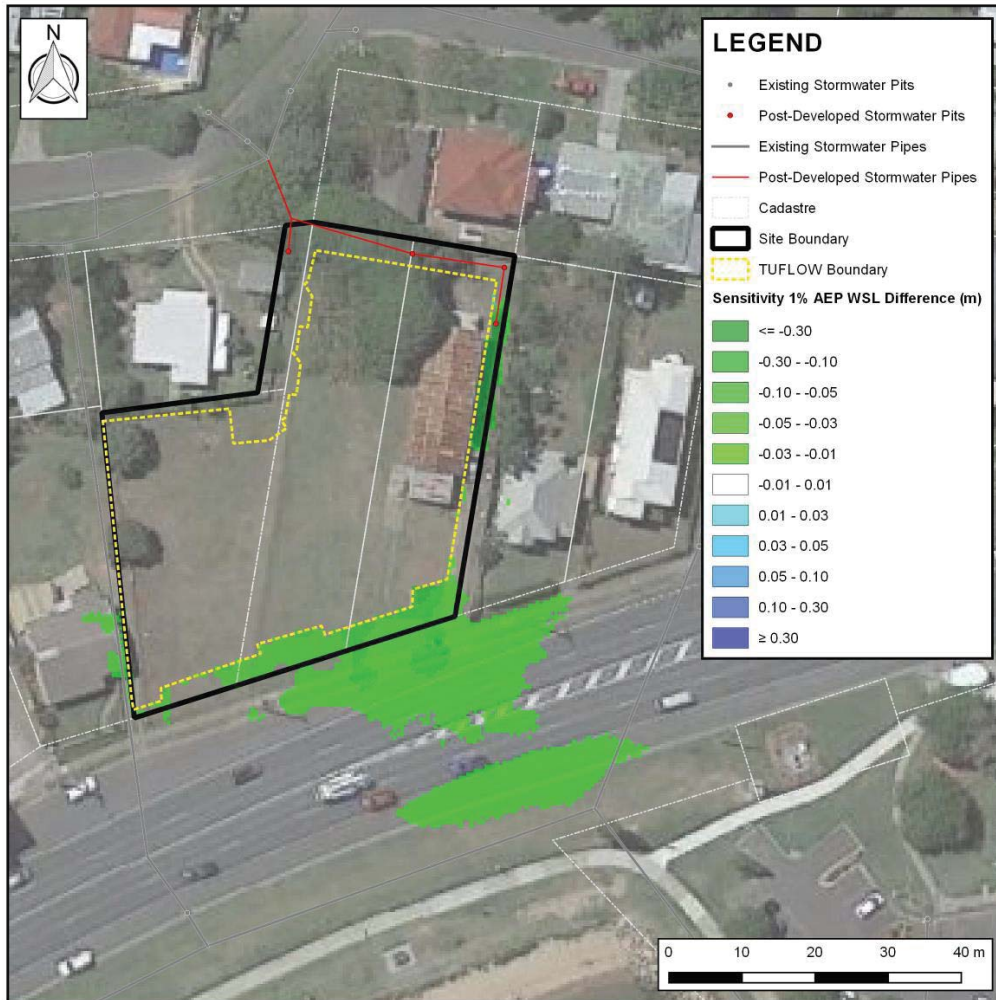


Figure 29: Sensitivity analysis 1% AEP water surface difference 50% blockage

6.8 Conclusions

By using onsite stormwater infrastructure, it has been demonstrated that the stormwater discharges from the proposed development do not cause an actionable nuisance with quantifiable loss to the surrounding road infrastructure or neighbouring properties.

It has been demonstrated that the existing stormwater infrastructure within the vicinity of the site has sufficient capacity to cater for the proposed development.

Part of the site is located within the extents of the Councils Overland Flow Overlay Map described in **Section 2.4.4**. The hydraulic modelling outcomes identified within this report show that the development will not cause any increase in water surface depths to the mapped overland flow path.

This is largely due to the proposed site configuration and directing stormwater runoff from the site into the internal stormwater network.

For the reasons described above and the hydraulic modelling outcomes outlined in this report it is our opinion that the development does not require onsite stormwater detention.

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7. Stormwater (Quality)

7.1 General

The State Planning Policy (SPP) released in July 2017 provides guidelines on the application of stormwater quality treatment.

The site is located within the South East Queensland climatic region.

The SPP states that the pollutant reduction design objectives for this region are applicable for an application for Material Change of Use for an urban purpose that involves premises 2,500m² or greater in size and resulting in either six or more dwellings or an impervious area greater than 25% of the net developable area.

As the site area is less than the minimum threshold, compliance with the Water Quality components of the SPP is therefore not triggered and requires best management practices.

Grassed buffer strips are proposed on the eastern and north eastern boundaries of the site.

The use of litter baskets within the carpark inlet pits are proposed. Initial discussions with Stormwater360 indicated that short versions of the Stormwater360 'Environpod' litter basket can be supplied for pits with vertical height constraints. The depth, location and viability of litter baskets are to be quantified during detailed design.

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8. Conclusion

This stormwater management plan and overland flow study have been developed to provide a high level assessment of development of the site, in the context of how it relates to the current engineering environment surrounding it.

The following observations are made:

- On site detention to mitigate peak discharge rates is not required as runoff rate changes are insignificant and do not result in an actionable nuisance to neighbouring properties or downstream stormwater infrastructure.
- Hydraulic modelling outcomes identified within this report show that the development will not cause an increase in water surface depths or nuisance flooding to Council's mapped overland flow path.
- Compliance with the Water Quality components of the SPP is not triggered and therefore the development requires best management practices.

Based on all the findings outlined in this report, we believe the hydraulic impacts of the site will cause no nuisance to upstream, downstream or neighbouring properties which would preclude the development being approved by Council.

We trust that enough information has been provided to allow assessment and approval of the proposal.

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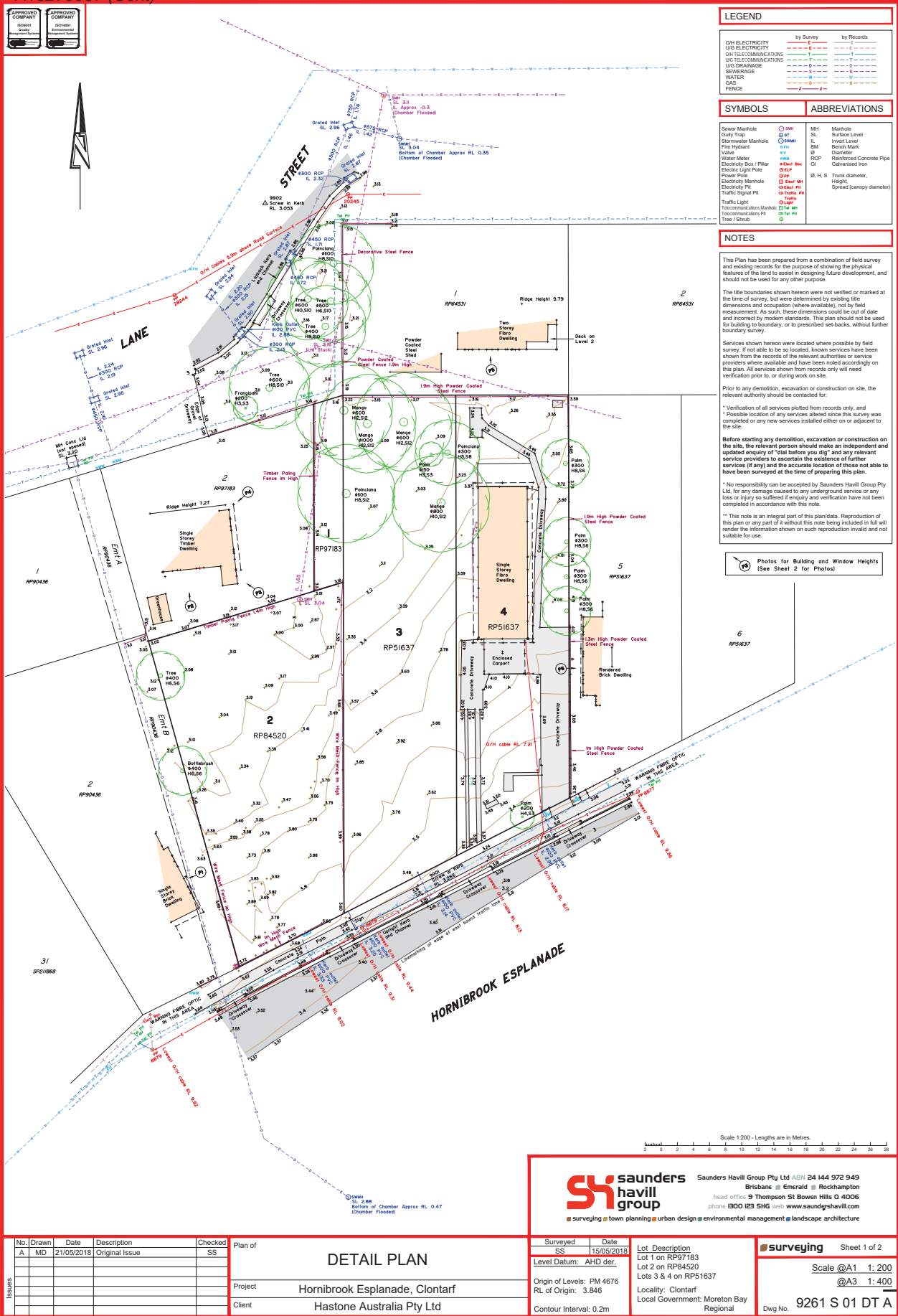
Appendix A SURVEY Saunders Havill Group

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No.	Drawn	Date	Description	Checked	Plan of
A	MD	21/05/2018	Original Issue	SS	

DETAIL PLAN

Project: Hornibrook Esplanade, Clontarf

Client: Hastone Australia Pty Ltd

Surveyed: SS
Date: 15/05/2018
Level Datum: AHD der.
Origin of Levels: PM 4676
RL of Origin: 3.846
Contour Interval: 0.2m

Lot Description

Lot 1 on RP97183
Lot 2 on RP84520
Lots 3 & 4 on RP51637

Local Government: Moreton Bay Regional

surveying Sheet 1 of 2

Scale @A1 1:200
@A3 1:400

Dwg No. 9261 S 01 DT A

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PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



PHOTO 6

Scale 1:200 - Lengths are in Metres



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surveying | town planning | urban design | environmental management | landscape architecture

No.	Drawn	Date	Description	Checked	Plan of
A	MD	21/05/2018	Original Issue	SS	

DETAIL PLAN	
Project	Hornibrook Esplanade, Clontarf
Client	Hastone Australia Pty Ltd

Surveyed	Date
SS	15/05/2018
Level Datum:	AHD der.
Origin of Levels:	PM 4676
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Contour Interval:	0.2m

Lot Description	Lot 1 on RP97183 Lot 2 on RP84520 Lots 3 & 4 on RP51637
Locality:	Clontarf
Local Government:	Moreton Bay Regional

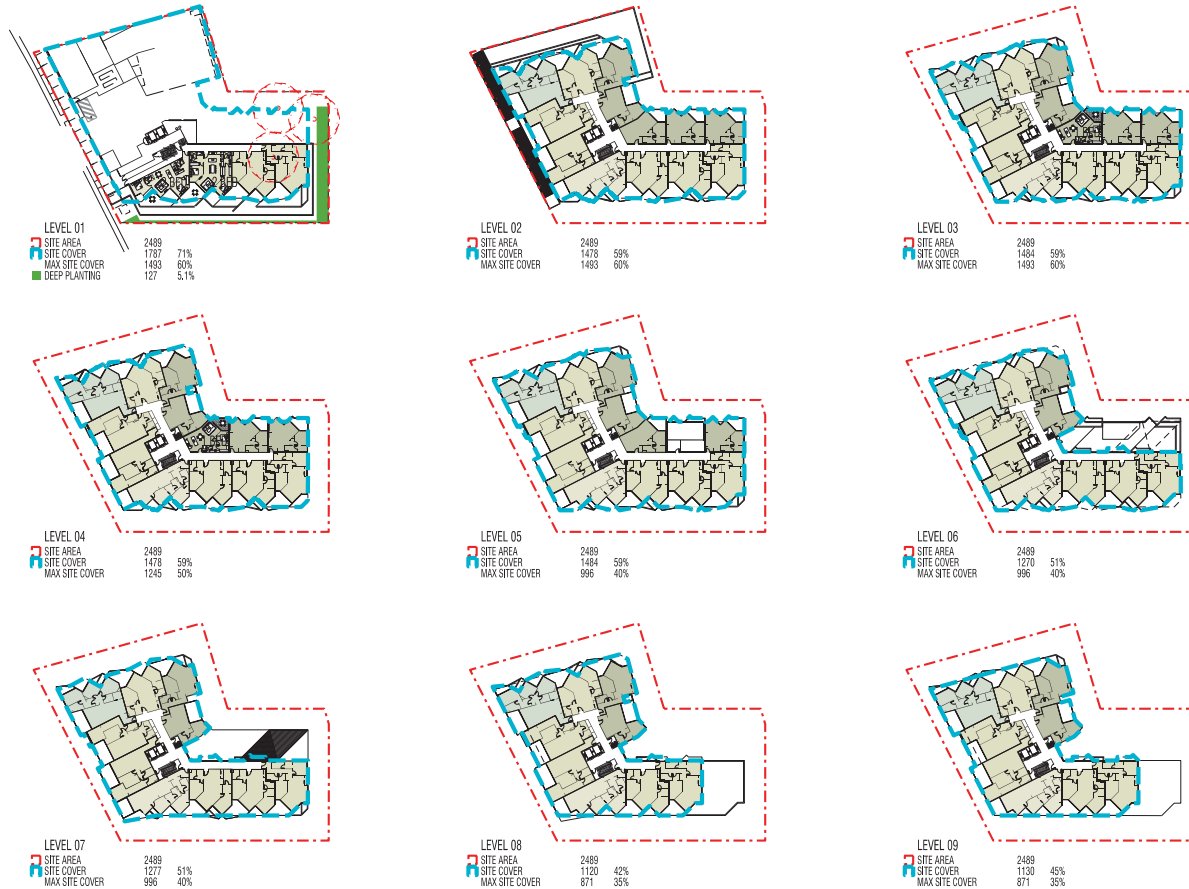
surveying	Sheet 2 of 2
Scale @A1	1:200
@A3	1:400
Dwg No.	9261 S 01 DT A

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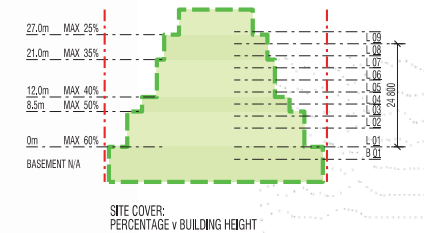
Appendix B Site Plans

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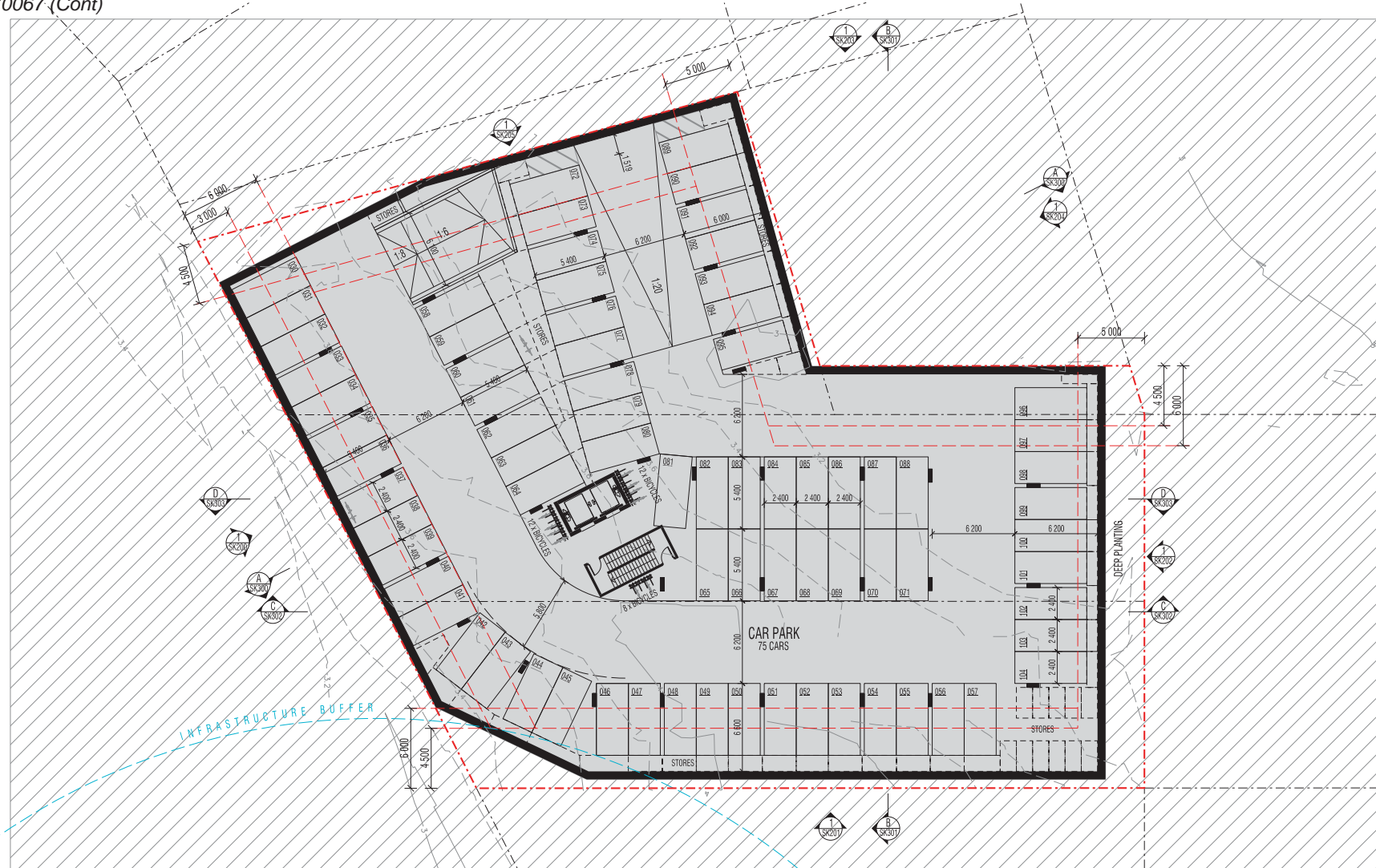


DEVELOPMENT SUMMARY					
Level	Commercial m ²	Residential			Total
		1 Bed 60	2 Bed 90-100	3 Bed 125	
01	90		4		4
02		5	7	1	13
03		5	7	1	13
04		5	7	1	13
05		4	7	1	12
06		2	7	1	10
07		2	7	1	10
08		2	6	1	9
09		2	6	1	9
Total	90	27	58	8	93
		29%	62%	9%	100%

CAR PARKING SUMMARY		
Commercial	Residential	Total
MBRC Rate: 5/100m ²	1	
Sub Total: 4.5	93	97.5
MBRC Total: 97.5		97.5
Provided:		104 Cars



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



BRISBANE
mode
Plaza Level, Mosaic
826 Ann St
Fortitude Valley QLD 4006
T +61 7 3252 9900
bne@modedesign.com.au

BASEMENT LEVEL
92-96 Hornibrook Esplanade,
Clontarf

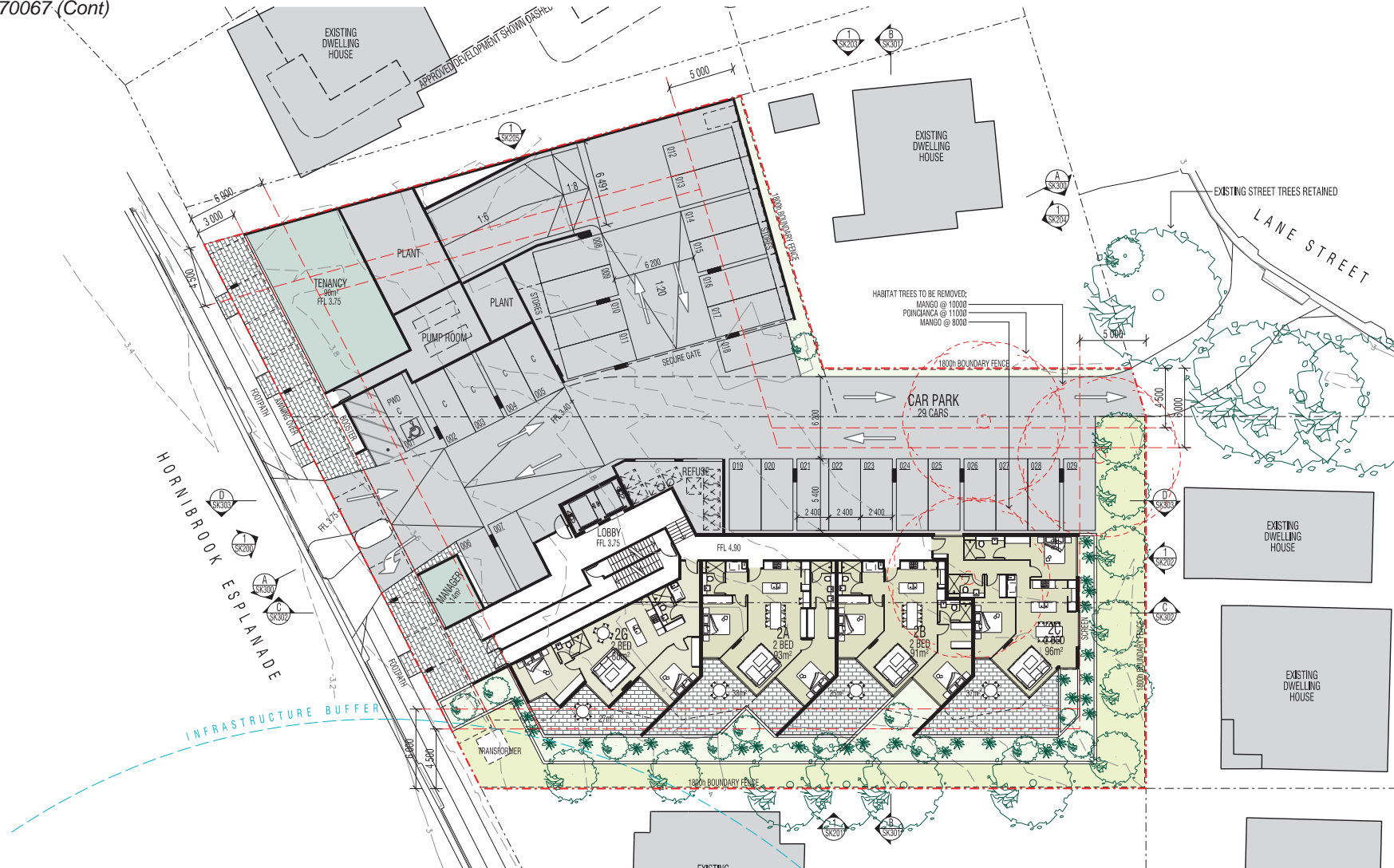
DA INFO RESPONSE



Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 101

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



mode
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bne@modedesign.com.au

GROUND LEVEL 01
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 102

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP LANE STREET - A18270067 (Cont)



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bne@modedesign.com.au

LEVEL 02
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 103

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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LEVEL 03
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE



Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 104

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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bne@modedesign.com.au

LEVEL 04
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 105

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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LEVEL 05
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 106

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP LANE STREET - A18270067. (Cont)



BRISBANE
mode
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826 Ann St
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T +61 7 3252 9900
bne@modedesign.com.au

LEVEL 06
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 107

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



BRISBANE
mode
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bne@modedesign.com.au

LEVEL 07
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 108

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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LEVEL 08
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 109

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP LANE STREET - A18270067 - (Cont)



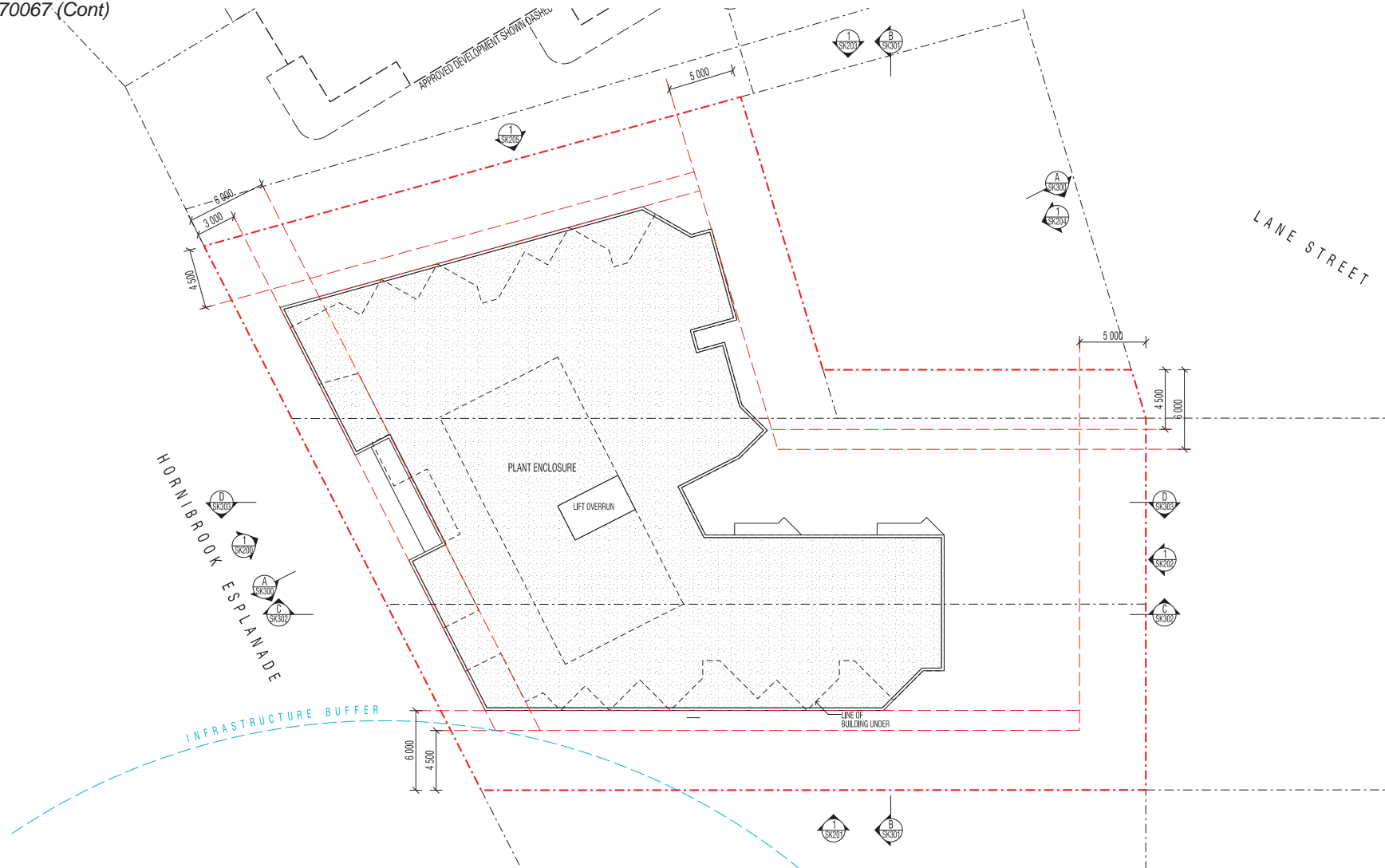
BRISBANE
mode
Plaza Level, Mosaic
826 Ann St
Fortitude Valley QLD 4006
T +61 7 3252 9900
bne@modedesign.com.au

LEVEL 09
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 110

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP
- A18270067 (Cont)



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ROOF PLAN
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE



Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 111

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



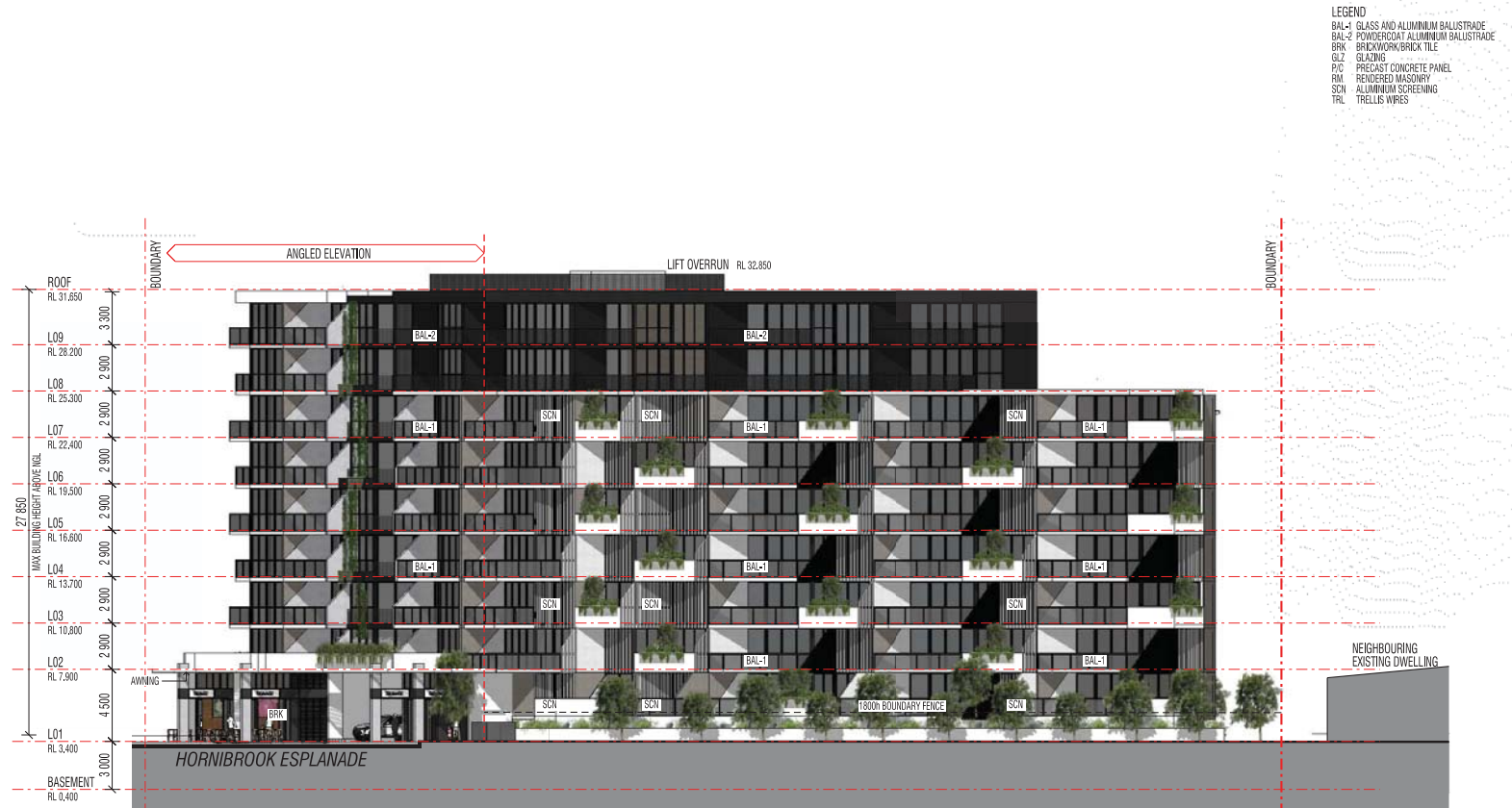
BRISBANE
mode
Plaza Level, Mosaic
826 Ann St
Fortitude Valley QLD 4006
T +61 7 3252 9900
bne@modedesign.com.au

BUILDING ELEVATIONS - SOUTH
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 200

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



BRISBANE
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BUILDING ELEVATIONS - EAST
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 201

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



- LEGEND
- BAL-1 GLASS AND ALUMINIUM BALUSTRADE
 - BAL-2 POWDERCOAT ALUMINIUM BALUSTRADE
 - BRK BRICKWORK/BRICK TILE
 - GLZ GLAZING
 - P/C PRECAST CONCRETE PANEL
 - RM RENDERED MASONRY
 - SCW ALUMINIUM SCREENING
 - TRL TRELIS WIRES



BRISBANE
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BUILDING ELEVATIONS - WEST
92-96 Hornibrook Esplanade,
Clontarf

Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 202

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING ELEVATIONS - WEST
92-96 Hornibrook Esplanade,
Clontarf

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DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 203

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



mode
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BUILDING ELEVATIONS - NORTH
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

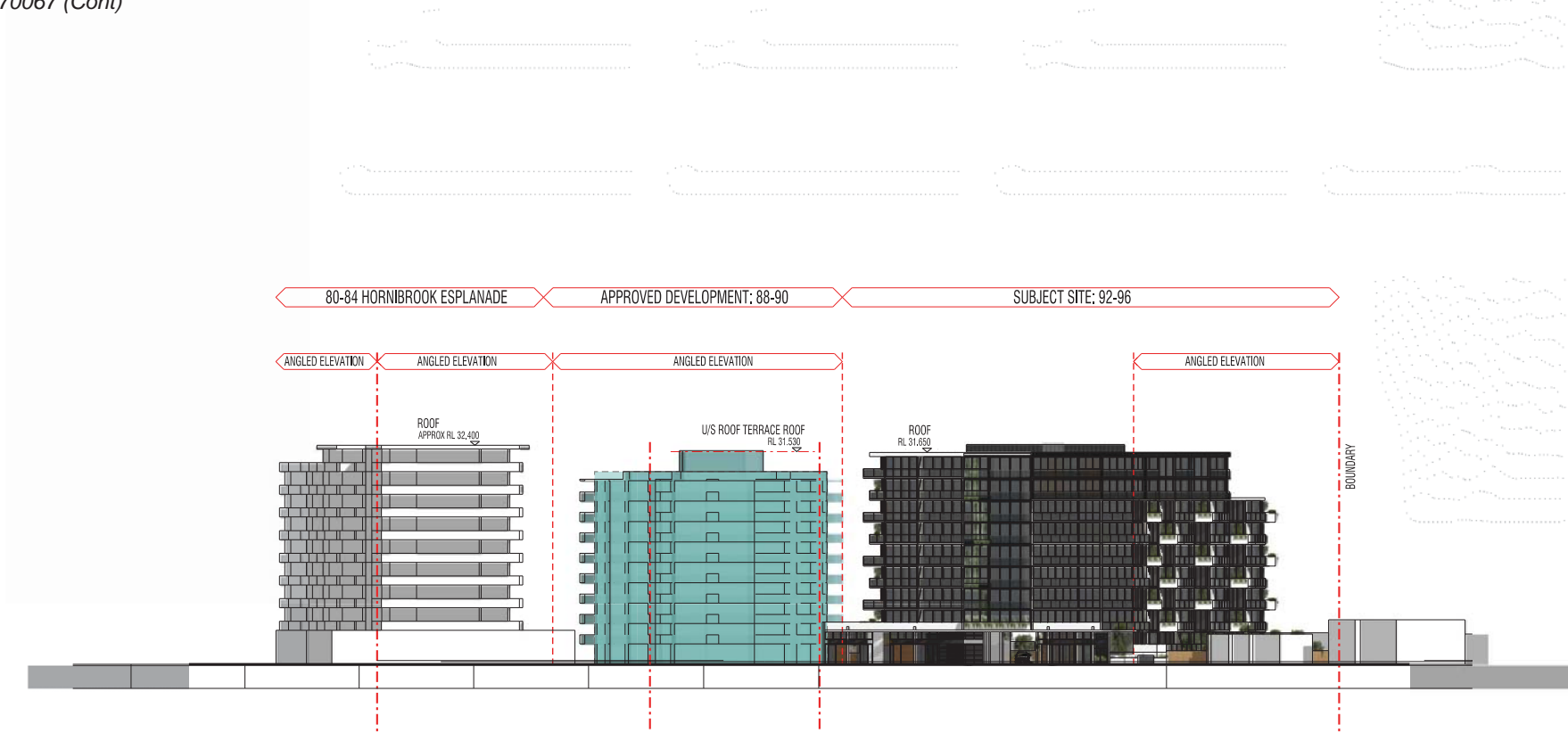
Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 204

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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STREET ELEVATION
92-96 Hornibrook Esplanade,
Clontarf

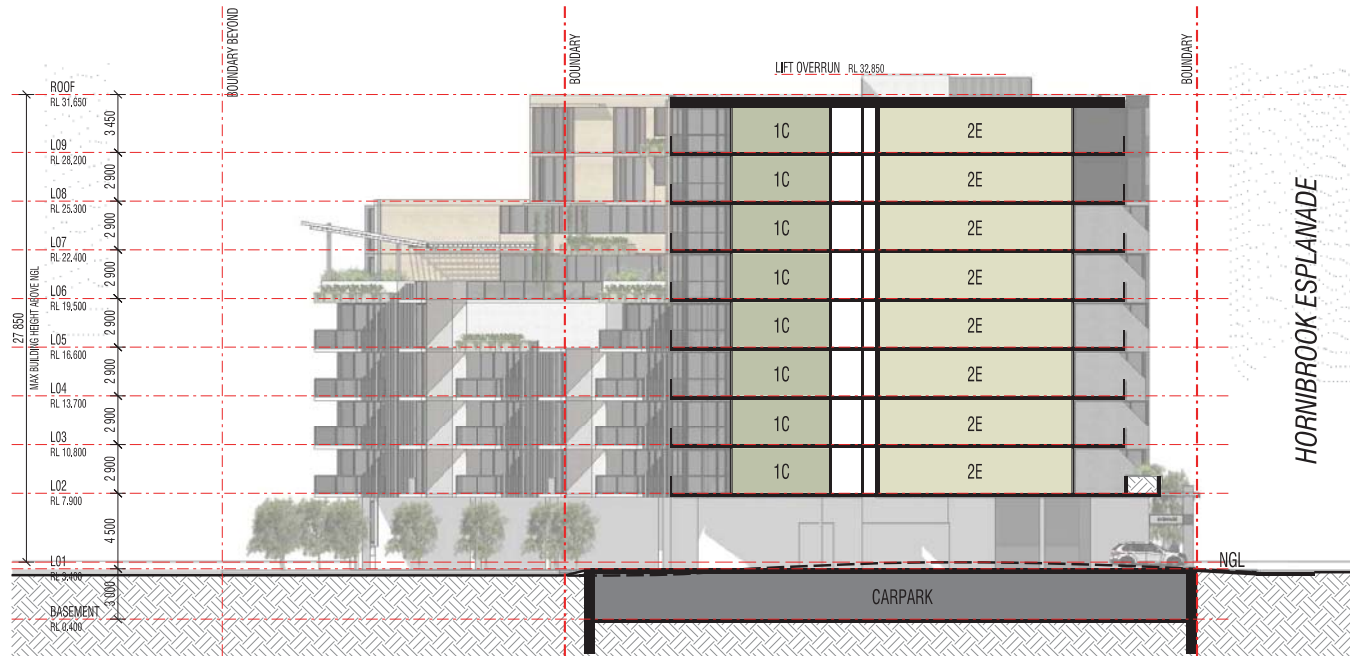
Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:500 @ A3

SK - 210

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 300

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

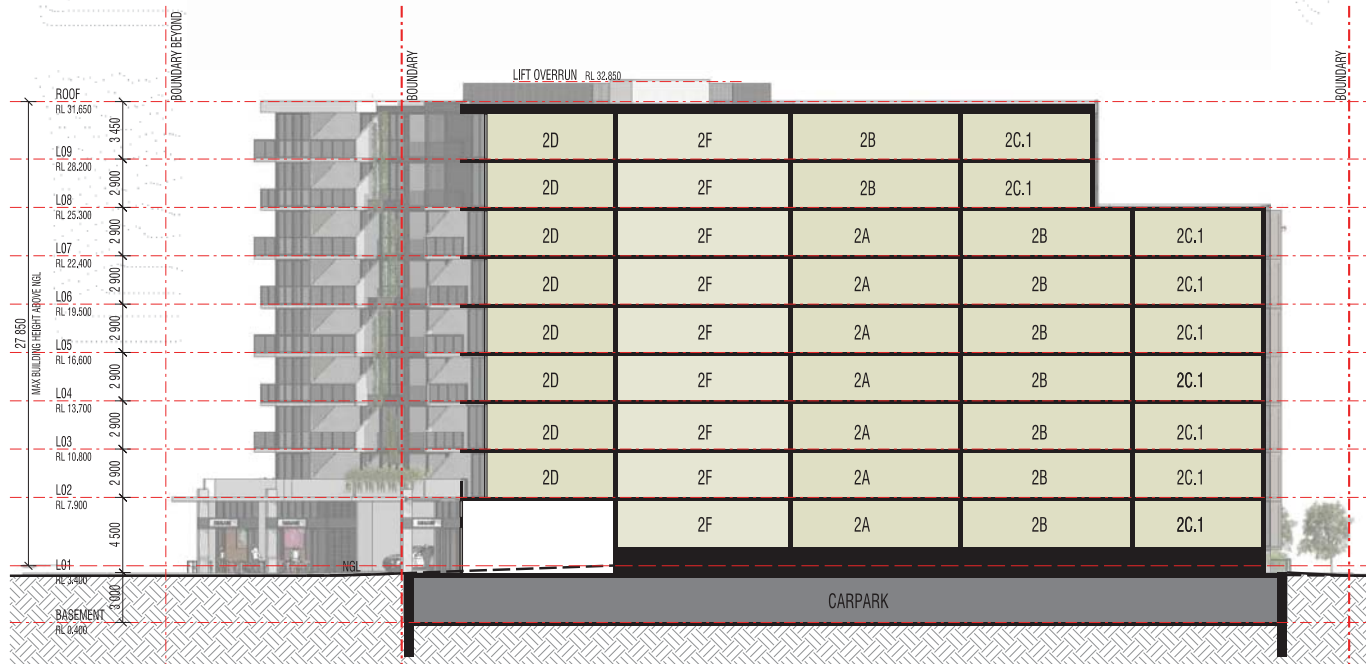
Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 301

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

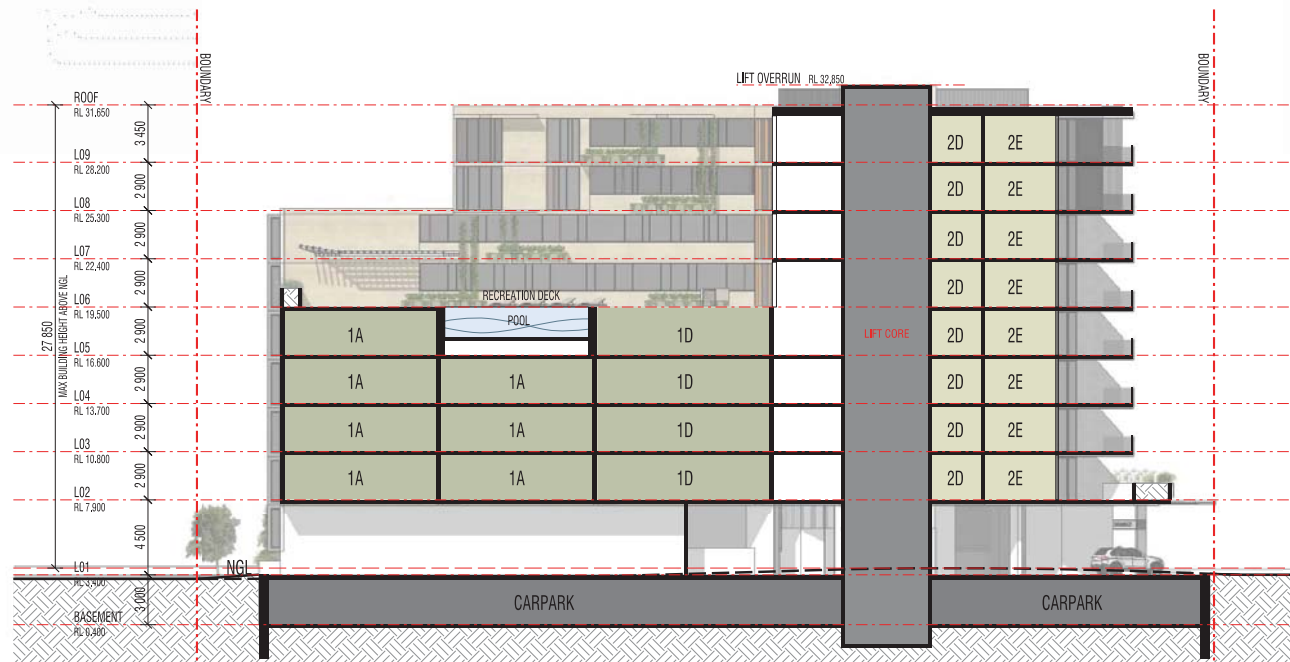
Do not scale off this drawing

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

SK - 302

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



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BUILDING SECTIONS
92-96 Hornibrook Esplanade,
Clontarf

DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3

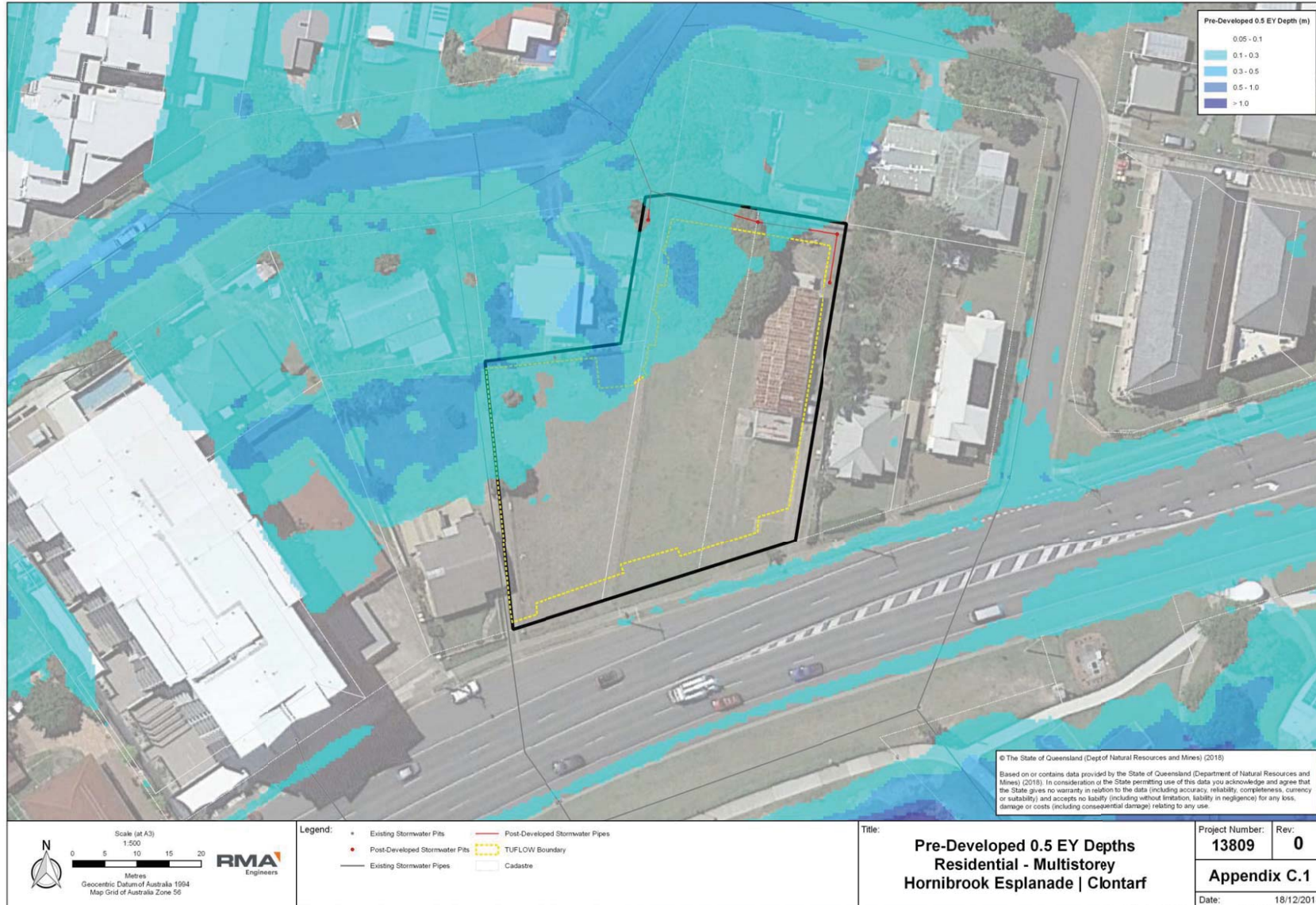
SK - 303

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

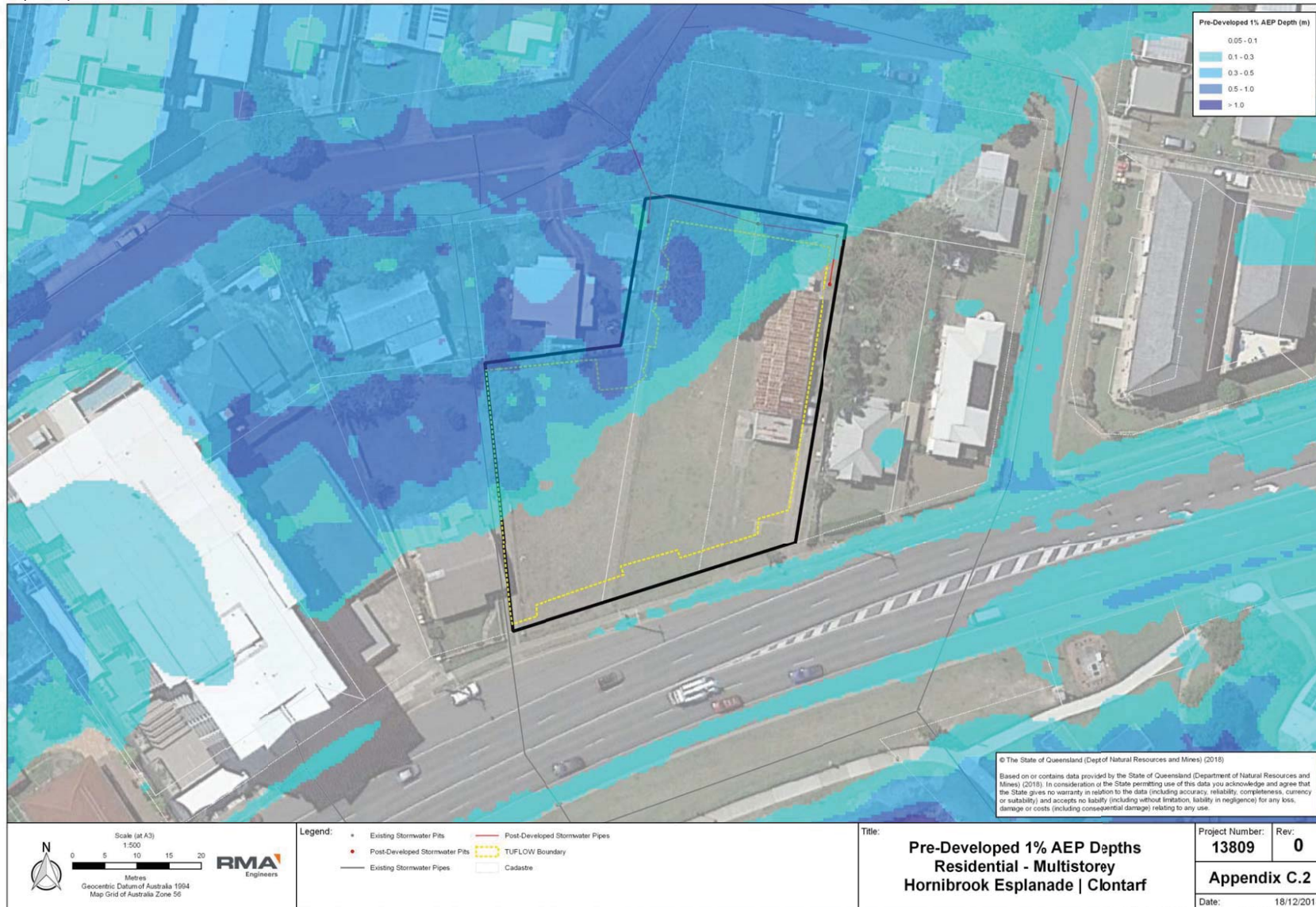


Appendix C Flood Maps

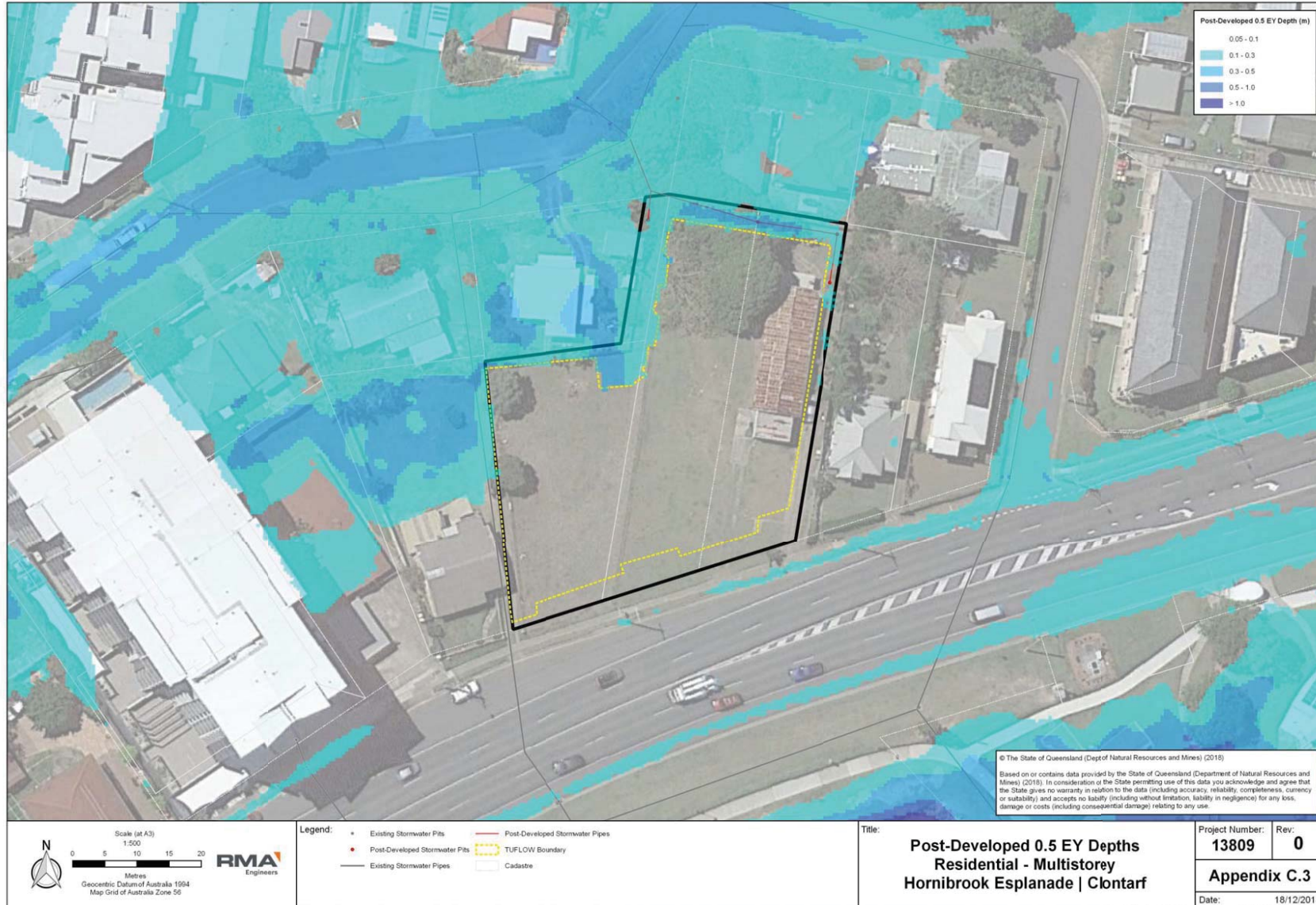
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



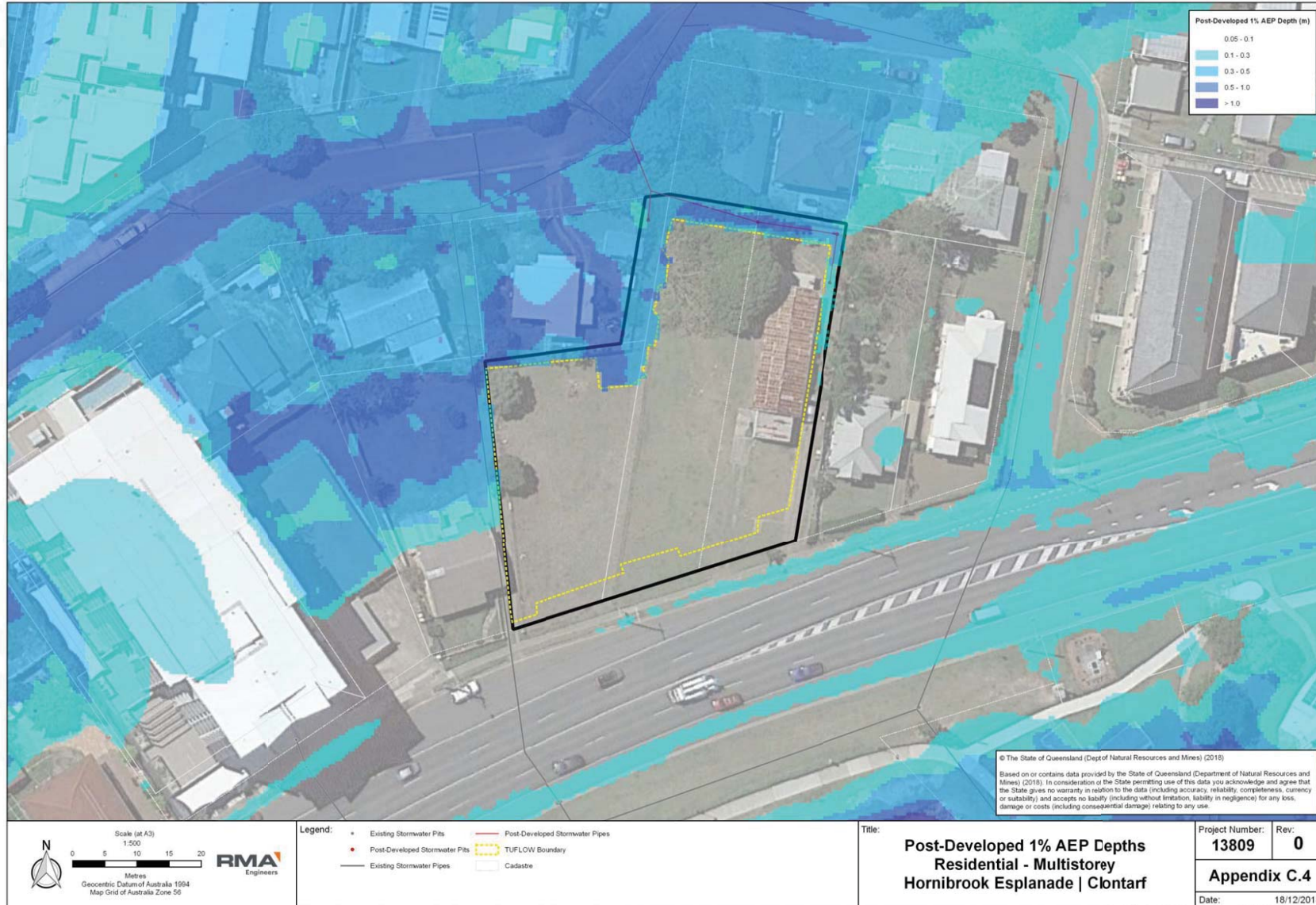
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



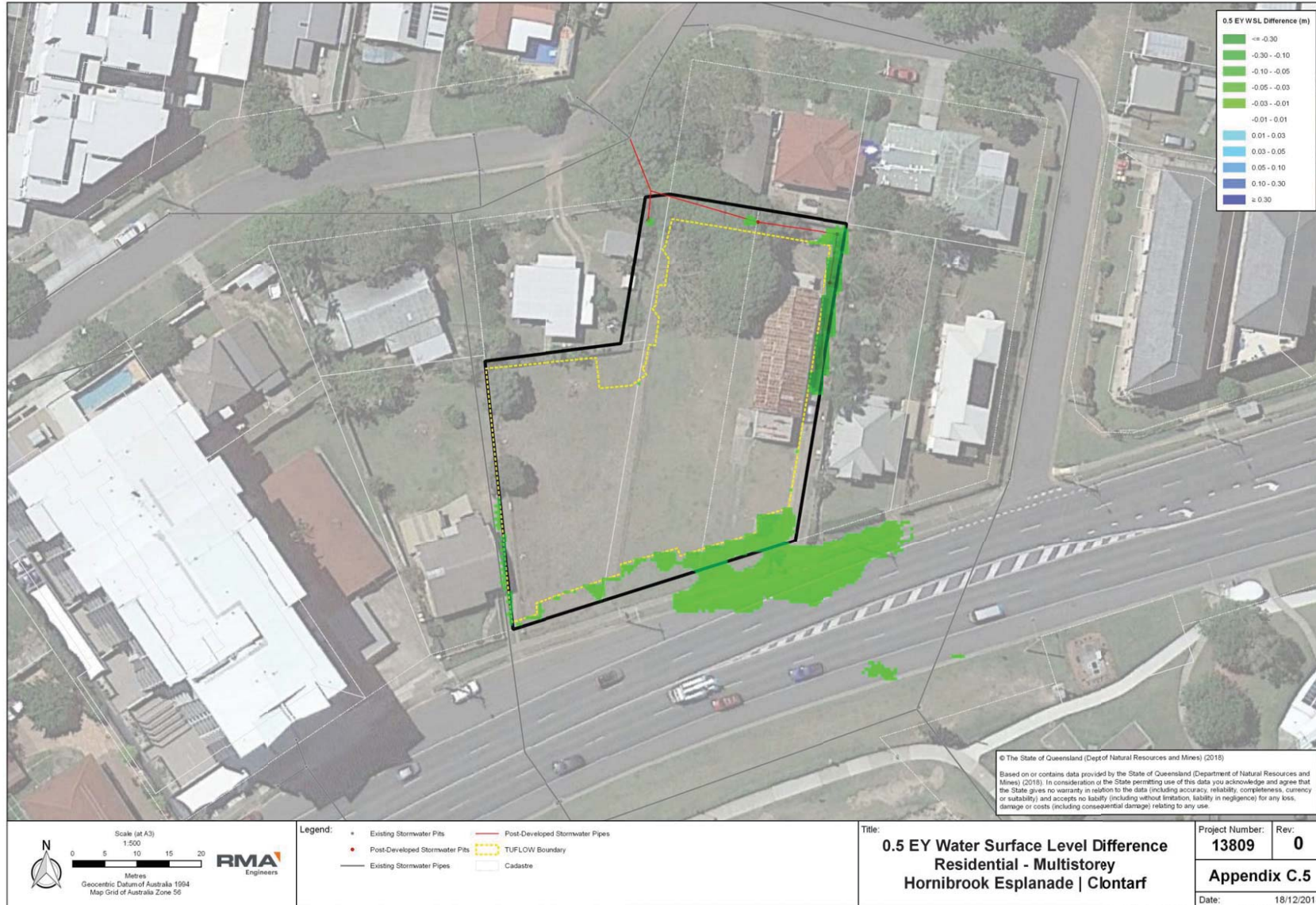
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



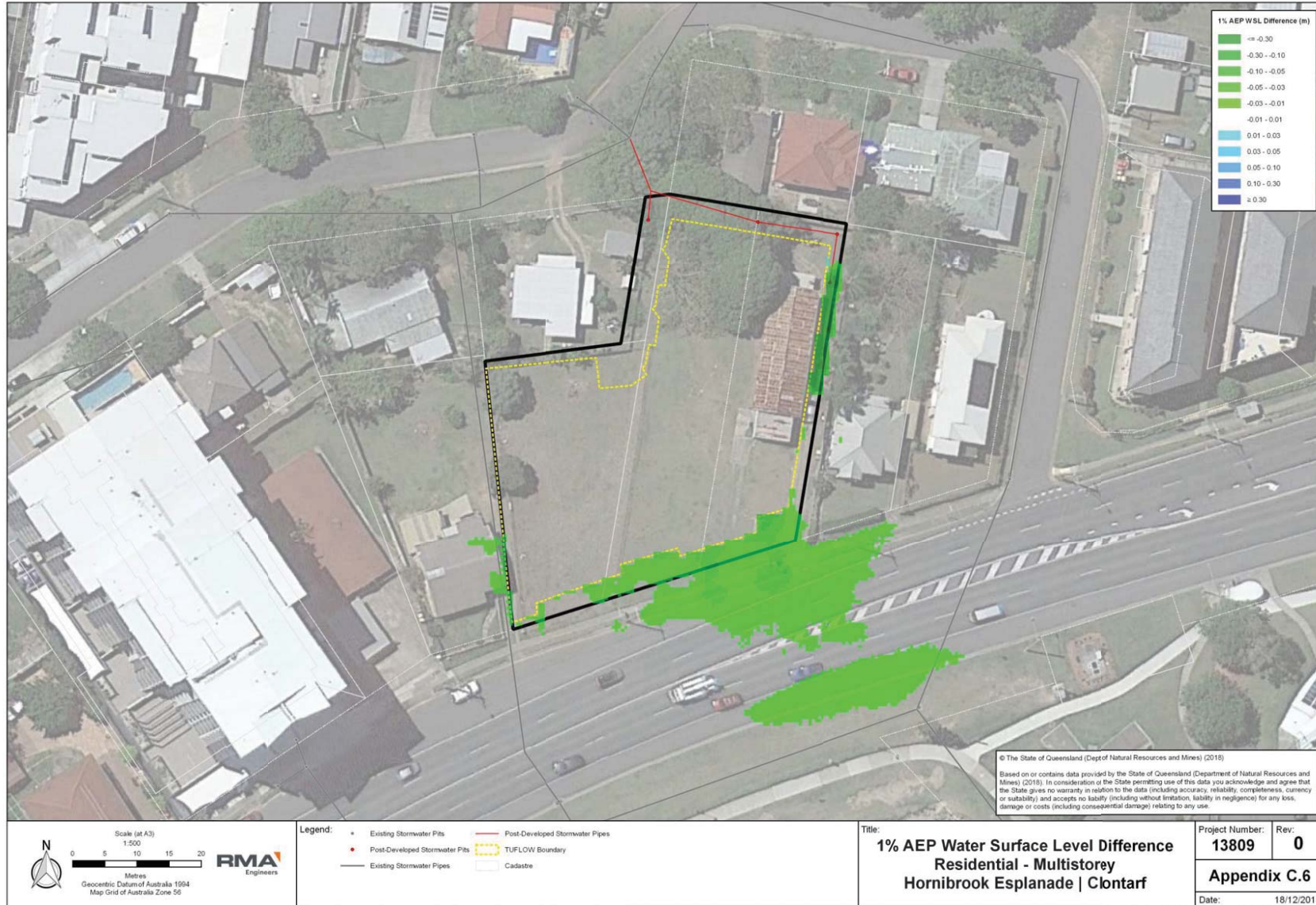
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)



Appendix D Flood check property report

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

Flood Check Property report

Property

Reference: Lot 2 Plan RP84520

**92 HORNIBROOK ESPLANADE
CLONTARF QLD 4019**

About this report

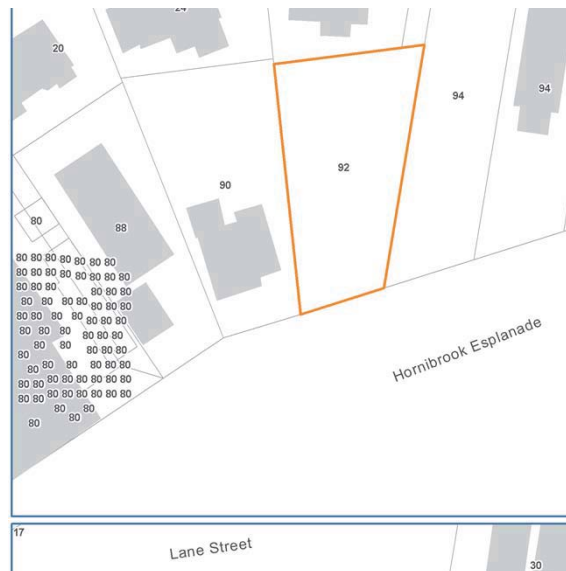
This *Flood Check Property Report* provides information from Council’s Regional Flood Database **that is relevant for this property.**

Property specific information is provided about the four types of flooding that can affect the Moreton Bay region, which include:

- Flood
- Overland flow
- Storm Tide
- Tidal Inundation

This report will help you to better understand the potential flood risks that currently apply to this property.

The report may also prove beneficial when preparing a flood emergency plan or applying for flood insurance.



Further information

Included at the end of this report are fact sheets that may assist in interpreting the contents of the report. Further fact sheets, flood maps and flood investigation reports are also available from Council’s website: www.moretonbay.qld.gov.au/floodcheck

Are you planning building or development?

If planning new **building or development works on this property**, please refer to the: *Flood Check Development Report* for this property: www.moretonbay.qld.gov.au/floodsearch
Moreton Bay Regional Council’s Planning Scheme: www.moretonbay.qld.gov.au/mbrcplanningscheme

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ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

Flood Check Property report

Summary

Reference: Lot 2 Plan RP84520

Flood

Flooding occurs when heavy rainfall causes the water levels in a river, creek or urban drainage system to rise and exceed the capacity of the main channel or pipe network.

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Flood events.

Overland Flow

Overland flow represents the inundation of gullies and depressions where runoff may flow on its way to a watercourse.

Parts of this property are within or adjacent to Council's known Overland Flow mapping extents.

Tidal Inundation

Tidal inundation can occur on low lying coastal land where sea levels fluctuate based on the position of the sun and the moon.

This property is above the estimated level of a *Highest Astronomical Tide (HAT)*.

Highest Astronomical Tides typically occur twice a year.

Storm Tide

Storm Tide inundation occurs on coastal land when extreme weather conditions raise sea levels to above the normal tide levels.

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Storm Tide events.

What is AEP?

Flood and Storm Tide information is provided for a range of event likelihoods. The likelihood of these events occurring is described in terms of their *Annual Exceedance Probability* or *AEP*.

AEP describes the likelihood of an event with a given magnitude or greater occurring in any one year, usually expressed as a percentage. The 1% AEP event is typically referred to for planning, risk assessment and insurance purposes.

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Flood Check Property report

Technical Summary (page 1 of 5)

Reference: Lot 2 Plan RP84520

Property Levels

Minimum Ground Elevation:	3.0 m AHD	(AHD - Australian Height Datum)
Maximum Ground Elevation:	4.1 m AHD	
Average Ground Elevation:	3.6 m AHD	
Elevation Data Source:	Aerial Laser Survey - DERM/MBRC (April 2014)	
Floor Level of Lowest Building:	Not determined	

Flood

This property is located in the Redcliffe catchment. Flood investigation reports are available for free download from Council's website: www.moretonbay.qld.gov.au/general.aspx?ekfrm=114179

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Flood events.

Where relevant, detail regarding existing river, creek or urban drainage flooding is provided in the table below and on the Flood Map on page 2.

Note that the Flood Map will only show the 1% AEP Flood extent and Flood Planning Area. Maps for the 5% AEP and 0.1% AEP Flood events are available from Council's website: www.moretonbay.qld.gov.au/floodcheck

Flood Event	Minimum Property Flood Level (m AHD)	Maximum Property Flood Level (m AHD)	Percent of Property Affected	Maximum Building Flood Level (m AHD)	Data Reliability
5% AEP	-	-	-	-	-
1% AEP	-	-	-	-	-
0.1% AEP	-	-	-	-	-

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- A18270067 (Cont)

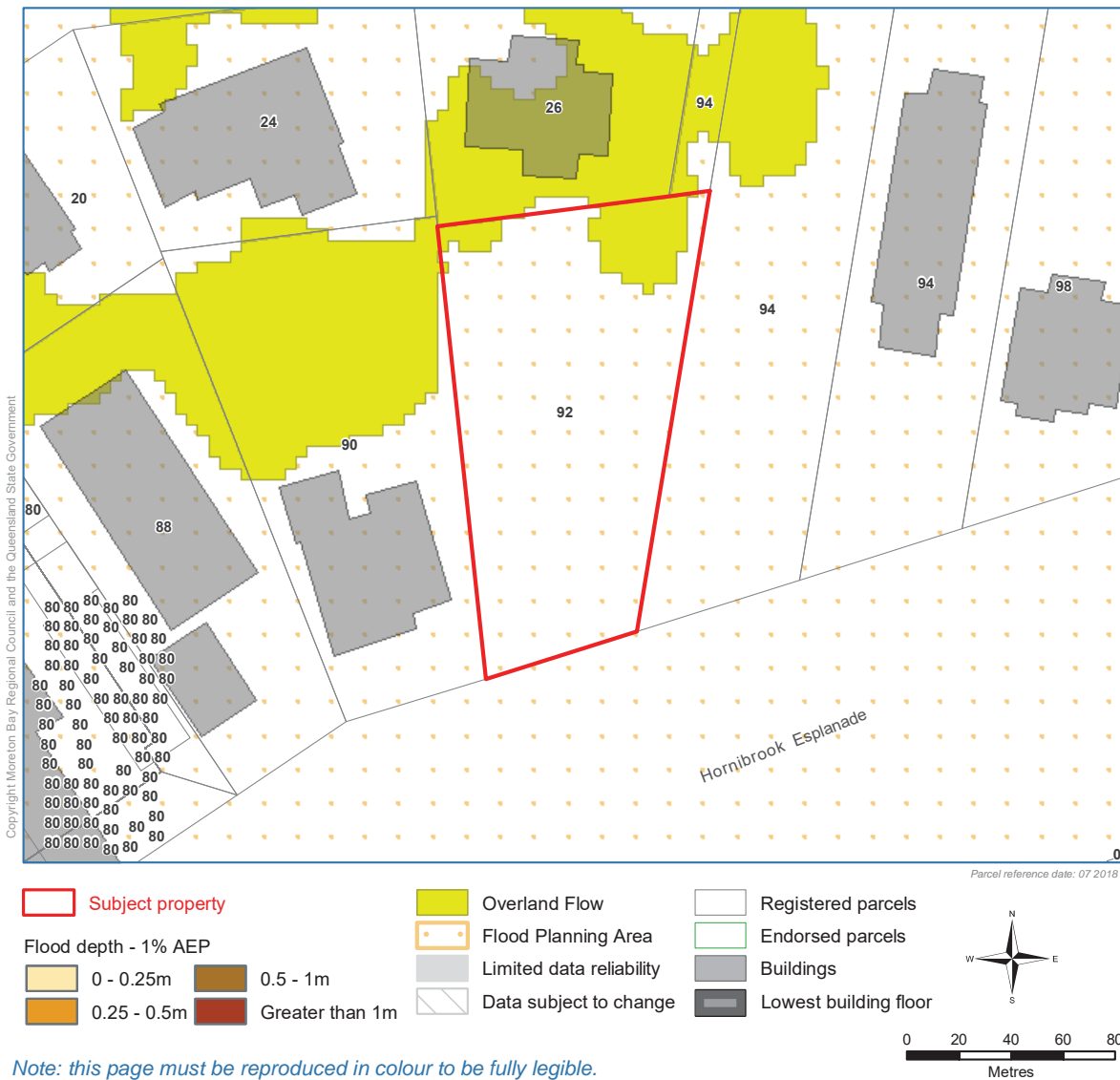
Flood Check Property report

Technical Summary (page 2 of 5)

Reference: Lot 2 Plan RP84520

Flood Map

This map shows the existing 1% AEP Flood depths, Overland Flow and Council's Flood Planning Area where applicable. To view other flood mapping refer to Council's website: www.moretonbay.qld.gov.au/floodcheck



Note: this page must be reproduced in colour to be fully legible.

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Flood Check Property report

Technical Summary (page 3 of 5)

Reference: Lot 2 Plan RP84520

Overland Flow

Overland Flow mapping identifies the inundation of gullies and depressions where runoff may flow on its way to a watercourse. This mapping also includes the representation of flow paths that can occur when the capacity of local stormwater infrastructure is exceeded.

The current mapping is based on ground level elevations from the 2014 Aerial Laser Survey. The mapping methodology is described in the following report: *Overland Flowpath Mapping* by MBRC, September 2017.

The overland flow mapping report is available for free download from Council's website:
www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/living/floodplains/overland-flow-path-mapping.pdf

Parts of this property are within or adjacent to Council's known Overland Flow mapping extents.

Where relevant, further detail regarding possible overland flow on this property is provided on the Flood Map on page 2.

If you are concerned about overland flow flooding at this property please consult a qualified and experienced engineer for further advice. Please note that Council currently does not provide any advice regarding flood levels or depths for overland flow.

Tidal Inundation

Some properties located near our coastline are relatively low-lying compared to sea level and therefore may be affected by tidal inundation.

This property is above the estimated level of a *Highest Astronomical Tide (HAT)*.
Highest Astronomical Tides typically occur twice a year.

Please note that this advice is sensitive to the accuracy of the property ground level information that was used for this report. This is particularly the case for properties with level terrain and vertical walls on their tidal boundary, for example alongside a canal.

If you are concerned about this and wish to confirm the susceptibility of this property to tidal inundation please consult a qualified and experienced engineer for further advice. Please note that Council currently does not provide any advice regarding flood levels or depths for tidal inundation.

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Flood Check Property report

Technical Summary (page 4 of 5)

Reference: Lot 2 Plan RP84520

Storm Tide

This property is located in the Redcliffe catchment. Storm Tide investigation reports are available for free download from Council's website: www.moretonbay.qld.gov.au/general.aspx?ekfrm=114179

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Storm Tide events.

Where relevant, detail regarding existing storm tide behaviour is provided in the following table and on the Storm Tide Map. Note that the map only shows the 1% AEP Storm Tide extent and Coastal Planning Area.

Maps for the 5% AEP and 0.1% AEP Flood events are available from Council's website: www.moretonbay.qld.gov.au/floodcheck

Storm Tide Event	Minimum Property Storm Tide Level (m AHD)	Maximum Property Storm Tide Level (m AHD)	Percent of Property Affected	Maximum Building Storm Tide Level (m AHD)	Data Reliability
5% AEP	-	-	-	-	-
1% AEP	-	-	-	-	-
0.1% AEP	-	-	-	-	-

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Flood Check Property report

Technical Summary (page 5 of 5)

Reference: Lot 2 Plan RP84520

Your feedback

If you believe the mapping information provided in this report is not accurate, please utilise the “Mapping Challenge” process on Council’s website and submit your concerns for consideration against the Flood Check Property Report category: www.moretonbay.qld.gov.au/mappingchallenge

If you need more information or assistance with interpreting this report please contact Council on 3205 0555 or enquiries can be submitted by e-mail flood@moretonbay.qld.gov.au or addressed in writing to:

*Floodplain Management Team
Moreton Bay Regional Council
PO Box 159
Caboolture QLD 4510*

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Flood Check Fact sheet 4

How to interpret a Flood Check Property Report

This document should be read in conjunction with the guidance and information provided in Flood Check Fact Sheet 1: *Things to know about flood maps.*

The *Flood Check Property Report* informs you of the potential flood and storm tide conditions anticipated for a property, considering a range of different sized events. An explanation of the way we describe the likelihood of these events occurring is provided in Flood Check Fact Sheet 5: *Understanding the likelihood of floods.*

When to request a report

Council encourages everyone interested in a property to download a free report from our website to understand the risks of flooding that currently exist for the property. We recommend that a *Flood Check Property Report* be obtained both before purchasing a property and periodically thereafter in order to ensure that you have the latest and most up to date information.

We also recommend that you should review the Suburb Flood maps to gain an understanding of the potential flooding conditions that could occur in the general neighbourhood surrounding the property.

What the report will tell you

The Summary

<p>Flood</p> <p>Flooding occurs when heavy rainfall causes the water levels in a river, creek or urban drainage system to rise and exceed the capacity of the main channel or pipe network.</p>	<p>Parts of this property are within the extent of:</p> <p>5% AEP Flood event 1% AEP Flood event 0.1% AEP Flood event</p> <p>See the Technical Summary for further information.</p>
<p>Overland Flow</p> <p>Overland flow represents the inundation of gullies and depressions where runoff may flow on its way to a watercourse.</p>	<p>This property is outside Council's known Overland Flow mapping extents.</p> <p>Small unmapped overland flow paths may affect any property after intense rainfall.</p>
<p>Tidal Inundation</p> <p>Tidal inundation can occur on low lying coastal land where sea levels fluctuate based on the position of the sun and the moon.</p>	<p>Parts of this property may be below the estimated level of a Highest Astronomical Tide (HAT).</p> <p>Highest Astronomical Tides typically occur twice a year.</p>
<p>Storm Tide</p> <p>Storm Tide inundation occurs on coastal land when extreme weather conditions raise sea levels to above the normal tide levels.</p>	<p>Parts of this property are within the extent of:</p> <p>5% AEP Storm Tide event 1% AEP Storm Tide event 0.1% AEP Storm Tide event</p> <p>See the Technical Summary for further information.</p>

The report begins with a summary of the potential flooding conditions anticipated for the property for each type of flooding. If the report indicates that the property is affected by one or more types of flooding, then further information about each type of flooding will be provided in the Technical Summary section on the following pages.

The Technical Summary

The Technical Summary section is included in a report when the property is subject to one or more types of flooding.

This section begins with reference level information for the property. Minimum, maximum and average ground elevations are provided in metres AHD.

All elevations and flood heights within the report are provided with reference to the Australian Height Datum or AHD. AHD is the standard elevation reference for mapping purposes adopted by the National Mapping Council of Australia. As a general guide, 0.0m AHD is approximately equal to mean sea level.

Where we have been able to determine the floor level of the lowest building on the property, this is also provided, along with information on the survey accuracy of this floor level. In some cases, there may be more than one building on the property. The building determined to have the lowest floor level is indicated on the maps that are included in the Technical Summary section.

The Technical Summary provides details of the anticipated conditions for each type of flooding that could affect the property. For each of these, the source and currency of the flooding information is provided, along with flood level data where available.

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Flood Check Fact sheet 4

The Data Tables

The Technical Summary section of the report contains data tables that provide minimum and maximum anticipated flood and storm tide levels across the property for a range of flooding events. Flood levels can vary across a property, particularly for large properties, where ground levels can vary significantly across the site.

Flood and storm tide information is provided for a range of event likelihoods. The likelihood of these events occurring is described in terms of their *Annual Exceedance Probability* or AEP.

AEP describes the likelihood of a flooding event with a given magnitude or greater occurring in any one year, usually expressed as a percentage.

The data tables also indicate the estimated percentage of the property that would be inundated for each of these events.

Flood Event	Minimum Property Flood Level (m AHD)	Maximum Property Flood Level (m AHD)	Percent of Property Affected	Maximum Building Flood Level (m AHD)	Data Reliability
5% AEP	6.6	6.9	42%	-	A
1% AEP	7.7	8.0	53%	7.8	A
0.1% AEP	9.3	9.6	100%	9.6	A

Where we have determined a building floor, the tables contain the maximum anticipated flood or storm tide level within the building footprint.

The data tables also include a data reliability rating as an indicator of the current level of confidence in the values provided for each flood and storm tide event.

Data Reliability Ratings

The flooding information presented in the report and via Council’s Flood Check web site is the best available information, endorsed by Council, and reflected in the Planning Scheme. This information has been compiled from numerous sources and studies.

The quality of the information available may not be uniform across the catchment and the findings of some studies may be considered to have been derived from more reliable information than others. No flood or storm tide investigation or related flooding information should ever be considered to be perfect.

To communicate the potential difference between sources of flood information, and to infer the degree of confidence held in the data provided, the report includes a reliability rating for flood and storm tide data. We encourage you to consider the reliability of the data when interpreting the information in the report. A description of each rating is provided below.

Data Reliability Rating	Definition
A	The flood data used in this report is based on recent flood investigations and topographical information. It is therefore considered the most reliable flood information held in Council’s Regional Floodplain Database.
B	The flood data used in this report is based on the most current, but not recent, flood investigations and topographical information held in the Council’s Regional Floodplain Database. Changes to the predicted level and extent of inundation could be possible in the near future.
C	Council has commenced review of this flood data and will update this information once the review is completed.
D	Council has commenced review of this flood data and will update this information once the review is completed. The data is considered to be low quality but a flooding extent has been provided to give an indication of the areas that may be inundated.

Over time Council will continue to upgrade lower rating data sources through further flood and storm tide investigations.

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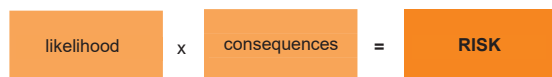
Flood Check Fact sheet 4

How to interpret the flooding information

When interpreting the information provided in the report you should consider your overall risk from all types of flooding and their likelihoods.

If you have not done so already, we recommend that you view the *Suburb Flood maps* and *Storm Tide maps* to gain an appreciation of potential flooding conditions in the area. Please refer to Fact Sheet 2: *Interpreting Suburb Maps*.

The overall **risk** of loss or damage from each flood event is a combination of likelihood and consequences.



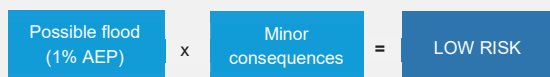
Once you have understood the potential flooding conditions for the property you should consider the potential **consequences** that may arise from similar sized flood events actually occurring:

- Which areas of the property could be flooded?
- Will flooding result in any damage to these areas?
- Will flooding affect my ability to travel to work/school?

Next consider the **likelihood** of a similar sized flood event occurring. Please refer to Fact Sheet 5: *Understanding the likelihood of floods*.

Example

If a corner of your property away from the residence is affected by shallow flooding during a low likelihood 0.1% AEP flood event, then the potential consequences are likely to be small; the chance of it happening is low; and therefore your overall flood risk will be low.



Consider what actions you would need to take to manage the consequences of flooding. Your actions should reflect the overall degree of risk to you, your family, your business and employees, and the home and assets.

When purchasing a property

When purchasing a property, you should use the information in the report to provide you with a better understanding of the potential flooding conditions for the property.

Your willingness and ability to undertake the necessary actions to manage these flood conditions should be considered when assessing the suitability of this property to your needs and lifestyle.

Before making any decisions, please review the limitations of the report. If you have any concerns or are uncertain about how to interpret the information, please contact Council or consult with a qualified professional engineer.

When making an Emergency Plan

The information contained in the report can help you to understand the likelihood and potential consequences of flooding at your place of residence or work. If you live in a flood prone area it is important to prepare an **Emergency Plan** to plan for your safety during floods.

For more information on making an emergency plan, preparing an emergency kit, getting your home ready, tuning into warnings, and generally preparing for cyclone, severe storm, tsunami or flood, visit www.moretonbay.qld.gov.au/disaster

For building and development

If planning new building or development works on this property, please refer to:

Flood Check Development Report
www.moretonbay.qld.gov.au/floodsearch.aspx

Moreton Bay Regional Council's Planning Scheme
www.moretonbay.qld.gov.au/mbrclplanningscheme

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Flood Check Fact sheet 4

Limitations of the report

The flood and storm tide mapping information produced by Council is generated on a regional scale. The information currently utilises the ground level elevations generated from an Aerial Laser Survey performed in 2014 to determine the extent of flooding for the region. Individual property ground level details could vary from the aerial laser survey results where, for example, there is an elevated house pad underneath a building. This level of detail is currently beyond the resolution of the mapping provided by Council.

The survey data we used to determine the extent and depth of potential inundation is captured and updated periodically. This means that the information we provide may not always accurately represent flood behaviour on land that has recently been modified, such as a new subdivision. These differences, when they occur, are temporary and will be rectified in future updates to Council's Regional Floodplain Database.

The Flood Check report only provides information about the potential inundation at the peak of the flood event. It does not give any guidance on the duration of the inundation. Rainfall is highly variable and the period of inundation will largely depend in the length of rainfall. The accuracy of the mapped extent of flooding shown in the report is limited by the accuracy of the available topographic information.



From time to time we may become aware of flood data that has a potential reliability problem. When this occurs a note is added to the reports for these affected properties. The areas of reduced data reliability are also shown with shading on the report maps.

Flood model refinements are included in future updates and may change the flooding information provided for the property you are interested in. So we recommend that you periodically check back on Council's website to get an updated report.

Feedback

If you believe the mapping information provided in the Flood Check Property Report is not accurate, please access the:

"Mapping Challenge" process on Council's website
www.moretonbay.qld.gov.au/mappingchallenge

Submit your concerns for consideration against the Flood Check Property Report category.

Need more information?

If you need more information or assistance, please contact Council on 07 3205 0555.

by e-mail: flood@moretonbay.qld.gov.au

Or addressed in writing to:

Floodplain Management Team
Moreton Bay Regional Council
PO Box 159
Caboolture QLD 4510

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Flood Check ✓ Fact sheet 5

Understanding the likelihood of floods

By using historical rainfall, flood level records and hydrological calculations, the likelihood of the occurrence of different sized floods can be determined. This Fact Sheet provides information to assist in understanding flood likelihood and the associated terminology used in Council's Flood Check reports.

What is the likelihood of the flooding shown on the flood maps?

The size of a flood is described in terms of how frequently similar sized or larger floods are expected to occur over the very long term (several 100s of years). Small floods are likely to occur frequently, while large floods are possible but far less common.

Council flood maps and the *Flood Check* reports provide information for a range of different sized flood events. The size of a flood is described in terms of *Annual Exceedance Probability (AEP)*, which describes the likelihood of an event with a given magnitude or greater occurring in any one year (usually expressed as a percentage).

In terms of flood level at a particular location, lower flood levels (due to small floods) have a high probability of being exceeded in any one year, whereas higher flood levels (due to larger, less frequent floods) have a lower probability of being exceeded in any one year. AEP describes these likelihoods in a statistically correct manner.

The 1% AEP Flood is sometimes referred to as the '100 year', '1 in 100 year' or 'Q100' Flood event. Although these terms appear straight forward, they are sometimes misinterpreted as indicating that the associated magnitude is only exceeded at regular intervals, or that they describe how long it will be until the next event of this magnitude occurs. AEP more correctly acknowledges that floods can and do occur at any time.

Council flood maps and the *Flood Check* reports provide information about flood events at 3 different AEPs (where applicable). A 5% AEP Flood event is a moderate sized flood that, over the longer term, is likely



to occur. The 1% AEP Flood event is a large and rare flood that, over the longer term, is possible and is typically used as the reference flood event for planning and risk management, as well as insurance purposes.

The 0.1% AEP Flood is a very large and very rare event. While unlikely, the Moreton Bay Region has experienced floods of this magnitude including the 'Great Flood of 1893' within the Stanley River catchment, the January 2011 floods within the North Pine River catchment and more recently in the May 2015 floods within King Johns Creek.

AEP defines the probability of a flood level being equaled or exceeded in any one year. It is quite possible, and statistically correct, for large flood events to occur only a few years apart. For example, in the Brisbane River very large floods occurred in 2011 and 1974. Prior to that, the Brisbane River experienced three floods equal to or greater than the 1974 flood, all occurring over the space of an 8 year period during the 1890s. Prior to that, the Brisbane River experienced two floods of magnitude similar to the "Great Flood of 1893" over a 5 year period during the 1840s.

Remember: Although very large floods are unlikely, it is important that you are aware they can occur so you can plan for your safety.

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Flood Check Fact sheet 5

Council has adopted standard terminology and definitions to help describe the likelihood of a range of different sized flood events. These are described in the following table.

Floods are quite rare and uncommon. The terms ‘likely’, ‘possible’ and ‘unlikely’ are intended to give an appreciation of the relative likelihood, over a long period of time, of the three flood events displayed on Council’s maps occurring.

AEP	Likelihood (over a moderate period of time)	Flood Size	Description
5%	Likely Over a 30 year period, there is a 78% chance of this flood level being exceeded on one or more occasions	Moderate	A moderate flood event that is likely to be observed from time to time. Over a long period of time (several 100s of years) an event of similar size or greater may occur on average once every 20 years. It is likely an event of this size will occur on one or more occasions during a single lifetime. Within the Moreton Bay Region, representative flood events of this size occurred in the middle reaches of Burpengary Creek, and in the middle reaches of Caboolture River and Lagoon Creek during May 2009 as well as in the lower reaches of South Pine River during May 2015.
1%	Possible Over a 30 year period, there is a 26% chance of this flood level being exceeded on one or more occasions	Large	A large flood event that is possible and used for flood planning purposes. Over a long period of time (several 100s of years) an event of similar size or greater may occur on average once every 100 years. It is possible an event of this size will occur at some time during a single lifetime. Within the Moreton Bay Region, representative flood events of this size occurred in the upper and middle reaches of the Caboolture River, in Elimbah and Sidling Creeks during January 2011, as well as in the middle reaches of Burpengary Creek during May 2015.
0.1%	Unlikely Over a 30 year period, there is a 3% chance of this flood level being exceeded on one or more occasions	Very Large	A very large and unlikely flood event. Over a very long period of time (several 100s of years) an event of similar size or greater may occur on average once every 1,000 years. Few people will ever experience an event of this size. When an event of this size is observed it is considered to be very exceptional. Within the Moreton Bay Region, representative flood events of this size occurred in the middle reaches of the North Pine River during January 2011 and in the middle reaches of King Johns and Saltwater Creeks during May 2015. Whilst very rare, these events can and do occur.

Council’s flood information also includes a representation of the Flood Planning Area. This is derived from the theoretical maximum extent of the floodplain and is based on the estimated maximum flooding possible. Council also provides storm tide information, which is similarly classified and includes a representation of the Coastal Planning Area.

Need more information?

If you want detailed information about actual flood and storm tide levels obtain a *Flood Check Property Report*.
If you are planning new building and development works obtain a *Flood Check Development Report*.

Enquiries and feedback can be submitted to Council by **e-mail** flood@moretonbay.qld.gov.au or addressed in **writing** to: Floodplain Management Team, Moreton Bay Regional Council, PO Box 159, Caboolture QLD 4510.

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont)

Flood Check Property report

Property

Reference: Lot 4 Plan RP51647

**94 HORNIBROOK ESPLANADE
CLONTARF QLD 4019**

About this report

This *Flood Check Property Report* provides information from Council's Regional Flood Database **that is relevant for this property.**

Property specific information is provided about the four types of flooding that can affect the Moreton Bay region, which include:

- Flood
- Overland flow
- Storm Tide
- Tidal Inundation

This report will help you to better understand the potential flood risks that currently apply to this property.

The report may also prove beneficial when preparing a flood emergency plan or applying for flood insurance.



Further information

Included at the end of this report are fact sheets that may assist in interpreting the contents of the report. Further fact sheets, flood maps and flood investigation reports are also available from Council's website: www.moretonbay.qld.gov.au/floodcheck

Are you planning building or development?

If planning new **building or development works on this property**, please refer to the: *Flood Check Development Report* for this property: www.moretonbay.qld.gov.au/floodsearch
Moreton Bay Regional Council's Planning Scheme: www.moretonbay.qld.gov.au/mbrcplanningscheme

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Flood Check Property report

Summary

Reference: Lot 4 Plan RP51647

Flood

Flooding occurs when heavy rainfall causes the water levels in a river, creek or urban drainage system to rise and exceed the capacity of the main channel or pipe network.

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Flood events.

Overland Flow

Overland flow represents the inundation of gullies and depressions where runoff may flow on its way to a watercourse.

Parts of this property are within or adjacent to Council's known Overland Flow mapping extents.

Tidal Inundation

Tidal inundation can occur on low lying coastal land where sea levels fluctuate based on the position of the sun and the moon.

This property is above the estimated level of a *Highest Astronomical Tide (HAT)*.

Highest Astronomical Tides typically occur twice a year.

Storm Tide

Storm Tide inundation occurs on coastal land when extreme weather conditions raise sea levels to above the normal tide levels.

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Storm Tide events.

What is AEP?

Flood and Storm Tide information is provided for a range of event likelihoods. The likelihood of these events occurring is described in terms of their *Annual Exceedance Probability* or *AEP*.

AEP describes the likelihood of an event with a given magnitude or greater occurring in any one year, usually expressed as a percentage. The 1% AEP event is typically referred to for planning, risk assessment and insurance purposes.

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Flood Check Property report

Technical Summary (page 1 of 5)

Reference: Lot 4 Plan RP51647

Property Levels

Minimum Ground Elevation:	3.1 m AHD	(AHD - Australian Height Datum)
Maximum Ground Elevation:	4.0 m AHD	
Average Ground Elevation:	3.5 m AHD	
Elevation Data Source:	Aerial Laser Survey - DERM/MBRC (April 2013)	
Floor Level of Lowest Building:	Not determined	

Flood

This property is located in the Redcliffe catchment. Flood investigation reports are available for free download from Council's website: www.moretonbay.qld.gov.au/general.aspx?ekfrm=114179

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Flood events.

Where relevant, detail regarding existing river, creek or urban drainage flooding is provided in the table below and on the Flood Map on page 2.

Note that the Flood Map will only show the 1% AEP Flood extent and Flood Planning Area. Maps for the 5% AEP and 0.1% AEP Flood events are available from Council's website: www.moretonbay.qld.gov.au/floodcheck

Flood Event	Minimum Property Flood Level (m AHD)	Maximum Property Flood Level (m AHD)	Percent of Property Affected	Maximum Building Flood Level (m AHD)	Data Reliability
5% AEP	-	-	-	-	-
1% AEP	-	-	-	-	-
0.1% AEP	-	-	-	-	-

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- A18270067 (Cont)

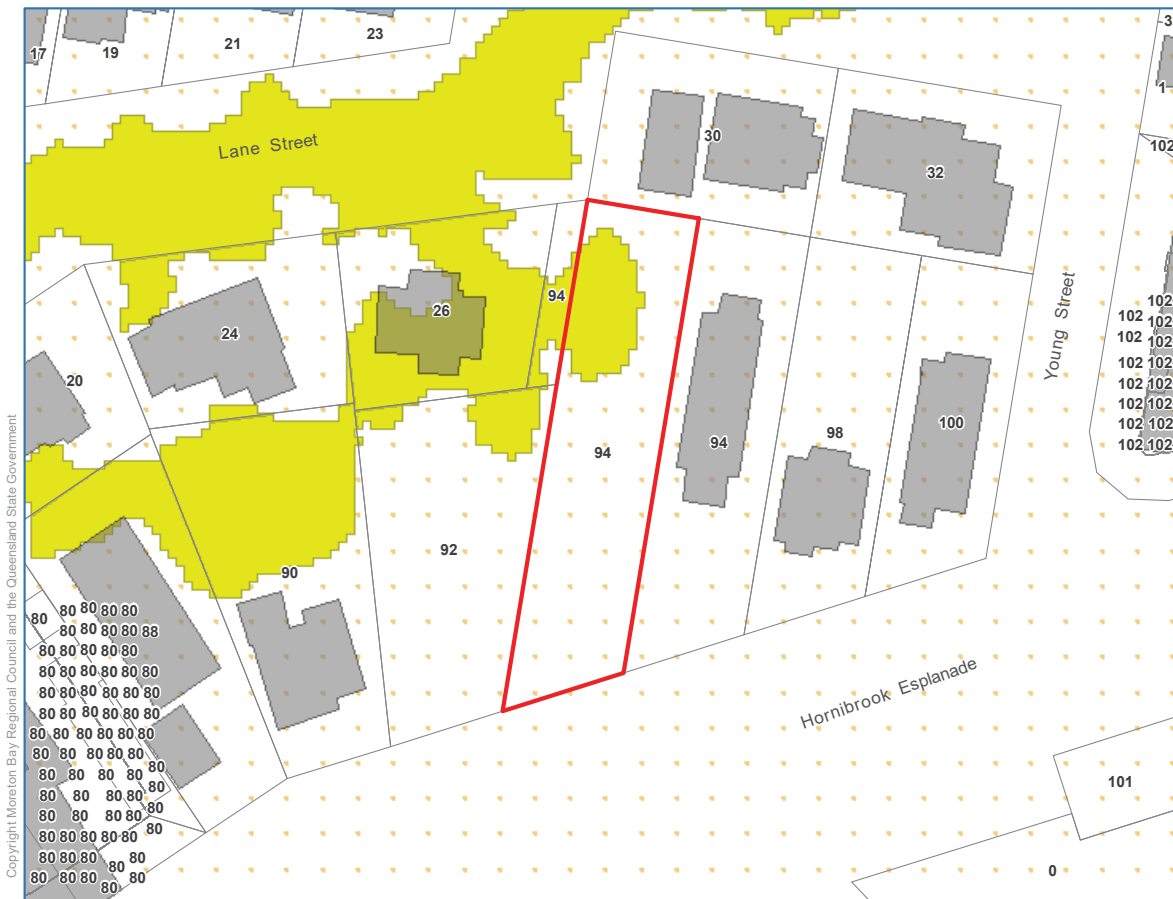
Flood Check Property report














Technical Summary (page 2 of 5)

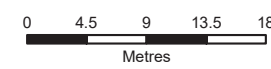
Reference: Lot 3 Plan RP51637

Flood Map

This map shows the existing 1% AEP Flood depths, Overland Flow and Council's Flood Planning Area where applicable. To view other flood mapping refer to Council's website: www.moretonbay.qld.gov.au/floodcheck



-  Subject property
-  Overland Flow
-  Registered parcels
-  Flood depth - 1% AEP 0 - 0.25m
-  Flood depth - 1% AEP 0.25 - 0.5m
-  Flood depth - 1% AEP 0.5 - 1m
-  Flood depth - 1% AEP Greater than 1m
-  Flood Planning Area
-  Limited data reliability
-  Data subject to change
-  Endorsed parcels
-  Buildings
-  Lowest building floor



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Flood Check Property report

Technical Summary (page 4 of 5)

Reference: Lot 4 Plan RP51647

Overland Flow

Overland Flow mapping identifies the inundation of gullies and depressions where runoff may flow on its way to a watercourse. This mapping also includes the representation of flow paths that can occur when the capacity of local stormwater infrastructure is exceeded.

The current mapping is based on ground level elevations from the 2014 Aerial Laser Survey. The mapping methodology is described in the following report: *Overland Flowpath Mapping* by MBRC, September 2017.

The overland flow mapping report is available for free download from Council's website:
www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/living/floodplains/overland-flow-path-mapping.pdf

Parts of this property are within or adjacent to Council's known Overland Flow mapping extents.

Where relevant, further detail regarding possible overland flow on this property is provided on the Flood Map on page 2.

If you are concerned about overland flow flooding at this property please consult a qualified and experienced engineer for further advice. Please note that Council currently does not provide any advice regarding flood levels or depths for overland flow.

Tidal Inundation

Some properties located near our coastline are relatively low-lying compared to sea level and therefore may be affected by tidal inundation.

This property is above the estimated level of a *Highest Astronomical Tide (HAT)*.
Highest Astronomical Tides typically occur twice a year.

Please note that this advice is sensitive to the accuracy of the property ground level information that was used for this report. This is particularly the case for properties with level terrain and vertical walls on their tidal boundary, for example alongside a canal.

If you are concerned about this and wish to confirm the susceptibility of this property to tidal inundation please consult a qualified and experienced engineer for further advice. Please note that Council currently does not provide any advice regarding flood levels or depths for tidal inundation.

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Flood Check Property report

Technical Summary (page 3 of 5)

Reference: Lot 4 Plan RP51647

Storm Tide

This property is located in the Redcliffe catchment. Storm Tide investigation reports are available for free download from Council's website: www.moretonbay.qld.gov.au/general.aspx?ekfrm=114179

This property is outside the extent of the 5% AEP, 1% AEP and 0.1% AEP Storm Tide events.

Where relevant, detail regarding existing storm tide behaviour is provided in the following table and on the Storm Tide Map. Note that the map only shows the 1% AEP Storm Tide extent and Coastal Planning Area.

Maps for the 5% AEP and 0.1% AEP Flood events are available from Council's website: www.moretonbay.qld.gov.au/floodcheck

Storm Tide Event	Minimum Property Storm Tide Level (m AHD)	Maximum Property Storm Tide Level (m AHD)	Percent of Property Affected	Maximum Building Storm Tide Level (m AHD)	Data Reliability
5% AEP	-	-	-	-	-
1% AEP	-	-	-	-	-
0.1% AEP	-	-	-	-	-

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Flood Check Property report

Technical Summary (page 5 of 5)

Reference: Lot 4 Plan RP51647

Your feedback

If you believe the mapping information provided in this report is not accurate, please utilise the “Mapping Challenge” process on Council’s website and submit your concerns for consideration against the Flood Check Property Report category: www.moretonbay.qld.gov.au/mappingchallenge

If you need more information or assistance with interpreting this report please contact Council on 3205 0555 or enquiries can be submitted by e-mail flood@moretonbay.qld.gov.au or addressed in writing to:

*Floodplain Management Team
Moreton Bay Regional Council
PO Box 159
Caboolture QLD 3510*

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Flood Check Fact sheet 4

How to interpret a Flood Check Property Report

This document should be read in conjunction with the guidance and information provided in Flood Check Fact Sheet 1: *Things to know about flood maps.*

The *Flood Check Property Report* informs you of the potential flood and storm tide conditions anticipated for a property, considering a range of different sized events. An explanation of the way we describe the likelihood of these events occurring is provided in Flood Check Fact Sheet 5: *Understanding the likelihood of floods.*

When to request a report

Council encourages everyone interested in a property to download a free report from our website to understand the risks of flooding that currently exist for the property. We recommend that a *Flood Check Property Report* be obtained both before purchasing a property and periodically thereafter in order to ensure that you have the latest and most up to date information.

We also recommend that you should review the Suburb Flood maps to gain an understanding of the potential flooding conditions that could occur in the general neighbourhood surrounding the property.

What the report will tell you

The Summary

<p>Flood</p> <p>Flooding occurs when heavy rainfall causes the water levels in a river, creek or urban drainage system to rise and exceed the capacity of the main channel or pipe network.</p>	<p>Parts of this property are within the extent of:</p> <p>5% AEP Flood event 1% AEP Flood event 0.1% AEP Flood event</p> <p>See the Technical Summary for further information.</p>
<p>Overland Flow</p> <p>Overland flow represents the inundation of gullies and depressions where runoff may flow on its way to a watercourse.</p>	<p>This property is outside Council's known Overland Flow mapping extents.</p> <p>Small unmapped overland flow paths may affect any property after intense rainfall.</p>
<p>Tidal Inundation</p> <p>Tidal inundation can occur on low lying coastal land where sea levels fluctuate based on the position of the sun and the moon.</p>	<p>Parts of this property may be below the estimated level of a Highest Astronomical Tide (HAT).</p> <p>Highest Astronomical Tides typically occur twice a year.</p>
<p>Storm Tide</p> <p>Storm Tide inundation occurs on coastal land when extreme weather conditions raise sea levels to above the normal tide levels.</p>	<p>Parts of this property are within the extent of:</p> <p>5% AEP Storm Tide event 1% AEP Storm Tide event 0.1% AEP Storm Tide event</p> <p>See the Technical Summary for further information.</p>

The report begins with a summary of the potential flooding conditions anticipated for the property for each type of flooding. If the report indicates that the property is affected by one or more types of flooding, then further information about each type of flooding will be provided in the Technical Summary section on the following pages.

The Technical Summary

The Technical Summary section is included in a report when the property is subject to one or more types of flooding.

This section begins with reference level information for the property. Minimum, maximum and average ground elevations are provided in metres AHD.

All elevations and flood heights within the report are provided with reference to the Australian Height Datum or AHD. AHD is the standard elevation reference for mapping purposes adopted by the National Mapping Council of Australia. As a general guide, 0.0m AHD is approximately equal to mean sea level.

Where we have been able to determine the floor level of the lowest building on the property, this is also provided, along with information on the survey accuracy of this floor level. In some cases, there may be more than one building on the property. The building determined to have the lowest floor level is indicated on the maps that are included in the Technical Summary section.

The Technical Summary provides details of the anticipated conditions for each type of flooding that could affect the property. For each of these, the source and currency of the flooding information is provided, along with flood level data where available.

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Flood Check Fact sheet 4

The Data Tables

The Technical Summary section of the report contains data tables that provide minimum and maximum anticipated flood and storm tide levels across the property for a range of flooding events. Flood levels can vary across a property, particularly for large properties, where ground levels can vary significantly across the site.

Flood and storm tide information is provided for a range of event likelihoods. The likelihood of these events occurring is described in terms of their *Annual Exceedance Probability* or AEP.

AEP describes the likelihood of a flooding event with a given magnitude or greater occurring in any one year, usually expressed as a percentage.

The data tables also indicate the estimated percentage of the property that would be inundated for each of these events.

Flood Event	Minimum Property Flood Level (m AHD)	Maximum Property Flood Level (m AHD)	Percent of Property Affected	Maximum Building Flood Level (m AHD)	Data Reliability
5% AEP	6.6	6.9	42%	-	A
1% AEP	7.7	8.0	53%	7.8	A
0.1% AEP	9.3	9.6	100%	9.6	A

Where we have determined a building floor, the tables contain the maximum anticipated flood or storm tide level within the building footprint.

The data tables also include a data reliability rating as an indicator of the current level of confidence in the values provided for each flood and storm tide event.

Data Reliability Ratings

The flooding information presented in the report and via Council’s Flood Check web site is the best available information, endorsed by Council, and reflected in the Planning Scheme. This information has been compiled from numerous sources and studies.

The quality of the information available may not be uniform across the catchment and the findings of some studies may be considered to have been derived from more reliable information than others. No flood or storm tide investigation or related flooding information should ever be considered to be perfect.

To communicate the potential difference between sources of flood information, and to infer the degree of confidence held in the data provided, the report includes a reliability rating for flood and storm tide data. We encourage you to consider the reliability of the data when interpreting the information in the report. A description of each rating is provided below.

Data Reliability Rating	Definition
A	The flood data used in this report is based on recent flood investigations and topographical information. It is therefore considered the most reliable flood information held in Council’s Regional Floodplain Database.
B	The flood data used in this report is based on the most current, but not recent, flood investigations and topographical information held in the Council’s Regional Floodplain Database. Changes to the predicted level and extent of inundation could be possible in the near future.
C	Council has commenced review of this flood data and will update this information once the review is completed.
D	Council has commenced review of this flood data and will update this information once the review is completed. The data is considered to be low quality but a flooding extent has been provided to give an indication of the areas that may be inundated.

Over time Council will continue to upgrade lower rating data sources through further flood and storm tide investigations.

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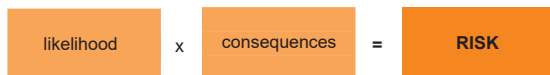
Flood Check Fact sheet 4

How to interpret the flooding information

When interpreting the information provided in the report you should consider your overall risk from all types of flooding and their likelihoods.

If you have not done so already, we recommend that you view the *Suburb Flood maps* and *Storm Tide maps* to gain an appreciation of potential flooding conditions in the area. Please refer to Fact Sheet 2: *Interpreting Suburb Maps*.

The overall **risk** of loss or damage from each flood event is a combination of likelihood and consequences.



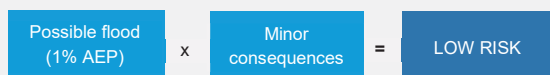
Once you have understood the potential flooding conditions for the property you should consider the potential **consequences** that may arise from similar sized flood events actually occurring:

- Which areas of the property could be flooded?
- Will flooding result in any damage to these areas?
- Will flooding affect my ability to travel to work/school?

Next consider the **likelihood** of a similar sized flood event occurring. Please refer to Fact Sheet 5: *Understanding the likelihood of floods*.

Example

If a corner of your property away from the residence is affected by shallow flooding during a low likelihood 0.1% AEP flood event, then the potential consequences are likely to be small; the chance of it happening is low; and therefore your overall flood risk will be low.



Consider what actions you would need to take to manage the consequences of flooding. Your actions should reflect the overall degree of risk to you, your family, your business and employees, and the home and assets.

When purchasing a property

When purchasing a property, you should use the information in the report to provide you with a better understanding of the potential flooding conditions for the property.

Your willingness and ability to undertake the necessary actions to manage these flood conditions should be considered when assessing the suitability of this property to your needs and lifestyle.

Before making any decisions, please review the limitations of the report. If you have any concerns or are uncertain about how to interpret the information, please contact Council or consult with a qualified professional engineer.

When making an Emergency Plan

The information contained in the report can help you to understand the likelihood and potential consequences of flooding at your place of residence or work. If you live in a flood prone area it is important to prepare an **Emergency Plan** to plan for your safety during floods.

For more information on making an emergency plan, preparing an emergency kit, getting your home ready, tuning into warnings, and generally preparing for cyclone, severe storm, tsunami or flood, visit www.moretonbay.qld.gov.au/disaster

For building and development

If planning new building or development works on this property, please refer to:

Flood Check Development Report

www.moretonbay.qld.gov.au/floodsearch.aspx

Moreton Bay Regional Council's Planning Scheme

www.moretonbay.qld.gov.au/mbrclplanningscheme

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Flood Check Fact sheet 4

Limitations of the report

The flood and storm tide mapping information produced by Council is generated on a regional scale. The information currently utilises the ground level elevations generated from an Aerial Laser Survey performed in 2014 to determine the extent of flooding for the region. Individual property ground level details could vary from the aerial laser survey results where, for example, there is an elevated house pad underneath a building. This level of detail is currently beyond the resolution of the mapping provided by Council.

The survey data we used to determine the extent and depth of potential inundation is captured and updated periodically. This means that the information we provide may not always accurately represent flood behaviour on land that has recently been modified, such as a new subdivision. These differences, when they occur, are temporary and will be rectified in future updates to Council's Regional Floodplain Database.

The Flood Check report only provides information about the potential inundation at the peak of the flood event. It does not give any guidance on the duration of the inundation. Rainfall is highly variable and the period of inundation will largely depend in the length of rainfall. The accuracy of the mapped extent of flooding shown in the report is limited by the accuracy of the available topographic information.



From time to time we may become aware of flood data that has a potential reliability problem. When this occurs a note is added to the reports for these affected properties. The areas of reduced data reliability are also shown with shading on the report maps.

Flood model refinements are included in future updates and may change the flooding information provided for the property you are interested in. So we recommend that you periodically check back on Council's website to get an updated report.

Feedback

If you believe the mapping information provided in the Flood Check Property Report is not accurate, please access the:

"Mapping Challenge" process on Council's website
www.moretonbay.qld.gov.au/mappingchallenge

Submit your concerns for consideration against the Flood Check Property Report category.

Need more information?

If you need more information or assistance, please contact Council on 07 3205 0555.

by e-mail: flood@moretonbay.qld.gov.au

Or addressed in writing to:

Floodplain Management Team
Moreton Bay Regional Council
PO Box 159
Caboolture QLD 4510

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Flood Check Fact sheet 5

Understanding the likelihood of floods

By using historical rainfall, flood level records and hydrological calculations, the likelihood of the occurrence of different sized floods can be determined. This Fact Sheet provides information to assist in understanding flood likelihood and the associated terminology used in Council's Flood Check reports.

What is the likelihood of the flooding shown on the flood maps?

The size of a flood is described in terms of how frequently similar sized or larger floods are expected to occur over the very long term (several 100s of years). Small floods are likely to occur frequently, while large floods are possible but far less common.

Council flood maps and the *Flood Check* reports provide information for a range of different sized flood events. The size of a flood is described in terms of *Annual Exceedance Probability (AEP)*, which describes the likelihood of an event with a given magnitude or greater occurring in any one year (usually expressed as a percentage).

In terms of flood level at a particular location, lower flood levels (due to small floods) have a high probability of being exceeded in any one year, whereas higher flood levels (due to larger, less frequent floods) have a lower probability of being exceeded in any one year. AEP describes these likelihoods in a statistically correct manner.

The 1% AEP Flood is sometimes referred to as the '100 year', '1 in 100 year' or 'Q100' Flood event. Although these terms appear straight forward, they are sometimes misinterpreted as indicating that the associated magnitude is only exceeded at regular intervals, or that they describe how long it will be until the next event of this magnitude occurs. AEP more correctly acknowledges that floods can and do occur at any time.

Council flood maps and the *Flood Check* reports provide information about flood events at 3 different AEPs (where applicable). A 5% AEP Flood event is a moderate sized flood that, over the longer term, is likely



to occur. The 1% AEP Flood event is a large and rare flood that, over the longer term, is possible and is typically used as the reference flood event for planning and risk management, as well as insurance purposes.

The 0.1% AEP Flood is a very large and very rare event. While unlikely, the Moreton Bay Region has experienced floods of this magnitude including the 'Great Flood of 1893' within the Stanley River catchment, the January 2011 floods within the North Pine River catchment and more recently in the May 2015 floods within King Johns Creek.

AEP defines the probability of a flood level being equaled or exceeded in any one year. It is quite possible, and statistically correct, for large flood events to occur only a few years apart. For example, in the Brisbane River very large floods occurred in 2011 and 1974. Prior to that, the Brisbane River experienced three floods equal to or greater than the 1974 flood, all occurring over the space of an 8 year period during the 1890s. Prior to that, the Brisbane River experienced two floods of magnitude similar to the "Great Flood of 1893" over a 5 year period during the 1840s.

Remember: Although very large floods are unlikely, it is important that you are aware they can occur so you can plan for your safety.

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Flood Check Fact sheet 5

Council has adopted standard terminology and definitions to help describe the likelihood of a range of different sized flood events. These are described in the following table.

Floods are quite rare and uncommon. The terms 'likely', 'possible' and 'unlikely' are intended to give an appreciation of the relative likelihood, over a long period of time, of the three flood events displayed on Council's maps occurring.

AEP	Likelihood (over a moderate period of time)	Flood Size	Description
5%	Likely Over a 30 year period, there is a 78% chance of this flood level being exceeded on one or more occasions	Moderate	A moderate flood event that is likely to be observed from time to time. Over a long period of time (several 100s of years) an event of similar size or greater may occur on average once every 20 years. It is likely an event of this size will occur on one or more occasions during a single lifetime. Within the Moreton Bay Region, representative flood events of this size occurred in the middle reaches of Burpengary Creek, and in the middle reaches of Caboolture River and Lagoon Creek during May 2009 as well as in the lower reaches of South Pine River during May 2015.
1%	Possible Over a 30 year period, there is a 26% chance of this flood level being exceeded on one or more occasions	Large	A large flood event that is possible and used for flood planning purposes. Over a long period of time (several 100s of years) an event of similar size or greater may occur on average once every 100 years. It is possible an event of this size will occur at some time during a single lifetime. Within the Moreton Bay Region, representative flood events of this size occurred in the upper and middle reaches of the Caboolture River, in Elimbah and Sidling Creeks during January 2011, as well as in the middle reaches of Burpengary Creek during May 2015.
0.1%	Unlikely Over a 30 year period, there is a 3% chance of this flood level being exceeded on one or more occasions	Very Large	A very large and unlikely flood event. Over a very long period of time (several 100s of years) an event of similar size or greater may occur on average once every 1,000 years. Few people will ever experience an event of this size. When an event of this size is observed it is considered to be very exceptional. Within the Moreton Bay Region, representative flood events of this size occurred in the middle reaches of the North Pine River during January 2011 and in the middle reaches of King Johns and Saltwater Creeks during May 2015. Whilst very rare, these events can and do occur.

Council's flood information also includes a representation of the Flood Planning Area. This is derived from the theoretical maximum extent of the floodplain and is based on the estimated maximum flooding possible. Council also provides storm tide information, which is similarly classified and includes a representation of the Coastal Planning Area.

Need more information?

If you want detailed information about actual flood and storm tide levels obtain a *Flood Check Property Report*.
If you are planning new building and development works obtain a *Flood Check Development Report*.

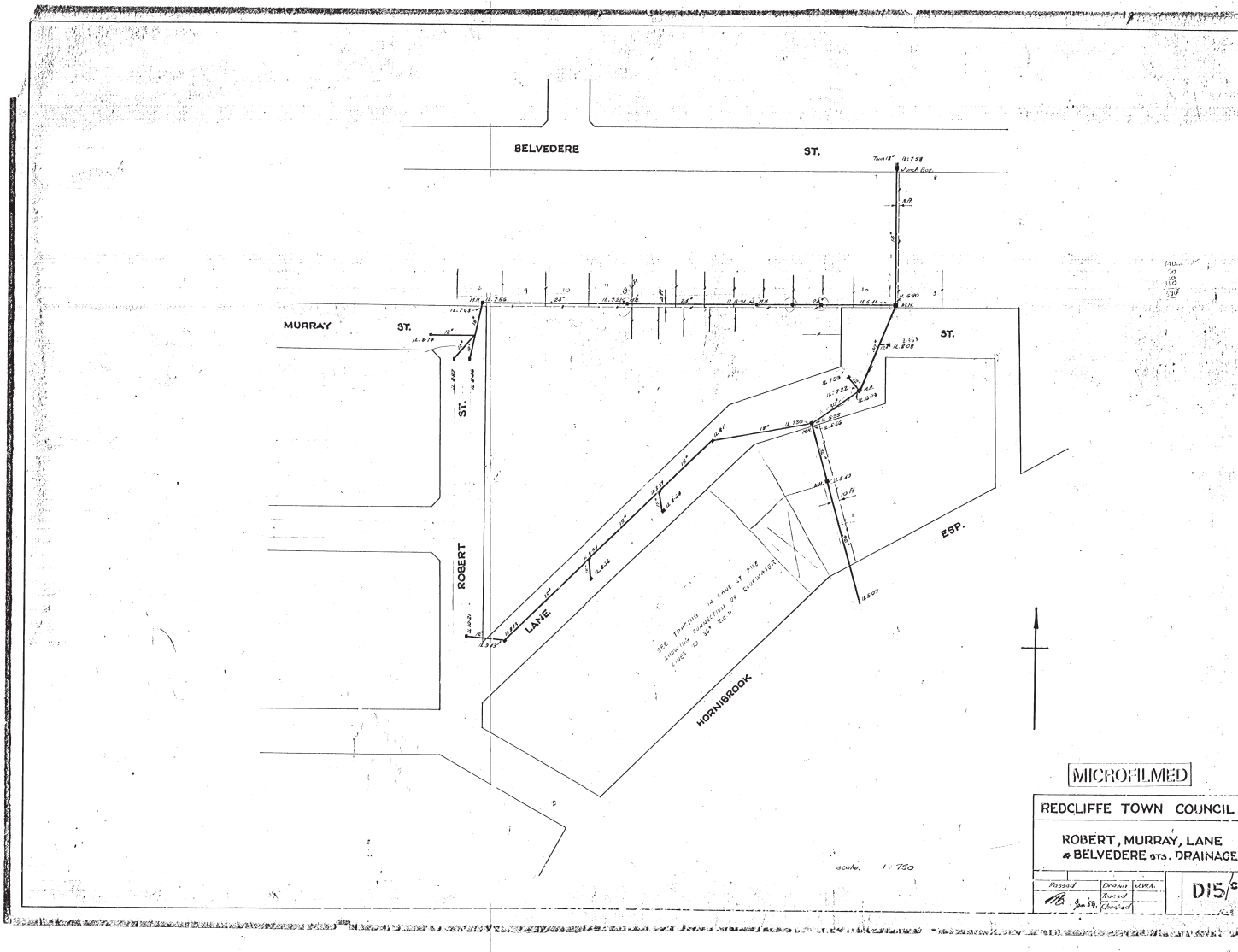
Enquiries and feedback can be submitted to Council by **e-mail** flood@moretonbay.qld.gov.au or addressed in **writing** to: Floodplain Management Team, Moreton Bay Regional Council, PO Box 159, Caboolture QLD 4510.

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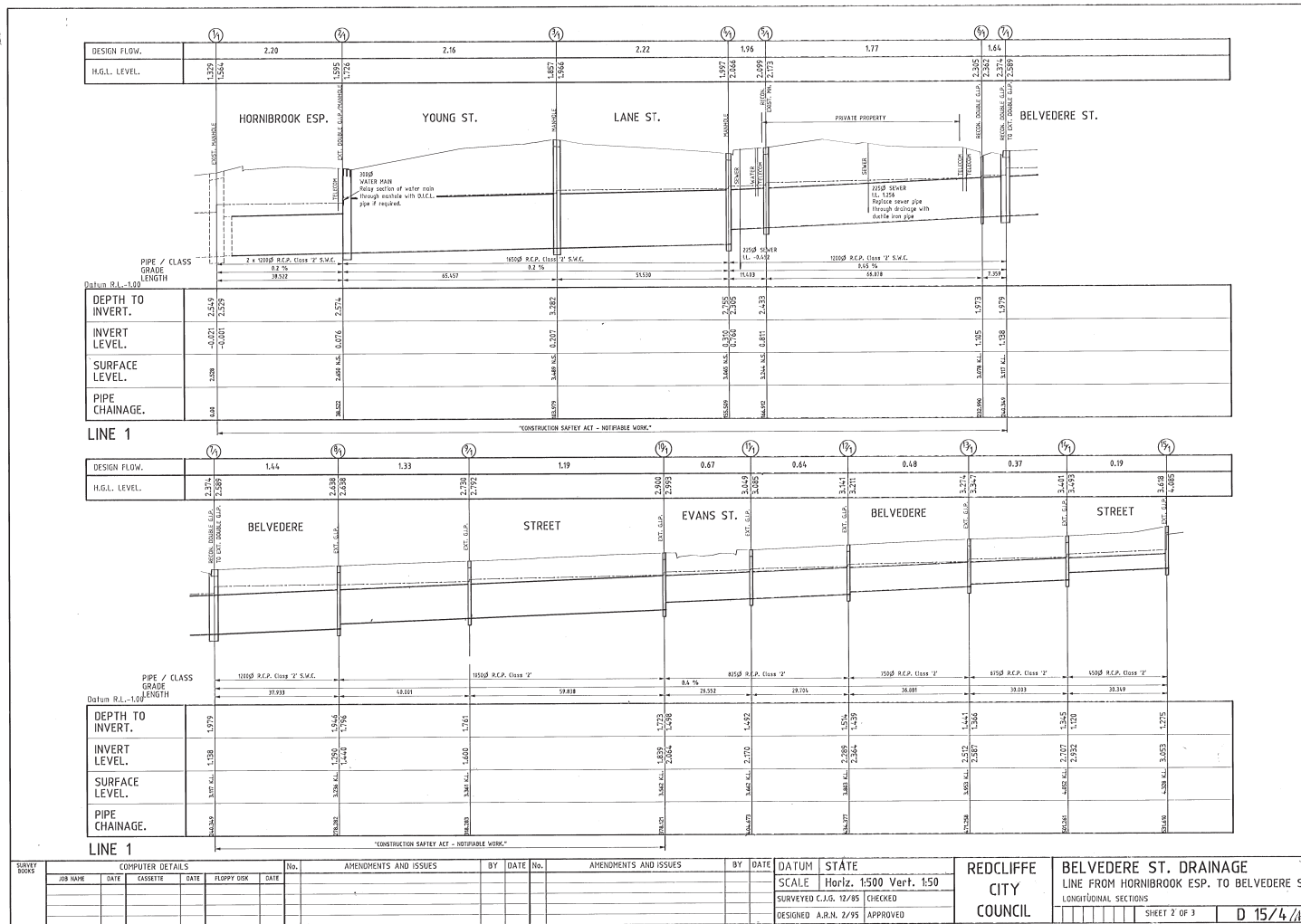


Appendix E Stormwater infrastructure details

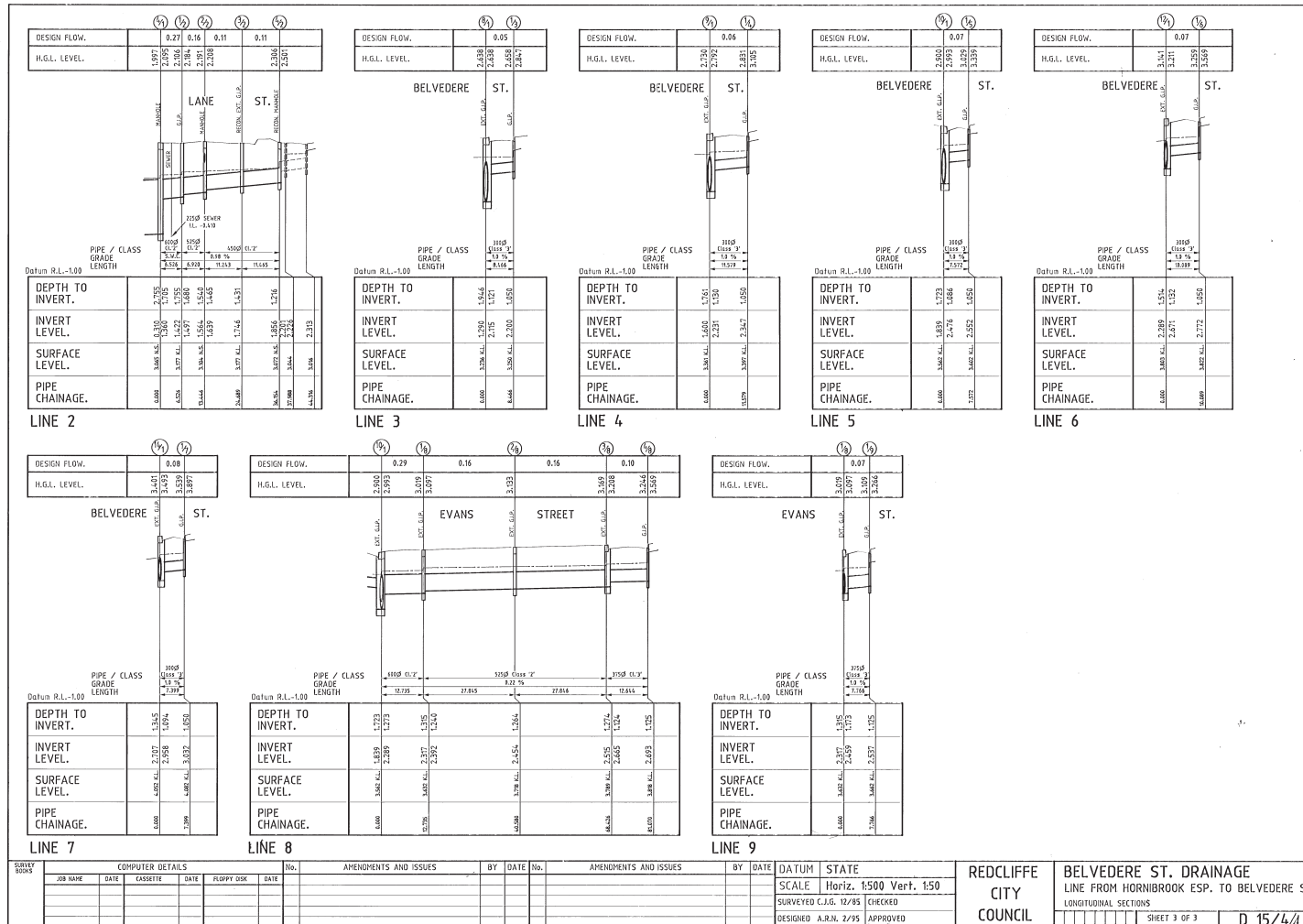
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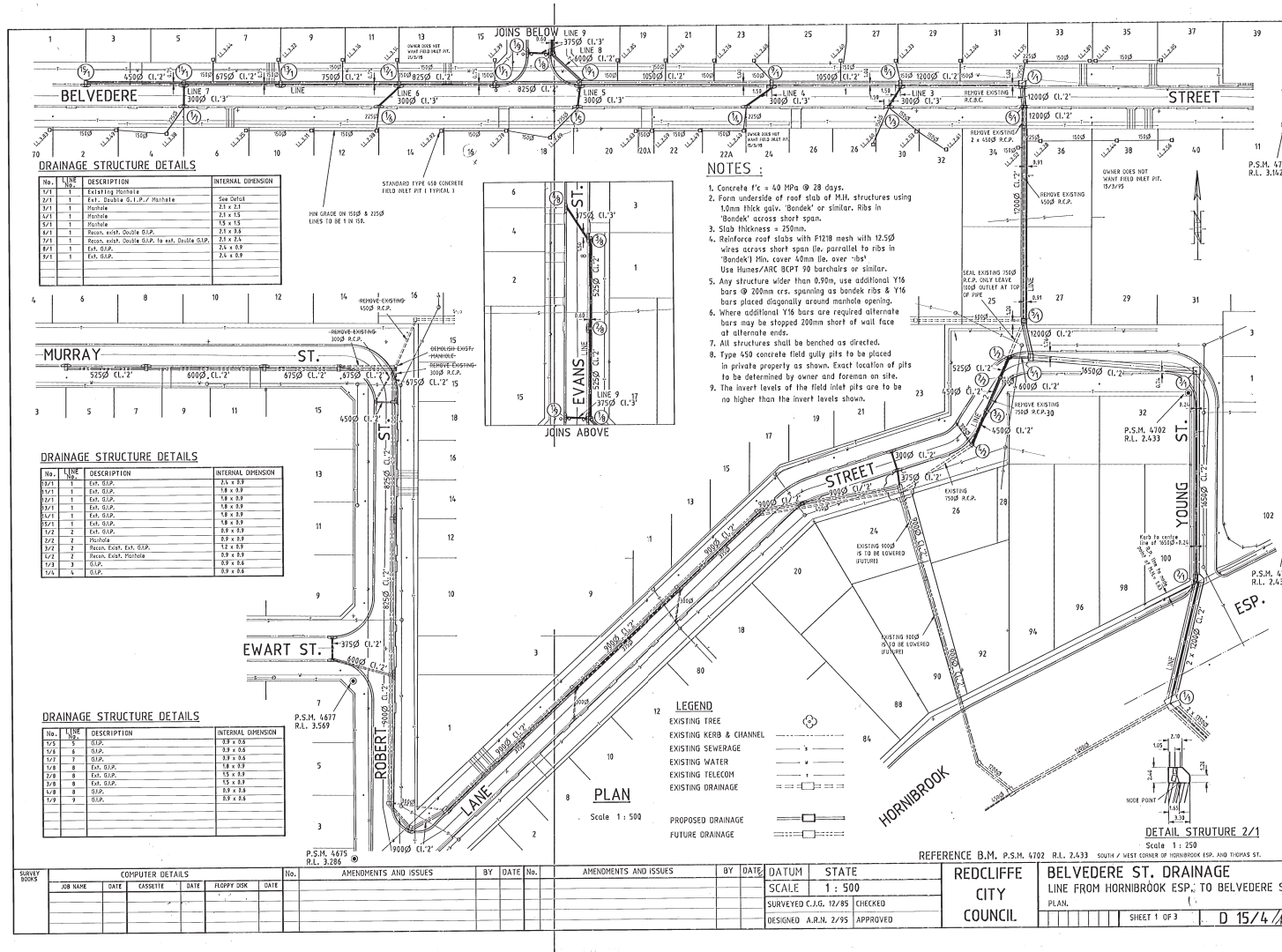
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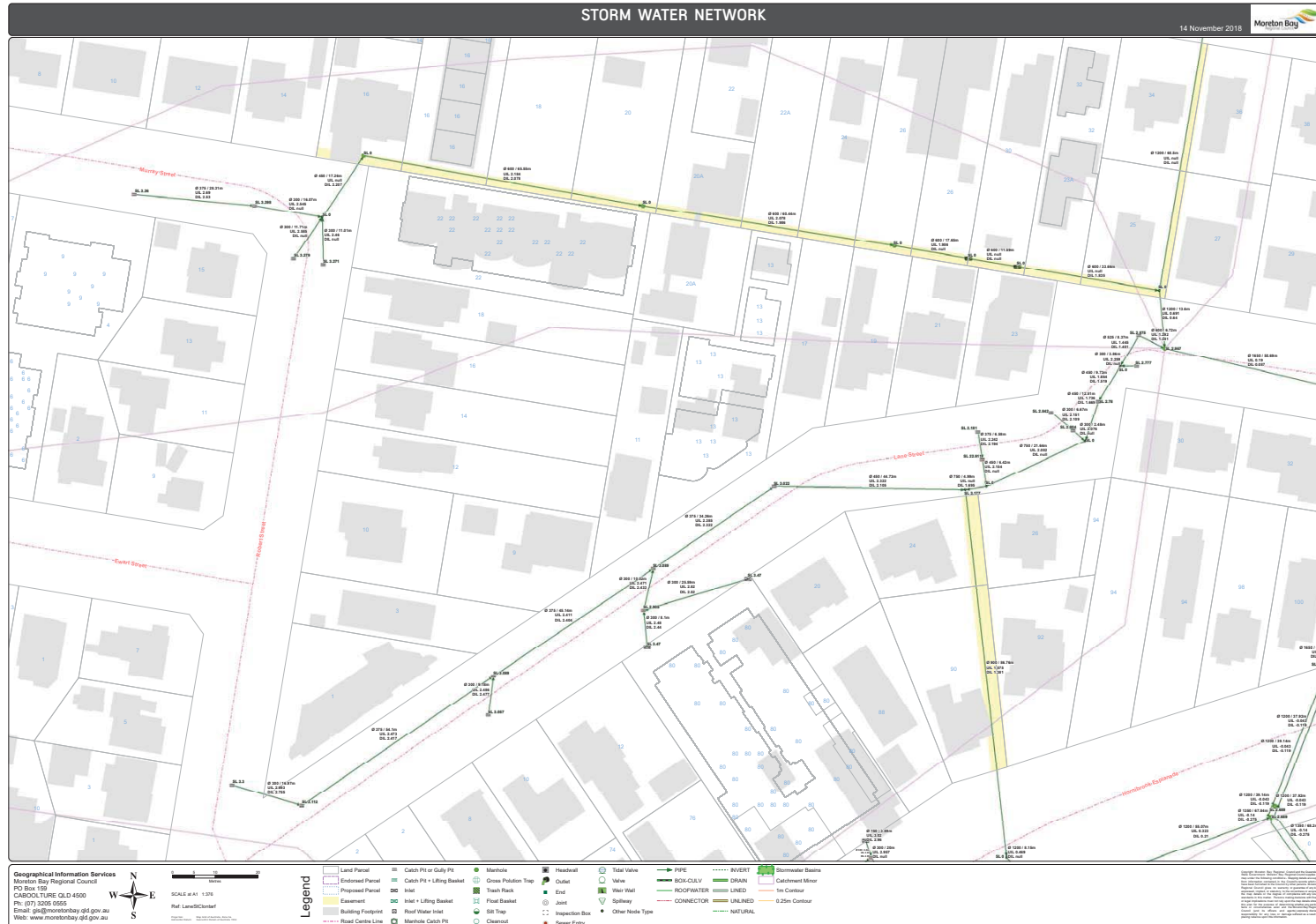
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About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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ACOUSTICS



DATA



TRAFFIC



WASTE

Revision Record

No.	Author	Reviewed/Approved	Description	Date
A	S Yorke		Internal draft	16/11/2018
0	S Yorke	J Fox	Client Issue	16/11/2018
1	S Yorke	J Fox	Client Issue	19/11/2018

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Executive Summary

TTM was engaged by Hastone Australia Pty Ltd to undertake an environmental noise assessment of a proposed mixed-use development located at 92, 94-96 Hornibrook Esplanade, Clontarf. The assessment was based upon the Moreton Bay Regional Council planning scheme.

Unattended noise monitoring was conducted to determine the ambient noise levels at the development location.

The noise impact from onsite noise activities was assessed and is predicted to comply with the relevant criteria at the nearest noise sensitive receivers based on the inclusion of the recommendations outlined in Section 7 of this report.

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1 Introduction

1.1 Background

TTM was engaged by Hastone Australia Pty Ltd to undertake an environmental noise assessment of a proposed mixed-use development located at 92, 94-96 Hornibrook Esplanade, Clontarf. This report will form part of the development application for consideration by Moreton Bay Regional Council.

1.2 References

This report is based on the following:

- Moreton Bay Regional Council *Information Request* dated 26 September 2018.
- Moreton Bay Regional Council Planning Scheme (1st February, 2016).
- Moreton Bay Regional Council *Planning Scheme Policy – Noise*.
- Development plans shown in Appendix A.
- Site inspection, noise measurements, analysis and calculations conducted by TTM.

1.3 Scope

The assessment includes the following:

- Description of the site.
- Measurement of existing ambient noise levels.
- Statement of assessment criteria relating to environmental noise emissions.
- Assessment of noise generated by the development onto nearby sensitive receivers.
- Analysis of measured and predicted noise levels.
- Details of noise control recommendations to be incorporated to achieve predicted compliance.

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2 Site Description

2.1 Site Location

The site is described by the following:

- 92, 94-96 Hornibrook Esplanade, Clontarf

The site locality is shown in Figure 1.

Figure 1: Site Locality



2.2 Current Site Conditions

The site is bound by Hornibrook Esplanade to the south and residential properties to the west, north and east. The current acoustic environment at the site and surrounding area is primarily comprised of noise from road traffic on Hornibrook Esplanade.

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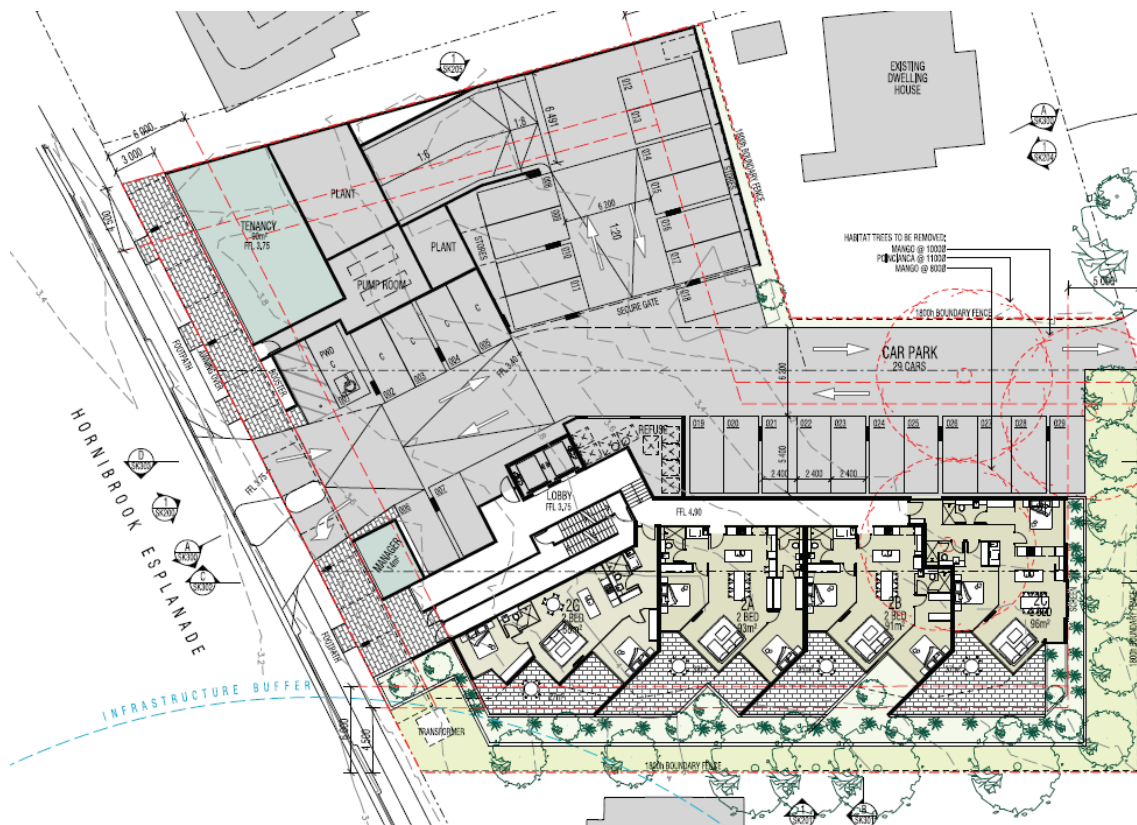
3 The Proposed Development

3.1 Development Description

The proposal is to develop a multi storey residential tower with basement and ground level car parking, and a centralised rooftop plant enclosure. Commercial tenancies are proposed on ground level including an outdoor seating area with hours of operation 6am – 10pm. Vehicle access is from Hornibrook Esplanade.

A ground floor plan of the proposed development is presented in Figure 2. Further samples of the development plans are shown in Appendix A.

Figure 2: Ground Floor Plan



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4 Measurements

4.1 Equipment

The following equipment was used to measure existing noise levels:

- SVAN 959 Environmental noise logger (SN# 12919).
- Rion Sound Calibrator type NC-73 (SN# TTMNC73-01).

All equipment was calibrated by a National Association of Testing Authorities (NATA) accredited laboratory. The equipment was field calibrated before and after the measurement session. No significant drift from the reference signal was recorded.

4.2 Unattended Noise Monitoring

Unattended noise monitoring was conducted to establish the existing ambient noise levels between Tuesday 6th November to Wednesday 14th November, 2018. The noise monitoring location is shown in Figure 3. The monitor was in a position considered representative of the ambient noise levels experienced at the site and the nearest noise sensitive receivers with consideration to access and security requirements.

Figure 3 Noise Monitoring Location



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The microphone was in a free-field location and 1.5m above ground level. The noise monitor was set to measure statistical noise levels in 'A'-weighting, 'Fast' response, over 15 minute intervals. Ambient noise levels were measured in accordance with Australian Standard AS1055:1997 *Acoustics – Description and Measurement of Environmental Noise* (AS1055).

Weather during the monitoring period was generally fine (source: Bureau of Meteorology).

4.3 Noise Source Measurements

Noise levels associated with typical on-site activities were taken from similar investigations conducted by TTM. All measurements were conducted generally in accordance with Australian Standard AS1055:1997 *Acoustics – Description & Measurement of Environmental Noise* (AS1055).

4.4 Results of Measurements

4.4.1 Ambient Noise Levels

Table 1 presents the measured ambient noise levels. The Rating Background Level (RBL) was determined in accordance with the Moreton Bay Regional Council (MBRC) *Planning Scheme Policy – Noise*. Graphical presentation of the measured levels is shown in Appendix B.

Table 1: Measured Ambient Noise Levels

Time Period	Measured Noise Levels, dB(A)	
	RBL L ₉₀	L _{eq}
Daytime (7am – 6pm)	46	60
Evening (6pm – 10pm)	43	57
Night time (10pm – 7am)	35	50

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5 Noise Criteria

The Moreton Bay Regional Council (MBRC) Planning Scheme details site specific planning scheme zones, overlays and codes relevant to a site in the Moreton Bay Regional Council local government area. Table 2 summarises the planning scheme requirements for the site which are relevant to the acoustic assessment.

Table 2: MBRC Planning Scheme - Site Specific Acoustic Requirements

Location	Zone	Zone Precinct
Site	General residential	Urban neighbourhood
Nearest Receivers	General residential	Urban neighbourhood

The General residential (Urban neighbourhood) Zone code relevant performance outcomes for noise are PO12-13. These performance outcomes generally state that noise generating uses do not adversely affect existing or potential noise sensitive uses and sensitive land uses are provided with an appropriate acoustic environment within designated external private outdoor living spaces and internal areas. The proposed development is required to be designed to meet the criteria outlined in the *Planning Scheme Policy – Noise*.

5.1 Planning Scheme Policy - Noise

The MBRC *Planning Scheme Policy – Noise* outlines noise emission and night time external noise criteria. Noise emissions, described by the $L_{Aeq,adj,T}$, should not exceed the established project specific criteria outlined in Table 3.

Table 3: Noise Emission Criteria

Criteria Location	Intrusive noise criteria, dB(A) Day, evening and night $L_{Aeq,adj,T}$ are not greater than the RBL plus 3 dB(A)			Acoustic Amenity Criteria, dB(A) Day, evening and night $L_{Aeq,adj,T}$ are not greater than the values in this column for the relevant criteria location		
	Day 7am-6pm	Evening 6pm-10pm	Night 10pm-7am	Day 7am-6pm	Evening 6pm-10pm	Night 10pm-7am
External to a noise sensitive use in the following zones where the proposed use is located within the same zone: General residential zone	49	46	38	55	45	40
Project Specific Criteria*	49	45	38			

*The project specific noise criterion was determined by applying the most stringent value for each time period from the Intrusive and Amenity noise criteria.

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The night-time noise criteria for ‘impact / short duration’ type noise sources, described by L_{Amax} , are reproduced in Table 4.

Table 4: Night-time Noise Criteria

Criteria Location	Measured $L_{eq,9hr}$ (night time)	Where the existing $L_{eq,9hr}$ night at the criteria location is:	Average of the highest 15 single L_{Amax} events over a given night (10pm-7am) period is not greater than the following value at the relevant criteria location:	The absolute highest single L_{Amax} event over a given night (10pm-7am) period is not greater than the following values at the relevant criteria location:
External to a noise sensitive use in the following zones where the proposed use is located within the same zone: General residential zone	50dB(A)	Up to 60dB(A)	50dB(A)	55dB(A)

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6 Analysis – Onsite Noise

An assessment of on-site activities associated with the proposed development was conducted to determine potential impacts.

6.1 Noise Sensitive Receivers

This assessment will focus on the nearest noise sensitive receivers as outlined below and shown in Figure 4. If compliance can be achieved at these nearest receivers, then all remaining noise sensitive locations are expected to comply.

- Receiver 1: Residential use to the west of the site
- Receiver 2: Residential use to the north of the site
- Receiver 3: Residential use to the east of the site
- Receiver 4: Onsite residential units most exposed to the commercial component of the development (Level 2, south west corner) (assessed in Section 6.4.3)

Figure 4: Noise Sensitive Receivers



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6.2 Noise Source Levels

Table 5 presents the typical transient noise sources associated with the development with the potential to impact the nearest sensitive receivers. The noise source levels were calculated to one metre and include corrections for tonality and impulsiveness as per AS1055. The number of events was estimated for a ‘peak’ one-hour time period providing a ‘worst case scenario’ applied to all time periods.

Table 5: Typical Noise Sources Associated with the Development

Noise Source	Source Prediction Location	Measured Duration (s)	L _{Aeq,T} dB(A)	L _{Amax} dB(A)	‘Peak’ events per hour (All time periods)
Car door close	Nearest car park	2	75	83	10
Car pass-by	Nearest internal road	6	62	N/A*	40
Car engine start	Nearest car park	3	72	75	10
Outdoor dining	Nearest outdoor dining	60	74	N/A*	Continuous
Deliveries	Nearest loading bay	60	85	86	1
Waste collection	Nearest refuse bay	120	77	93	1

*People and vehicle pass-by noise, and other ‘non-impact’ type sources, are excluded from L_{max} assessment in accordance with the noise policy.

6.3 Calculation Assumptions

The following assumptions have been made for noise calculations:

- The onsite traffic generation rate (based on BMC Traffic report BMC18146 29/08/2018), was applied. Car movements were considered at the nearest car parking or driveway area to the receiver. Car door closures and engine starts were predicted from the nearest group of car parking spaces relative to the receiver (ground floor). Basement car activities are enclosed by the building.
- The method of predicting vehicle noise from the nearest single location is conservative as the noise sources would be spread out across the car park at varying distances from the receiver.
- Outdoor dining was predicted from the nearest outdoor dining area. The noise duration was assumed to be continuous during the assessment time period.
- Deliveries and waste collection were predicted from the nearest loading bay or waste collection area and include all activities associated with loading and unloading the vehicle.

6.4 Predicted Onsite Noise Levels at Receivers

The predicted noise levels from typical onsite activities are based on the noise sources presented in Table 5, the assumptions outlined in Section 6.3 and acoustic barriers as detailed in Section 7.1. Sample calculations are included in Appendix C.

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



6.4.1 Predicted Noise Emission Levels - L_{eq}

Table 6 presents the predicted onsite noise emission levels at the nearest offsite sensitive receivers. The criteria are specified in the table heading.

Table 6: Predicted Noise Impacts for Offsite Receivers

Receiver	Noise Source	Predicted External Noise Level L_{Aeq} dB(A)	Complies with Criteria?		
			Day 49dB(A)	Evening 45dB(A)	Night 38dB(A)
1	Car door close	<10	✓	✓	✓
	Car pass-by	10	✓	✓	✓
	Car engine start	<10	✓	✓	✓
	Outdoor dining	40	✓	✓	N/A
	Deliveries	21	✓	✓	✓
	Waste collection	13	✓	✓	✓
2	Car door close	18	✓	✓	✓
	Car pass-by	12	✓	✓	✓
	Car engine start	14	✓	✓	✓
	Outdoor dining	16	✓	✓	N/A
	Deliveries	33	✓	✓	✓
	Waste collection	31	✓	✓	✓
3	Car door close	<10	✓	✓	✓
	Car pass-by	<10	✓	✓	✓
	Car engine start	<10	✓	✓	✓
	Outdoor dining	19	✓	✓	N/A
	Deliveries	14	✓	✓	✓
	Waste collection	<10	✓	✓	✓

All noise sources are predicted to comply with the relevant criteria at all receivers.

6.4.2 Predicted Night Time Noise Levels - L_{max}

Table 7 presents the predicted night time noise levels at the nearest offsite sensitive receivers for ‘impact / short duration’ type noise sources. The criteria are specified in the table heading.

Table 7: Predicted Night Time Noise Levels for Offsite Receivers

Receiver	Noise Source	Predicted External Noise Level L_{Amax} dB(A)	Complies with the criteria?	
			50 dB(A) average L_{Amax}	55 dB(A) maximum L_{Amax}
1	Car door close	39	✓	✓

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Receiver	Noise Source	Predicted External Noise Level L _{Amax} dB(A)	Complies with the criteria?	
			50 dB(A) average L _{Amax}	55 dB(A) maximum L _{Amax}
	Car pass-by	N/A [^]	✓	✓
	Car engine start	31	✓	✓
	Outdoor dining	N/A [^]	✓	✓
	Deliveries	40	✓	✓
	Waste collection	43	✓	✓
2	Car door close	49	✓	✓
	Car pass-by	N/A [^]	✓	✓
	Car engine start	38	✓	✓
	Outdoor dining	N/A [^]	✓	✓
	Deliveries	51	✓*	✓
	Waste collection	62	✗	✗
3	Car door close	30	✓	✓
	Car pass-by	N/A [^]	✓	✓
	Car engine start	22	✓	✓
	Outdoor dining	N/A [^]	✓	✓
	Deliveries	33	✓	✓
	Waste collection	40	✓	✓

[^]People and vehicle pass-by noise, as well as other ‘non-impact’ type sources, are excluded from L_{max} assessment in accordance with the noise policy.

*A 1-2 dB exceedance of criteria is considered a ‘marginal compliance’ as a 1-2 dB change in noise level is typically not discernible to the human ear.

All noise sources are predicted to comply with the relevant criteria at all receivers with the exception of waste collection. Waste collection will be recommended to not occur during the night period.

Refer to Section 7 for recommendations of noise mitigation measures.

6.4.3 Predicted Noise Impacts – Onsite Receivers

An assessment of onsite commercial noise onto the nearest onsite sensitive receivers (residential units, Level 2) was conducted. Table 8 presents the predicted noise levels at the receivers. A minimum sound transmission loss of 20dB was applied for attenuation from the awning above the outdoor seating area.

Table 8: Predicted Noise Impacts – Onsite Receivers

Receiver	Noise Source	Predicted External Noise Level L _{Aeq} dB(A)	Complies with Criteria?		
			Day 49dB(A)	Evening 45dB(A)	Night 38dB(A)
4	Outdoor dining	40	✓	✓	N/A

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Noise levels at the nearest exposed onsite apartments are predicted to comply with the relevant criteria, with a minimum 20dB sound transmission loss from the awning.

Refer to Section 7 for recommendations of noise mitigation measures.

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7 Recommendations

The recommended acoustic treatments are presented in the sections below to achieve predicted compliance with the relevant assessment criteria.

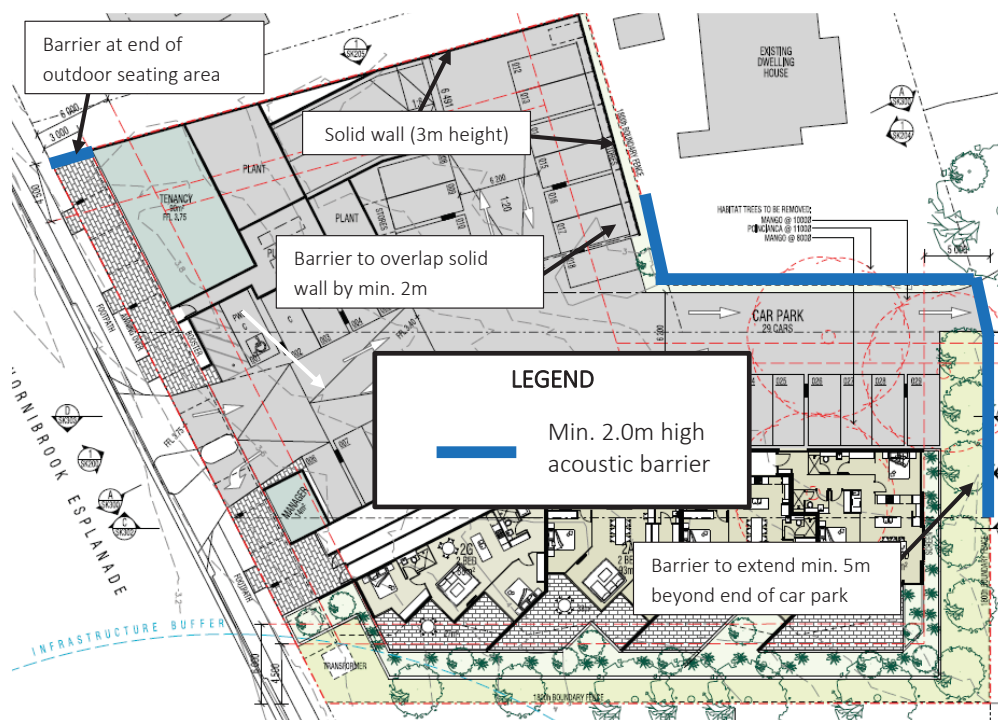
7.1 Acoustic Barrier

Noise generated from the site has been assessed at the nearest sensitive receivers. To comply with the relevant noise criteria, an acoustic barrier is recommended at the location, height and extent as shown in Figure 5.

The acoustic barrier should:

- Be the minimum height relative to the finished site level.
- Be of solid construction and have no gaps or holes for the extent shown.
- Be constructed of a material with a surface mass not less than 12.5kg/m².
- Be constructed of the following materials (but not limited to): lapped timber (minimum 40% overlap); plywood; masonry; compressed fibre cement sheet; minimum 5mm thick aluminium or minimum 2mm thick steel; glazing; earth mound or combination of the above.

Figure 5: Recommended Acoustic Barriers



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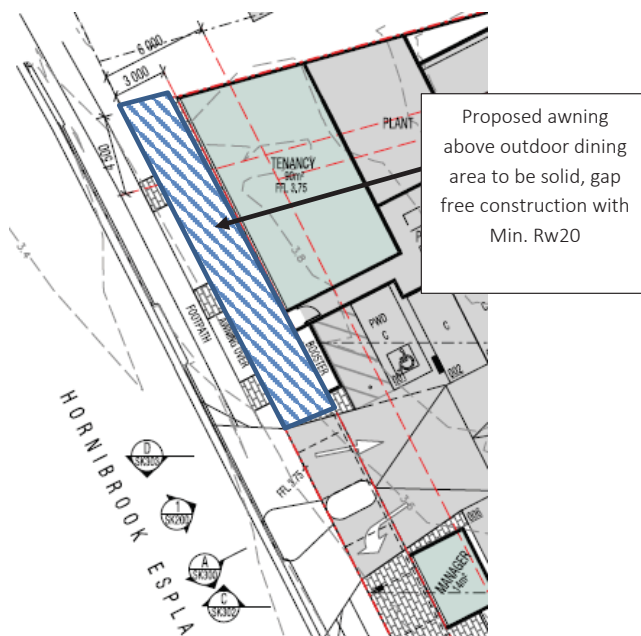


7.2 Awning Construction

To adequately attenuate onsite outdoor dining noise onto the nearest onsite sensitive receivers, the following mitigation measures are recommended, as presented in Figure 6.

- The proposed awning above the outdoor seating area achieves a minimum sound transmission loss rating of Rw20 with solid, gap free construction.

Figure 6: Recommended Awning Construction



7.3 Further Mitigation Measures

The following management strategies are recommended to minimise noise annoyance:

- Waste collection to occur between the hours of 7am – 10pm.
- Any grates or other protective covers in the car parks and access driveways must be rigidly fixed in position to eliminate clanging, and be maintained.
- Speed bumps (if proposed) should be built into the finished surface of the car park / driveways and not be made of metal.

7.4 Mechanical Plant

Rooftop plant is centralised within the building footprint. It is recommended that the proposed perimeter enclosure is solid and gap free.

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As detailed mechanical plant selections are not available at this stage, it is not possible to carry out a detailed examination of any ameliorative measures that may be required to achieve the noise criteria. It is recommended that a mechanical plant noise assessment is conducted once plant selections are finalised to ensure noise emissions comply with criteria. Noise emission compliance measurements should then be conducted after the equipment is installed.

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8 Conclusion

An environmental noise assessment was undertaken of the proposed mixed-use development located at 92, 94-96 Hornibrook Esplanade, Clontarf. The assessment was based upon the Moreton Bay Regional Council planning scheme.

Compliance with the Moreton Bay Regional Council planning scheme is predicted based on the implementation of the recommendations outlined in Section 7 of this report.

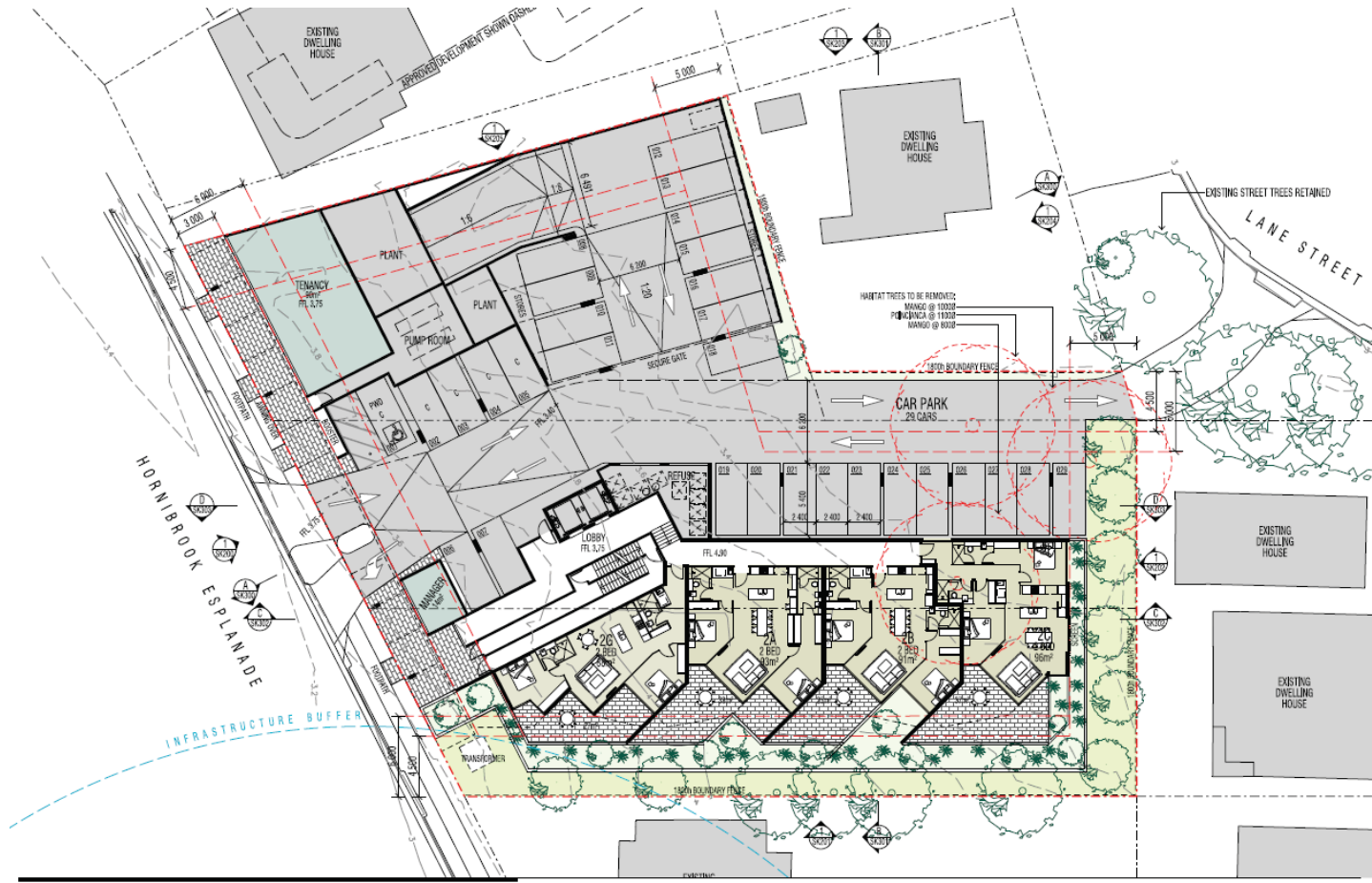
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Appendix A Development Plans

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Site: 92, 94-96 Hornibrook Esplanade, Clontarf
Reference: 18BRA0134_RO1_1



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GROUND LEVEL 01
92-96 Hornibrook Esplanade,
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DA INFO RESPONSE

Project No: 17567
Date: 15.11.18
Scale: 1:250 @ A3
SK - 102



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Site: 92, 94-96 Hornibrook Esplanade, Clontarf
Reference: 18BRA0134_RO1_1



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LEVEL 02
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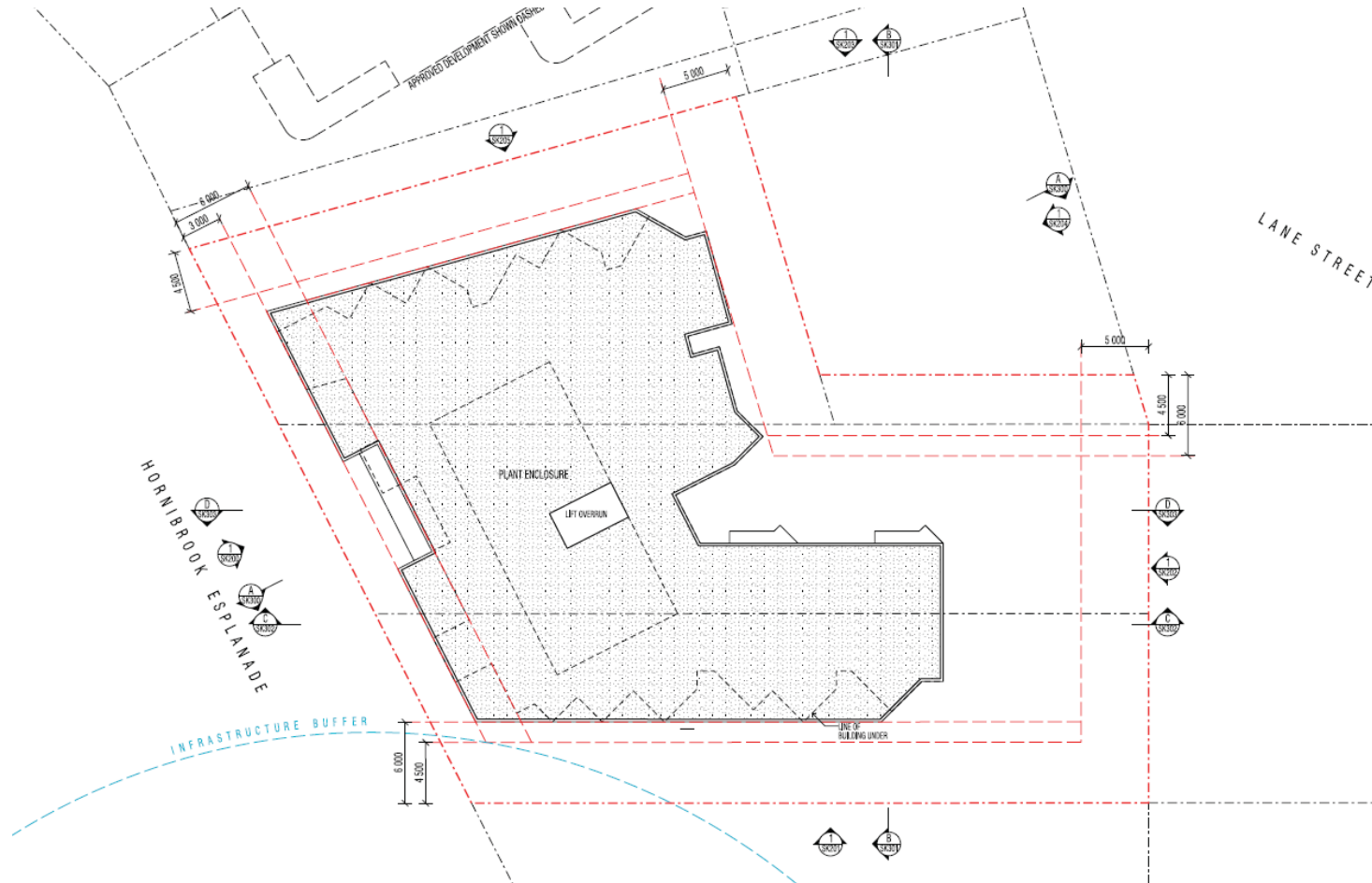


Project No: 17567
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Site: 92, 94-96 Hornibrook Esplanade, Clontarf
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ROOF PLAN
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Site: 92, 94-96 Hornibrook Esplanade, Clontarf
Reference: 18BRA0134 ROI_1



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BUILDING ELEVATIONS - SOUTH
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SK - 200

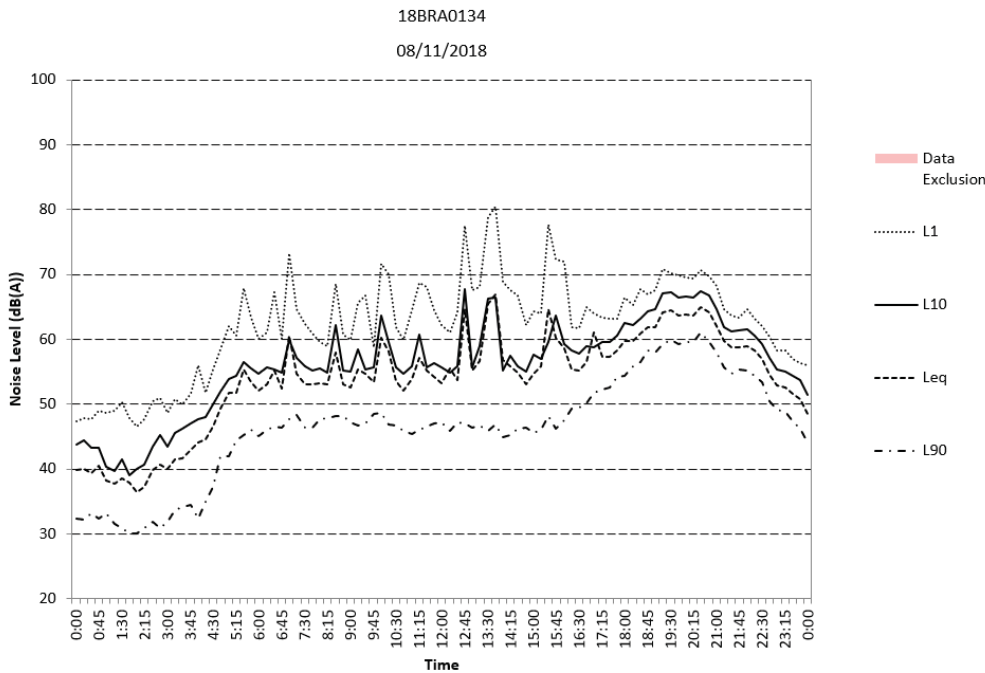
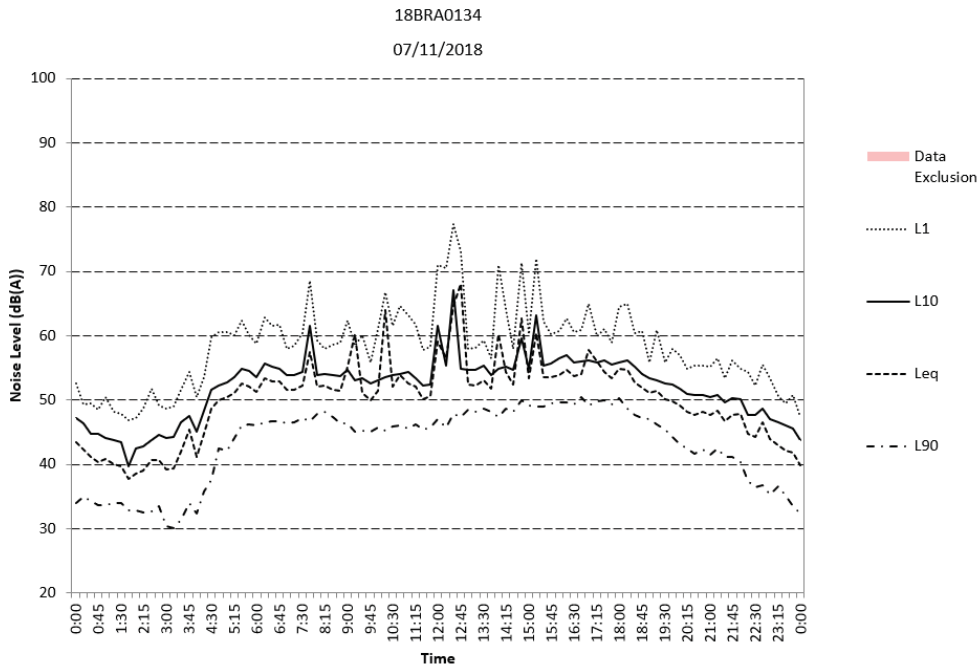


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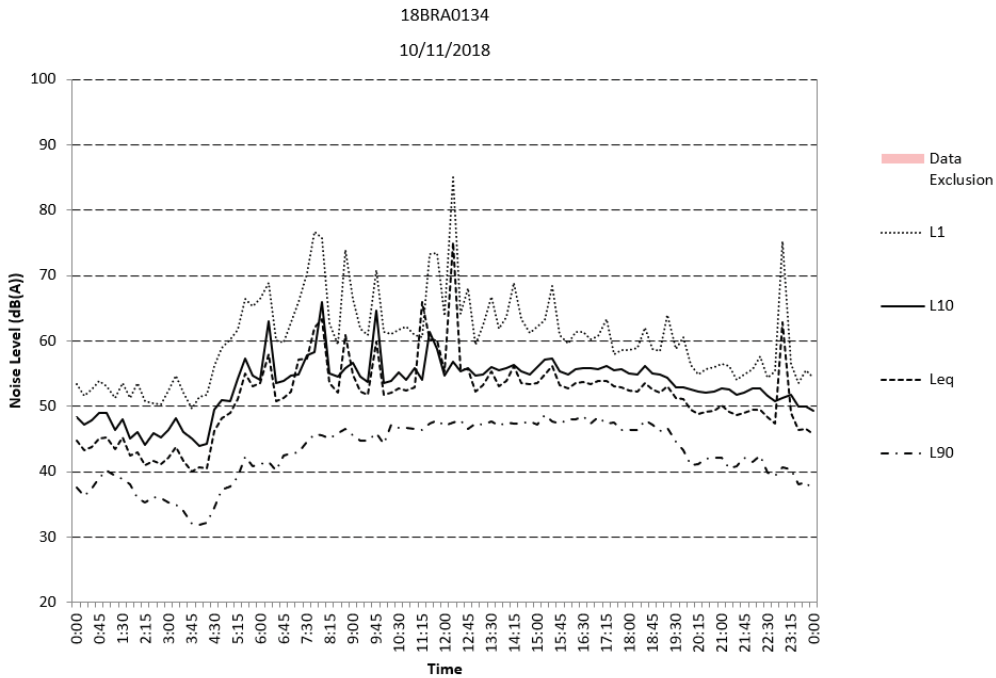
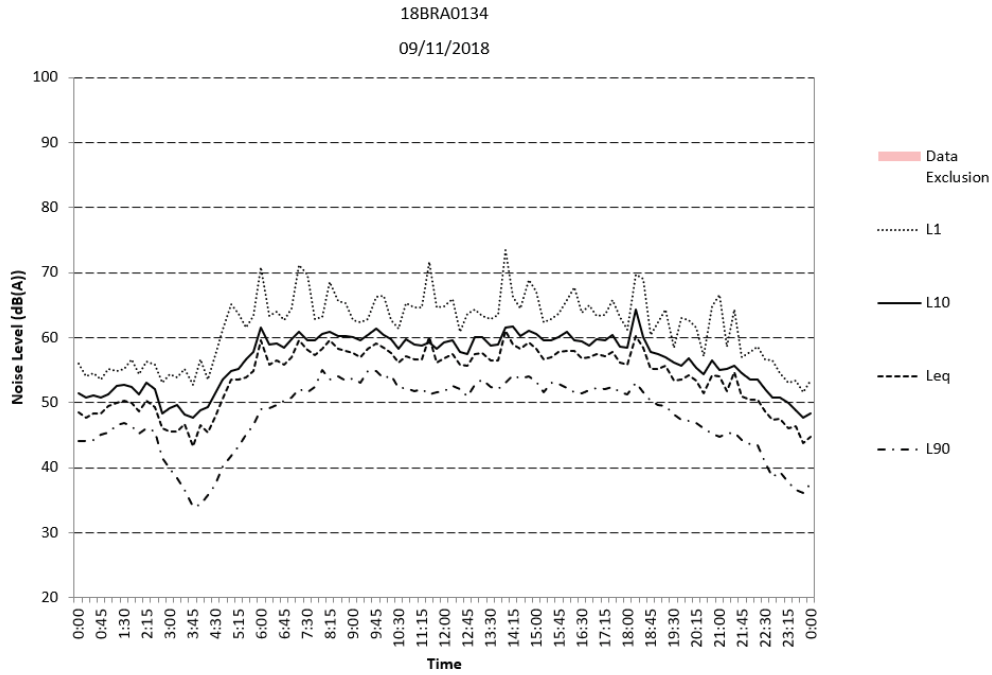


Appendix B Unattended Noise Monitoring Graphs

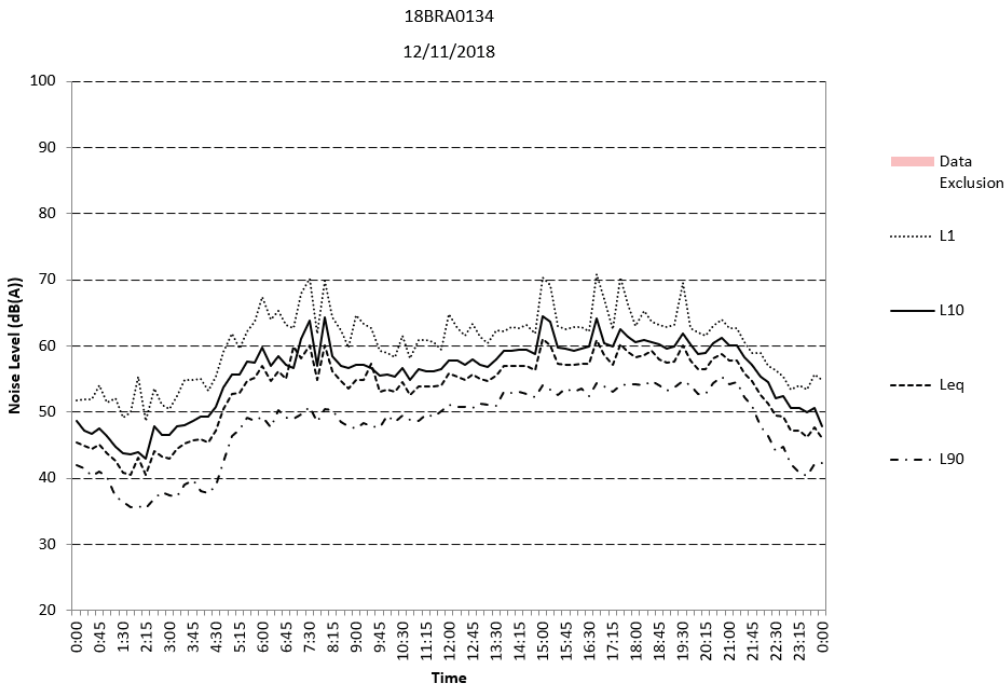
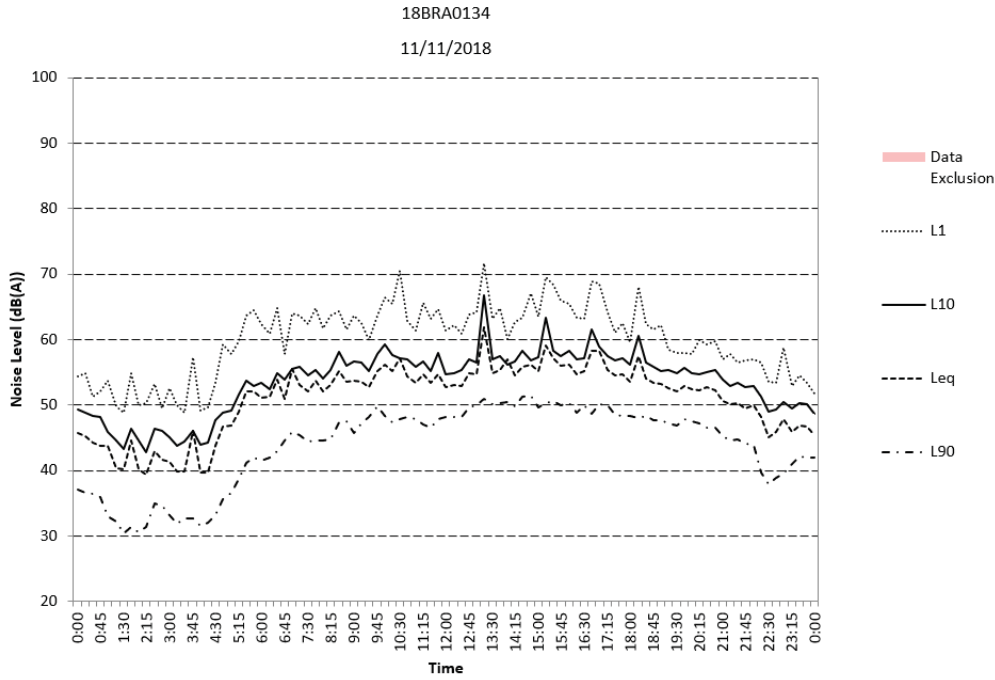
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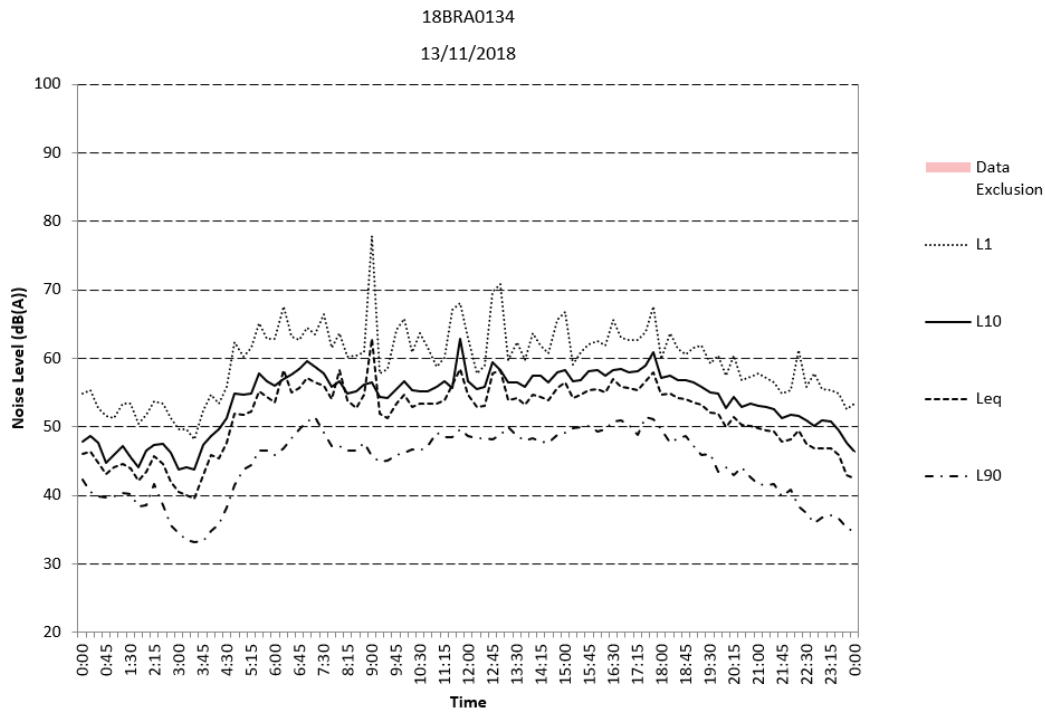
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



Appendix C Calculations

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PROJECT #:	Activity Noise					Distance			
	Duration (sec)	Leq	1 Hour Period (sec)	Events	Leq Level	R1	R2	R3	R4
	2	75	3600	10	52	15	10	25	
Car door closure	6	62	3600	40	50	10	12	27	
Car bypass	3	72	3600	10	51	15	10	25	
Car engine start	60	74	3600	60	74	10	45	30	5
Outdoor dining	60	85	3600	1	67	20	30	25	
Deliveries	120	77	3600	1	62	30	20	25	
Waste collection									

Noise level due to Distance loss									
Car door closure						29	32	24	#NUM!
Car bypass						30	29	22	#NUM!
Car engine start						28	31	23	#NUM!
Outdoor dining						54	41	44	60
Deliveries						41	38	39	#NUM!
Waste collection						33	36	34	#NUM!
	0					#NUM!	#NUM!	#NUM!	#NUM!
	0					#NUM!	#NUM!	#NUM!	#NUM!
	0					#NUM!	#NUM!	#NUM!	#NUM!
	0					#NUM!	#NUM!	#NUM!	#NUM!

Shielding (barrier, building etc)									
						R1	R2	R3	R4
Car door closure						20	14	25	0
Car bypass						20	17	25	0
Car engine start						20	17	25	0
Outdoor dining						14	25	25	20
Deliveries						20	5	25	0
Waste collection						20	5	25	0
	0					0	0	0	0
	0					0	0	0	0
	0					0	0	0	0
	0					0	0	0	0

Total - Noise Level at Receiver									
						R1	R2	R3	R4
Car door closure						9	18	-1	#NUM!
Car bypass						10	12	-3	#NUM!
Car engine start						8	14	-2	#NUM!
Outdoor dining						40	16	19	40
Deliveries						21	33	14	#NUM!
Waste collection						13	31	9	#NUM!

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PROJECT #:	Night Time Sleep Disturbance 10pm - 7am						
	0	Distance		R1	R2	R3	R4
Noise Source	Lmax	Lmax Level	R1	R2	R3	R4	
Car door closure	83	83	15	10	25	0	0
Car bypass		N/A	10	12	27	0	0
Car engine start	75	75	15	10	25	0	0
Outdoor dining		N/A	10	45	30	5	0
Deliveries	86	86	20	30	25	0	0
Waste collection	93	93	30	20	25	0	0
0			0	0	0	0	0
0		0	0	0	0	0	0
0		0	0	0	0	0	0
0		0	0	0	0	0	0

Noise level due to Distance loss							
Car door closure			59	63	55	#NUM!	
Car bypass			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
Car engine start			51	55	47	#NUM!	
Outdoor dining			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
Deliveries			60	56	58	#NUM!	
Waste collection			63	67	65	#NUM!	
0			#NUM!	#NUM!	#NUM!	#NUM!	
0			#NUM!	#NUM!	#NUM!	#NUM!	
0			#NUM!	#NUM!	#NUM!	#NUM!	
0			#NUM!	#NUM!	#NUM!	#NUM!	
Shielding							
Car door closure			20	14	25	0	
Car bypass			20	17	25	0	
Car engine start			20	17	25	0	
Outdoor dining			14	25	25	20	
Deliveries			20	5	25	0	
Waste collection			20	5	25	0	
0			0	0	0	0	
0			0	0	0	0	
0			0	0	0	0	
0			0	0	0	0	

Noise Level at Receiver							
Car door closure			39	49	30	#NUM!	
Car bypass			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
Car engine start			31	38	22	#NUM!	
Outdoor dining			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
Deliveries			40	51	33	#NUM!	
Waste collection			43	62	40	#NUM!	

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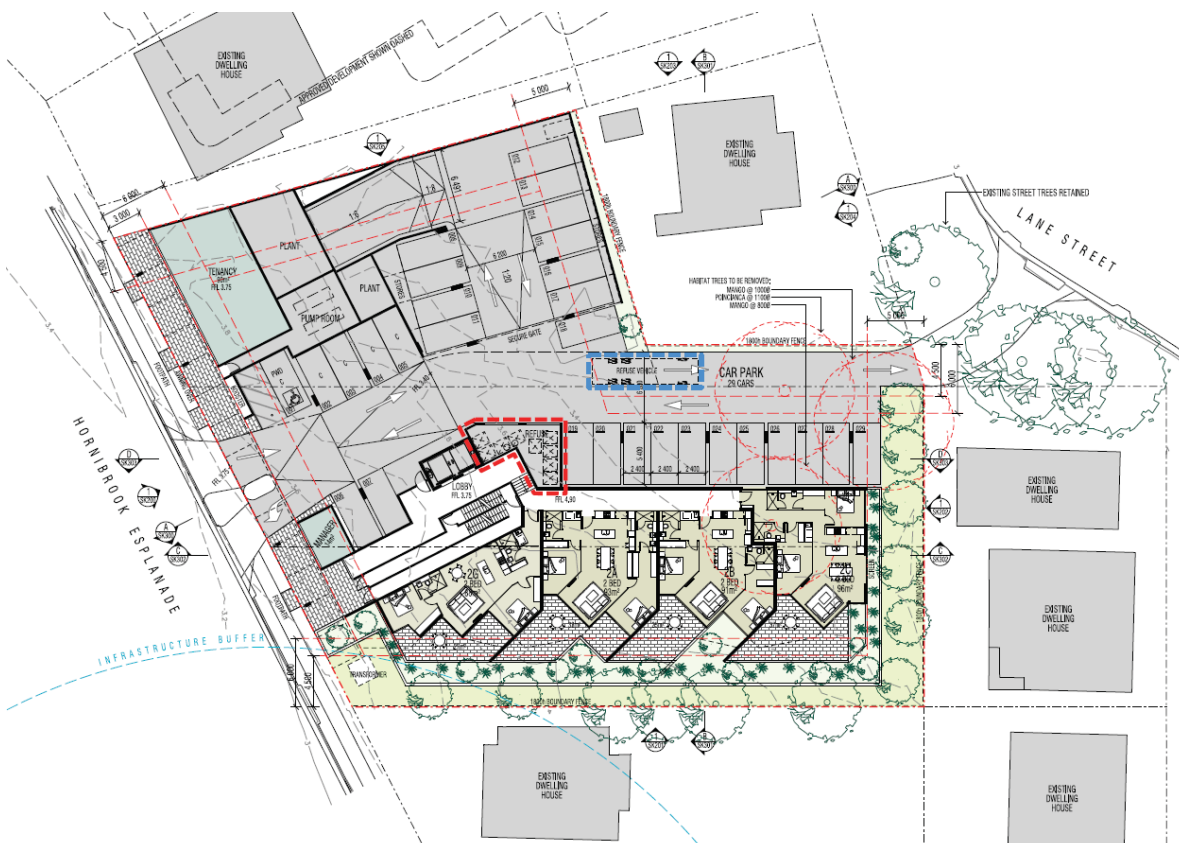
URBAN DESIGN
MASTER PLANNING
ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE
GRAPHIC DESIGN

BRISBANE
SYDNEY
MELBOURNE
PERTH
DARWIN
CAIRNS
GOLD COAST
SUNSHINE COAST
AUCKLAND
HO CHI MINH CITY

**Waste Management Program
for Hastone
at 92-96 Hornibrook Esplanade, Clontarf.**

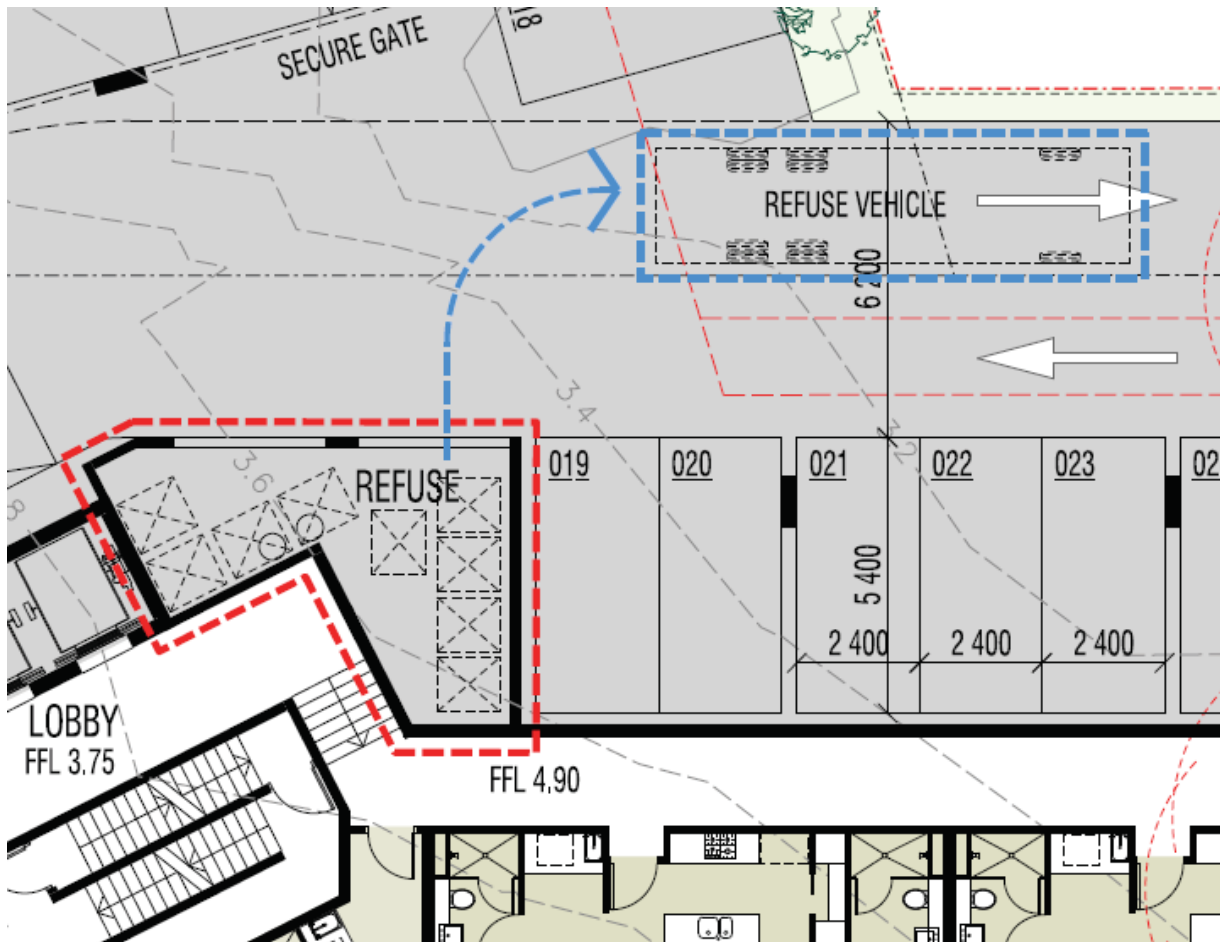
The development will use bins for general waste serviced two times per week and for recyclable waste serviced once per week. The bins storage area is located at Ground Floor Level. See diagram below for details – outlined red.

The collection point is located away from public view within the property where a garbage truck will access the bins and leave the site in a forward gear via Lane St. See below for Refuse Truck Standing Area and collection point, outlined blue.



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Bins will be wheeled from Refuse Store outlined red. See diagram below for details. The bins will be serviced at Refuse Standing area outlined blue. See diagram below for details.



The pavement in the areas to be driven on by a heavy rigid vehicle will be constructed of suspended concrete with max 1:100 falls. See Traffic Engineer’s report for details of all vehicle’s manoeuvring template through the site.

The bins will be washed inside the enclosure that will be drained to an approved sewerage connection point. A water tap and hose will be positioned inside the enclosure.

Details of waste chutes are as follows:

510mm Plastic Twin Chute by Elephant’s Foot. No Compactor or Carousel to be provided. Bin rotation to be carried out by Building Manager. Manufacturer’s Refuse Chute Specifications are provided in Appendix A.

Moreton Bay Regional Council

COORDINATION COMMITTEE MEETING
26 March 2019

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Supporting Information

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

Bin Provisions to be as follow in accordance with waste calculations below:

5 x Mixed Waste Bins @ 1100L

6 x Recycled Waste Bins @ 1100L

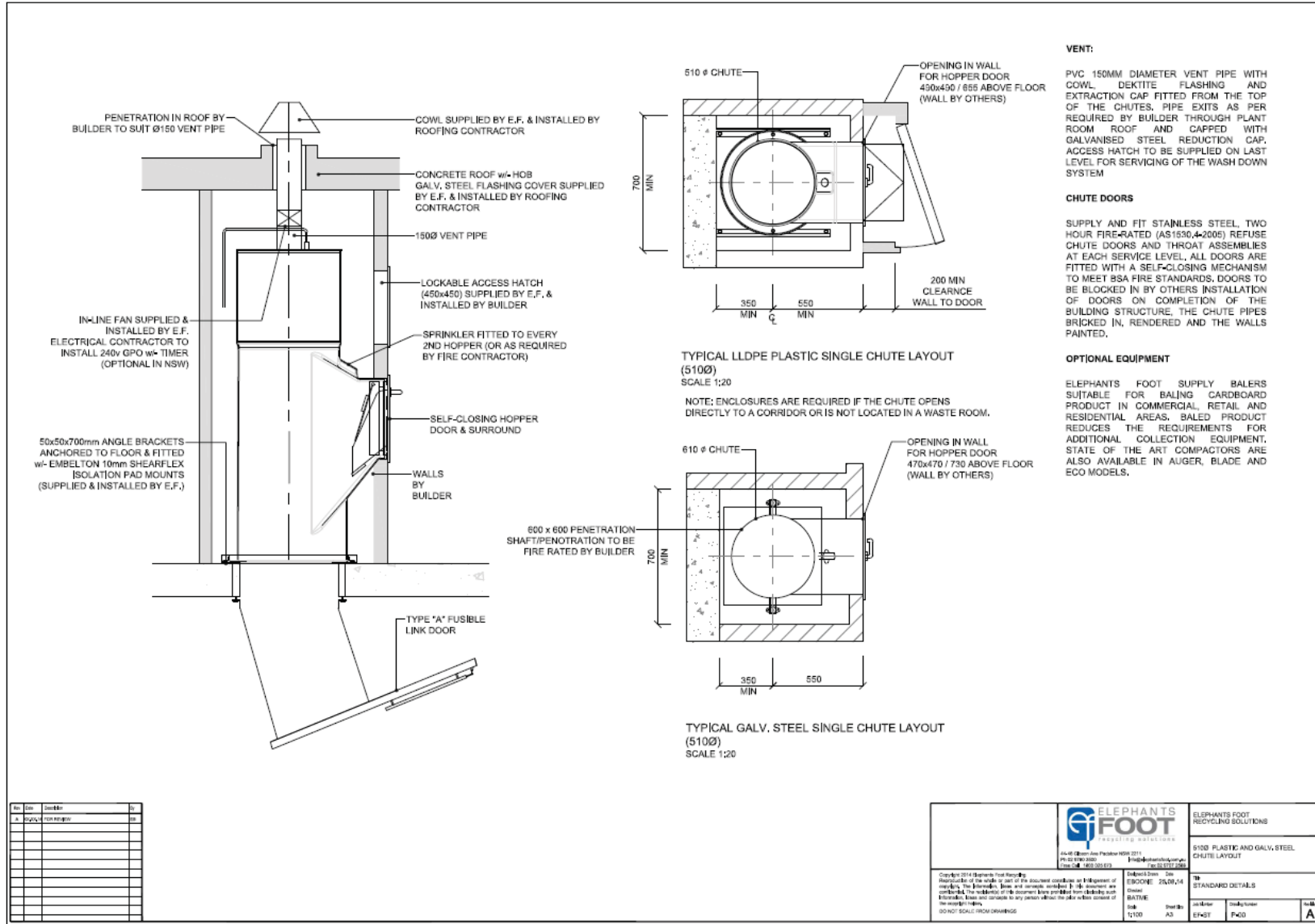
Total: 11 Waste Bins @ 1100L

	Enter Info Here:			
No of Units	93	Assumptions: L/Unit/Week Mixed Waste 100 Recycled Waste 60		
No. of Mixed collections per week	2			
No. of Recycled collections per week	1			
Mixed Waste Compactor?	No			
Recycled Waste Compactor?	No			
Total Waste/Week (L)				
Mixed	9300			
Recycled	5580			
No. of Bins Required:	Bin Litres	360	660	1100
	585w x 730d	680w x 848d	1260w x 780d	1240w x 1070d
No. of Mixed Bins	20	13	8	5
No. of Recycled Bins	24	16	9	6
Total	44	29	17	11

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

Appendix A – Elephant’s Foot Refuse Chute Drawings

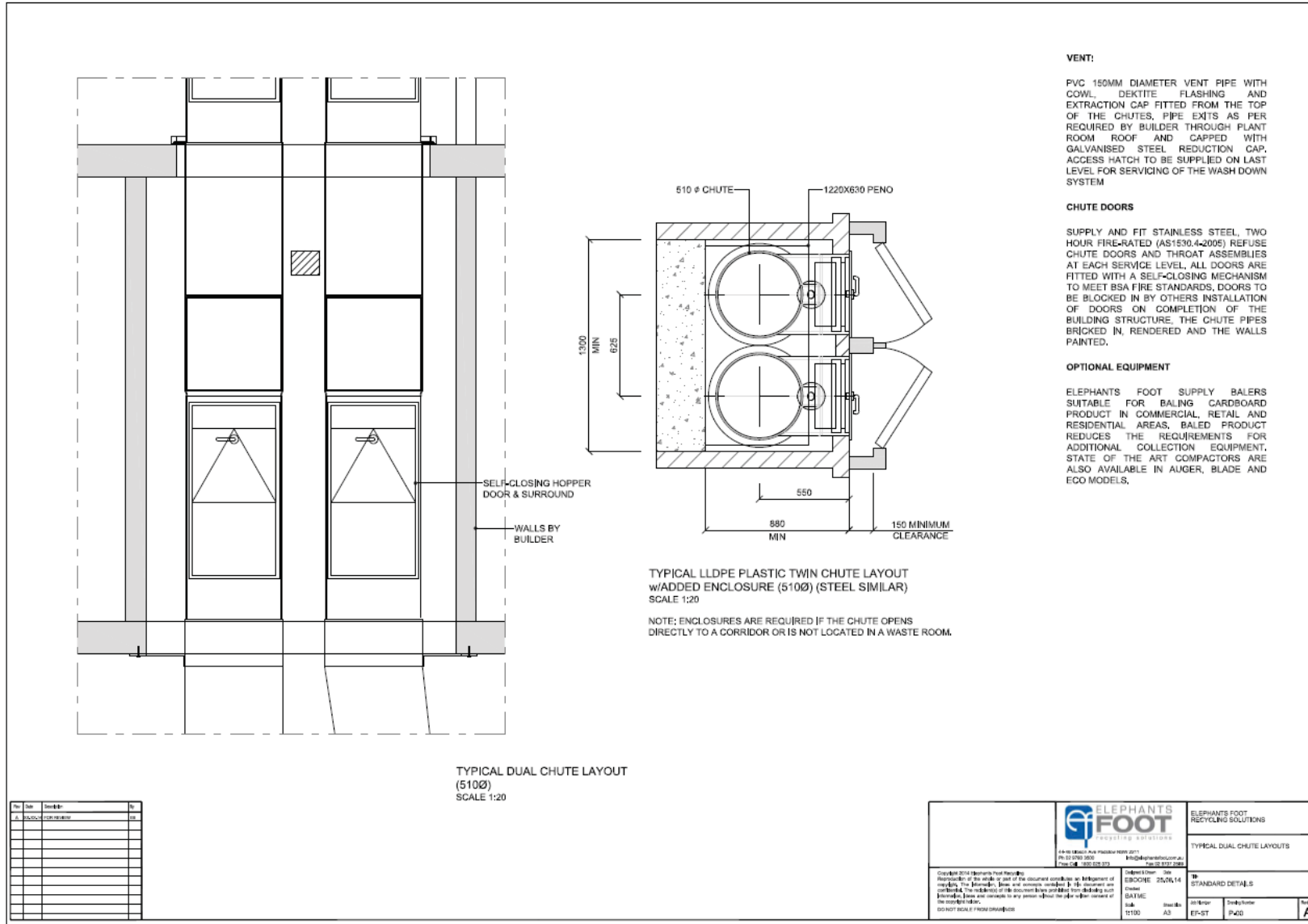
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



No.	Date	Description	By
1	26/03/2019	Issue for coordination	EF

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		<p>510Ø PLASTIC AND GALV. STEEL CHUTE LAYOUT</p>
<p>Scale: 1:20</p>	<p>Sheet No: A3</p>	<p>Project No: P400</p>

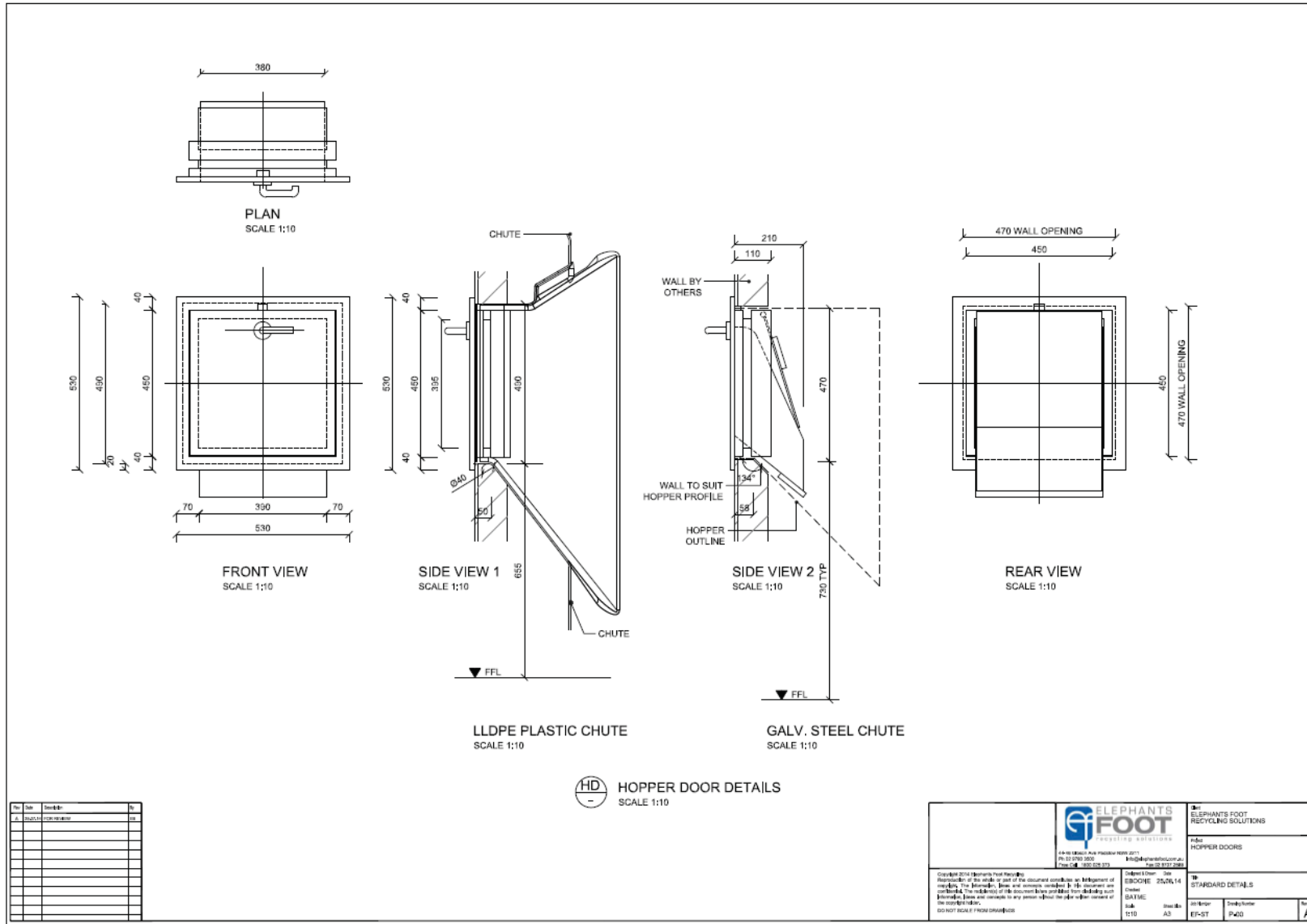
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



No.	Date	Revised	By
1		Issue for comment	EA

<p>4/4-10 BRIDGE AVE HORNIBROOK QLD 4701 Ph: 07 5570 2000 Email: info@elephantsfoot.com.au Fax: 07 557 02 019</p>	<p>ELEPHANTS FOOT RECYCLING SOLUTIONS</p>
	<p>TYPICAL DUAL CHUTE LAYOUTS</p>
<p>Copyright 2018 Elephants Foot Recycling Solutions. All rights reserved. This document is the property of Elephants Foot Recycling Solutions. It is to be used only for the project and site specified in the title block. It is not to be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written consent of Elephants Foot Recycling Solutions.</p>	<p>Project Name: EBROONE 25/06/14 Client: GATWEE Scale: 1:100 Issue: AS Drawing No: EP-07 Drawing Title: STANDARD DETAILS Sheet No: 1 of 1</p>

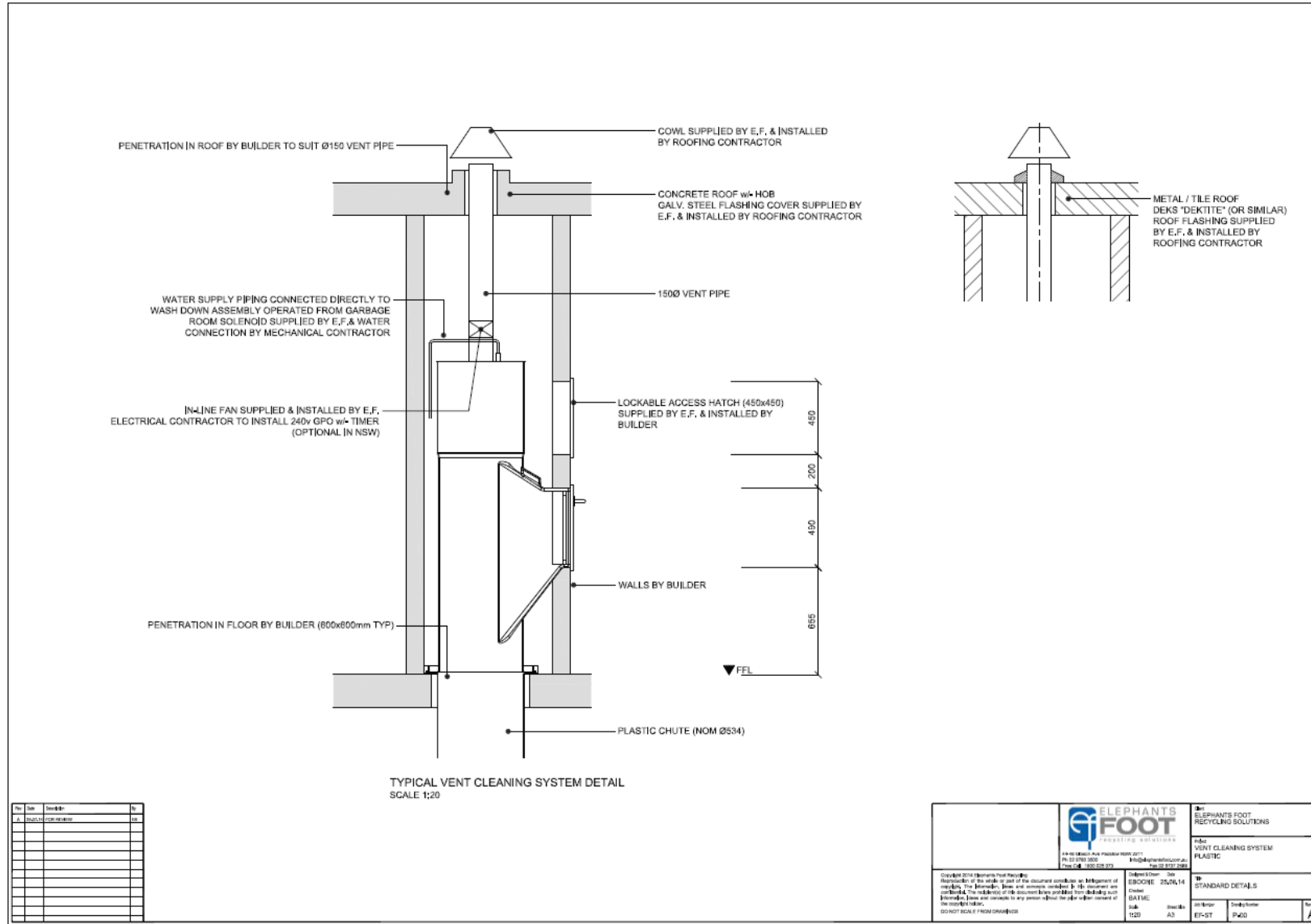
ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



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<p>ELEPHANTS FOOT PROTECTING SOLUTIONS</p> <p>44-10 BRUCE AVE. PINEBARK NSW 2517 Ph: 02 5270 3000 Email: info@elephantsfoot.com.au Fax: 02 5270 3173 Page 02 of 12</p>		<p>ELEPHANTS FOOT RECYCLING SOLUTIONS</p> <p>Index HOPPER DOORS</p>
<p>Copyright 2018 Elephants Foot Recycling. Reproduction of the whole or part of the document constitutes an infringement of copyright. The Elephants Foot logo is a registered trademark. The material in this document may not be used without the written consent of Elephants Foot Recycling. All rights reserved.</p>		<p>Project Name: EBOONE 25/06/14 Client: GATHEC Scale: 1:10 Sheet: A3</p> <p>Job No: EP-07 Drawing No: P400</p> <p>Author: A</p>

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)



Moreton Bay Regional Council

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#6 Referral Agency Response

RA6-N



Department of
**State Development,
Manufacturing,
Infrastructure and Planning**

SARA reference: 1809-7335 SRA
Council reference: DA/36805/2018/V2K
Applicant reference: 9163

30 October 2018

The Chief Executive Officer
Moreton Bay Regional Council
PO Box 159
CABOOLTURE QLD 4510
mbrc@moretonbay.qld.gov.au

Attention: Glenn Hammill

Dear Sir/Madam

Referral agency response—with conditions

(Given under section 56 of the *Planning Act 2016*)

The development application described below was properly referred to the Department of State Development, Manufacturing, Infrastructure and Planning on 20 September 2018.

Applicant details

Applicant name:	Hastone Australia Pty Ltd c/- Saunders Havill Group
Applicant contact details:	Sam Evans / Nick Christofis 9 Thompson Street BOWEN HILLS QLD 4006 samevans@saundershavill.com

Location details

Street address:	92, 94-96 Hornibrook Esplanade, Clontarf
Real property description:	1RP97183; 2RP84520; 3RP51637; 4RP51637
Local government area:	Moreton Bay Regional Council

Application details

Development permit	Material change of use for Multiple dwelling (93 dwellings), Food & Drink Outlet and Shop
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South East Queensland (North) regional
office
Mike Ahern Building, Level 3, 12 First
Avenue, Maroochydore
PO Box 1129, Maroochydore QLD 4558

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

1809-7335 SRA

Referral triggers

The development application was referred to the department under the following provisions of the Planning Regulation 2017:

- 10.9.4.2.4.1 State transport corridors and future State transport corridors

Conditions

Under section 56(1)(b)(i) of the *Planning Act 2016* (the Act), the conditions set out in Attachment 1 must be attached to any development approval.

Reasons for decision to impose conditions

The department must provide reasons for the decision to impose conditions. These reasons are set out in Attachment 2.

Advice to the applicant.

The department offers the following advice about the application to the applicant.

Road access works onto the state-controlled Road

Under sections 33 of the Transport Infrastructure Act 1994, written approval is required from the Department of Transport and Main Roads to carry out road works that are road access works (including driveways) on a state-controlled road and road upgrade works (turn treatments). Please contact the Department of Transport and Main Roads via North.Coast.IDAS@tmr.qld.gov.au (or phone 5451 7055), (please quote TMR18-025585) to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve.

The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). The road access works approval process takes time – please contact Transport and Main Roads as soon as possible to ensure that gaining approval does not delay construction.

The applicant is requested to submit the certification of completion from TMR once works are complete as evidence of compliance with Condition 3.

Approved plans and specifications

The department requires that the plans and specifications set out below and enclosed must be attached to any development approval.

Drawing/report title	Prepared by	Date	Reference no.	Version/issue
Aspect of development: Material change of use				
Ground Level 01, (as amended in red)	Mode	31.08.18	SK-102	-

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

For further information please contact Luke Farrelly, Senior Planning Officer, on 07 5352 9774 or via email SEQNorthSARA@dsmip.qld.gov.au who will be pleased to assist.

Moreton Bay Regional Council

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1809-7335 SRA

Yours sincerely



Garth Nolan
Manager (Planning)

cc Hastone Australia Pty Ltd c/- Saunders Havill Group, samevans@saundershavill.com

enc Attachment 1—Conditions to be imposed
 Attachment 2—Reasons for decision to impose conditions
 Approved plans and specifications

Moreton Bay Regional Council

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

1809-7335 SRA

Attachment 1—Conditions to be imposed

No.	Conditions	Condition timing
Material change of use		
10.9.4.2.4.1 State-controlled road—The chief executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	<p>(a) Any excavation, filling/backfilling/compaction, retaining structures and other works involving ground disturbance must not encroach or destabilise the State-controlled road or the land supporting this infrastructure, or cause similar adverse impacts.</p> <p>(b) RPEQ certification with supporting documentation must be provided to the North Coast District, Development Assessment Team, via North.Coast.IDAS@tmr.qld.gov.au within the Department of Transport and Main Roads', confirming that the development has been constructed in accordance with part (a) of this condition.</p>	<p>(a) At all times.</p> <p>(b) Prior to the commencement of use.</p>
2.	<p>(a) Stormwater management of the development must ensure no worsening or actionable nuisance to the state-controlled road.</p> <p>(b) Any works on the land must not:</p> <ul style="list-style-type: none"> (i) create any new discharge points for stormwater runoff onto the state-controlled road; (ii) interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road; (iii) surcharge any existing culvert or drain on the state-controlled road; (iv) reduce the quality of stormwater discharge onto the state-controlled road . <p>(c) RPEQ certification with supporting documentation must be provided to the North Coast District Development Assessment Team, via North.Coast.IDAS@tmr.qld.gov.au within the Department of Transport and Main Roads, confirming that the development has been designed and constructed in accordance with parts (a) and (b) of this condition.</p>	<p>(a) At all times.</p> <p>(b) At all times.</p> <p>(c) Prior to the commencement of use.</p>
3.	<p>(a)The road access location, is to be located generally in accordance with Ground Level 01, prepared by Mode, dated 31.08.18, reference SK-102.</p> <p>(b) Road access works comprising Left in Left out, Heavy Duty Vehicle Crossing Type D must be provided at the road access location.</p> <p>(c) The road access works must be designed and constructed in accordance with Institute of Public Works Engineering Australia Standard Drawing (IPWEA) RS-051 and the Department of Transport and Main Roads' Road Planning and Design Manual 2nd Edition.</p>	<p>a) At all times.</p> <p>(b) and (c): Prior to the commencement of use.</p>
4.	Buildings (other than a relevant residential building or relocated building) are designed and constructed using materials which ensure	Prior to the commencement of use

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1809-7335 SRA

<p>that habitable rooms meet the following internal noise criteria: 1. ≤ 35 dB(A) Leq (1 hour) (maximum hour over 24 hours).</p> <p>Noise attenuation measures to achieve the following external noise criteria must be provided for outdoor spaces for passive recreation:</p> <p>a. ≤ 57 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight ≤ 45 dB(A))</p> <p>b. ≤ 60 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight > 45 dB(A))</p>	<p>and to be maintained at all times.</p>
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ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

1809-7335 SRA

Attachment 2—Reasons for decision to impose conditions

The reasons for this decision are:

- to ensure the development and its construction does not cause adverse structural impacts on state-transport infrastructure
- to ensure that the impacts of stormwater events associated with development are minimised and managed to avoid creating any adverse impacts on the state-transport corridor
- to ensure the road access location to the state-controlled road from the site does not compromise the safety and efficiency of the state-controlled road
- to minimise noise intrusions on a development from a state-controlled transport corridor

Findings on material questions of fact

DSDMIP as referral agency (concurrence):

- requires conditions to attach to any development approval as detailed in the referral agency response (concurrence). (Planning Act 2016 section 56(1)(b)(i))
- provides supplementary advice in the referral agency response (concurrence). (Planning Act 2016 section 56(3))
- include references to the plans and specifications relied upon for the referral agency response (concurrence).

Evidence or other material on which the findings were based

- development application material uploaded to MyDAS2.
- State Development Assessment Provisions published by the Department of State Development, Manufacturing, Infrastructure and Planning
- *Planning Act 2016*
- Planning Regulation 2017

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PLAN ENDORSED FOR PURPOSE OF ROAD ACCESS LOCATION ONLY

PLANS AND DOCUMENTS referred to in the REFERRAL AGENCY RESPONSE
 SARA ref: 1809-7335 SRA
 Date: 30 October 2018

Amended in red by SARA on 30 October 2018

mode BRISBANE
 Plaza Level, Mosaic
 826 Ann St
 Fortitude Valley QLD 4006
 T +61 7 3252 9900
 bne@modedesign.com.au

GROUND LEVEL 01
 92-96 Hornibrook Esplanade,
 Clontarf

Project No: 17567
 Date: 31.08.18
 Scale: 1:250 @ A3
 SK - 102

Moreton Bay Regional Council

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GE78-N



Department of
**State Development,
Manufacturing,
Infrastructure and Planning**

Department of State Development, Manufacturing, Infrastructure and Planning

Statement of reasons for application 1809-7335 SRA

(Given under section 56 of the *Planning Act 2016*)

Departmental role: Referral agency

Applicant details

Applicant name: Hastone Australia Pty Ltd c/- Saunders Havill Group

Applicant contact details: Sam Evans / Nick Christofis
9 Thompson Street
Bowen Hills QLD 4006
samevans@saundershavill.com

Location details

Street address: 92, 94-96 Hornibrook Esplanade, Clontarf

Real property description: 1RP97183; 2RP84520; 3RP51637; 4RP51637

Local government area: Moreton Bay Regional Council

Development details

Development permit: Material change of use for Multiple dwelling (93 dwellings), Food & Drink Outlet and Shop

Assessment matters

Aspect of development requiring code assessment	Applicable codes
10.9.4.2.4.1	State Development Assessment Provisions (SDAP), Version 2.3, State Code 1: Development in a state controlled road environment.

South East Queensland (North) regional
office
Mike Ahern Building, Level 3, 12 First
Avenue, Maroochydore
PO Box 1129, Maroochydore QLD 4558

ITEM 2.1 DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

1809-7335 SRA

Reasons for the department's decision

The reasons for the decision are:

- to ensure the development and its construction does not cause adverse structural impacts on state-transport infrastructure
- to ensure that the impacts of stormwater events associated with development are minimised and managed to avoid creating any adverse impacts on the state-transport corridor
- to ensure the road access location to the state-controlled road from the site does not compromise the safety and efficiency of the state-controlled road
- to minimise noise intrusions on a development from a state-controlled transport corridor

Findings on material questions of fact

- the development application is for a development permit for material change of use for multiple dwelling, food and drink outlet and shop
- the subject site is adjacent to a state controlled road
- the department as a referral agency (concurrence) requires the assessment manager (Council) to attach 4 conditions and an approved plan to any approval

Evidence or other material on which the findings were based

- development application material uploaded to MyDAS2.
- State Development Assessment Provisions published by the Department of State Development, Manufacturing, Infrastructure and Planning
- *Planning Act 2016*
- Planning Regulation 2017

ITEM 2.1 - DA/36805/2018/V2K - MATERIAL CHANGE OF USE DEVELOPMENT PERMIT FOR MULTIPLE DWELLING (93 DWELLINGS), FOOD & DRINK OUTLET AND SHOP & BUILDING WORKS – DEVELOPMENT PERMIT FOR MULTIPLE DWELLING, FOOD & DRINK OUTLET AND SHOP, LOCATED AT 92 & 94-96 HORNIBROOK ESP - A18270067 (Cont.)

#7 Submissions

From: Kyran Baxter <baxter@brutusind.com>
Sent: Tuesday, 4 December 2018 11:02 AM
To: Glenn Hammill <Glenn.Hammill@moretonbay.qld.gov.au>; MBRC Incoming Mail <MBRCmail@moretonbay.qld.gov.au>
Cc: vanessa-smith@live.com.au
Subject: PROPOSED DEVELOPMENT SUBMISSION (DA/36805/2018/V2K)

PROPOSED DEVELOPMENT- DA/36805/2018/V2k
PROPERTY OWNERS-
MRS Vanessa Monique Baxter
MR Kyran David Baxter
RESIDENCE- 30 Lane Street, Clontarf 4019
GROUNDS FOR SUBMISSION-
FINANCIAL LOSS, QUALITY OF LIFE, HEALTH, INTEREST IN INCLUSION OF DEVELOPMENT.

Hello

My wife and I received a proposal of development

We as adjoining land owners to 92 and 94-96 HORNIBROOK ESPLANADE wish to seek contact with the developer to negotiate inclusion of our property in development as we feel it will stronger benefit the development as a whole.

We also if unable to seek some sort of conclusion on inclusion of property will need to raise a legal dispute as this build will strongly affect our families quality of life and financial well being.

I hope to hear from someone in regards to this matter as soon as possible.

Thanks in advance.

Kind Regards

Brutus
Electrical Contractors
0421 64 77 19

www.brutusind.com

Moreton Bay Regional Council

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From: Amy Denning
To: Glenn Hammill
Subject: Development Application No.: DA/36805/2018/V2K
Date: Thursday, 31 January 2019 5:32:43 PM
Attachments: [image001.png](#)
[image002.jpg](#)
[image003.png](#)
[31 January 2019 Letter to Glenn Hammill.pdf](#)

Dear Mr Hammill

Please refer to the **attached**.

Kind regards
Amy Denning

Amy Denning! Office Manager
Suite 1, Level 14, 344 Queen Street, Brisbane Q 4000
GPO Box 1572, Brisbane Q 4001
D 07 3211 7620 **P** 07 3211 3350
www.hrlawyers.com.au

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31 January 2019

Dear Mr Glenn Hammill

RE: Development Application No.: DA/36805/2018/V2K

As the lot owners of 98 Hornibrook Esplanade we wish to note a preliminary objection to Development Application No.: DA/36805/2018/V2K.

As you are aware we only received notification of the development proposed on 7 January 2019. The proposed development will have severe impact on the enjoyment of our lot having particular reference to:

- (a) This is an extremely large unit development for Hornibrook Esplanade and has the potential to significantly affect a number of the adjoining lots;
- (b) The street access from Hornibrook Esplanade is already a major issue and having congested traffic into a large unit development will increase this already substantial issue;
- (c) This large development will significantly obstruct the views from our lot in this primary residential area; and
- (d) The commercial aspect of the development will affect our lot during trading hours as will the traffic congestion.

We submit that all of these issues will affect our enjoyment and value of our lot adversely as it will the other adjoining lot owners and therefore should be taken into consideration prior to any approval.

We are able to provide further details of the submissions made.

Yours faithfully
The owners of 98 Hornibrook Esplanade

SUPPORTING INFORMATION

Ref: A18318799

The following list of supporting information is provided for:

ITEM 4.1

**2019/20 FEES AND CHARGES SCHEDULE - ENGINEERING CONSTRUCTION AND MAINTENANCE
DIVISION (EXCLUDING WASTE) - REGIONAL**

#1 Schedule of Fees and Charges (excluding Waste) - 2019/2020

Moreton Bay Regional Council

ITEM 4.1 - 2019/20 FEES AND CHARGES SCHEDULE - ENGINEERING, CONSTRUCTION AND MAINTENANCE DIVISION (EXCLUDING WASTE) - REGIONAL - A18318798

#1 Schedule of Fees and Charges (excluding Waste) - 2019/2020

Engineering Construction and Maintenance Schedule of Fees And Charges (excluding Waste) - 2019/2020

Line	Fee Category	Fee Name	Fee 18/19	Proposed Fee 19/20	%	Fee Unit	Fee Type	External Comments
Asset Maintenance								
1	Parks & Reserves	Bond - Vehicle access permit (where applicable)	\$421.00	To be discontinued 30/6/2019		Per permit	Other Fees	Where property owners require access to private property via a park (eg. To install a swimming pool) a Vehicle Access permit is required.
	Parks & Reserves	Personal Tribute Infrastructure Charge	New fee	\$2,500.00		Per approved personal tribute	Other Fees	Personal tribute infrastructure charge for all approved personal tributes in council-controlled parks, reserves and open spaces - as per Personal Tributes in Parks and Public Open Space (excluding roads) Policy 12-2150-063 and Directive 12-2160-015
Engineering								
2	Council Properties	Bribie Gardens Lock - Additional or Replacement Access Card	\$65.00	\$66.00	1.54%	each	Other Fees	
3	Land Use & Planning	Digital Flood Study Data	\$2,801.00	\$2,857.00	2.00%	Per package	Other Fees	Flood Model Digital Data files for use by consultants only
Integrated Transport Planning								
4	Council Properties	Redcliffe Seaside Village - end-of-trip facility - new application	\$20.00	\$20.00	0.00%	per card	Other Fees	Initial application includes refundable bond. Access card provides secure access to a facility which is capable of housing 24 bicycles. It also has 28 lockers and 2 showers. Payments and access cards are only available at Council's Redcliffe Customer Service Centre.
5	Council Properties	Redcliffe Seaside Village - end-of-trip facility - Replacement access card fee	\$10.00	\$10.00	0.00%	per card	Other Fees	Replacement access card fee -- provides secure access to a facility which is capable of housing 24 bicycles. It also has 28 lockers and 2 showers. Payments and access cards are only available at Council's Redcliffe Customer Service Centre.
6	Council Properties	Redcliffe Seaside Village - end-of-trip facility - annual fee	\$10.00	\$10.00	0.00%	per annum	Other Fees	Annual fee for secure access to a facility which is capable of housing 24 bicycles. It also has 28 lockers and 2 showers. Payments and access cards are only available at Council's Redcliffe Customer Service Centre.
7	Council Properties	Redcliffe Seaside Village - end-of-trip facility - refundable bond	\$10.00	\$10.00	0.00%	per access swipe card	Other Fees	This refundable bond provides secure access to a facility which is capable of housing 24 bicycles. It also has 28 lockers and 2 showers. Payments and access cards are only available at Council's Redcliffe Customer Service Centre. Payable to user on return of their access card for the end-of-trip facility.
8	Roads, Traffic & Transport	Traffic Survey Data Count	\$112.00	\$114.00	1.79%	per location	Other Fees	Extract from existing records only Includes transmittal fees/postage
9	Roads, Traffic & Transport	Streetlight Shade Installation - Investigation Fee	\$168.00	\$171.00	1.79%	per location	Other Fees	

Confidential - Draft Budget 2019/2020

SUPPORTING INFORMATION

Ref: [A18318799](#)

The following list of supporting information is provided for:

ITEM 5.1

NEW LEASE - PENINSULA AND DISTRICTS FOOTBALL AND SPORTING CLUB INC - DIVISION 6

#1 Peninsula and Districts Football and Sporting Club Inc - Proposed new lease area

ITEM 5.1 - NEW LEASE - PENINSULA AND DISTRICTS FOOTBALL AND SPORTING CLUB INC (Cont.)

#1 Peninsula and Districts Football and Sporting Club Inc - Proposed new lease area



SUPPORTING INFORMATION

Ref: A18259920

The following list of supporting information is provided for:

ITEM 5.2

NEW LEASE - PINE RIVERS MUSICAL ASSOCIATION INCORPORATED (PRIMA) - DIVISION 8

#1 Pine Rivers Musical Association Incorporated (PRIMA) - Existing lease area and proposed new lease area

ITEM 5.2 - NEW LEASE - PINE RIVERS MUSICAL ASSOCIATION INCORPORATED (PRIMA) (Cont.)

#1 Pine Rivers Musical Association Incorporated (PRIMA) - Existing lease area and proposed new lease area



6 LIFESTYLE & AMENITY SESSION

(Cr D Sims)

No items for consideration.

7 ECONOMIC DEVELOPMENT, EVENTS & TOURISM SESSION

(Cr P Flannery)

No items for consideration.

8 REGIONAL INNOVATION

(Cr D Grimwade)

No items for consideration.

9 GENERAL BUSINESS