

PROPOSED DEVELOPMENT SUMMARY

Council: Penrith Zoning: B4 (MIXED USE) Total Site Area: 1781.6SQM

	PROPOSED	REQUIRED
SITE COVERAGE	1,255.595sqm/70.5%	Max. 75% of Site Area Or Max. 1336.2sqm
GFA/FSR	5,146.638sqm/2.889:1	Max. 6235.6sqm/3.5:1
COMMUNAL OPEN SPACE	Residential Only: Ground Level: 303sqm + Roof Top Communal Area: 147.838sqm= Sub Total 450.838sqm	Min. 25% of Site Area Or 445.4sqm
	Orth Street Public Shared Communal Area: 284sqm	
	Total: 734.838sqm Or 41.24% of Site Area	
DEEP SOIL AREA	Deep Soil With Min.4x4m:210sqm Or 11.79% of Site Area	Min 10% of Site Area Or 178.16sqm
	Overall Deep Soil: 299.286sqm	
LANDSCAPE	897sqm/50.34%	Min. 35% of Site Area Or 623.56sqm
SOLAR ACCESS	80.5% Min. 2 Hours	Min. 70% of Units
CROSS VENTILATION	71%	Min. 60% of Units
BUILDING HEIGHT	23.70m excluding Lift Overrun 1m	Max. 18m or 21.6m(With Bonus)

CAR PARKING SUMMARY

COMMERCIAL PARKING	DCP GUIDE: 1 per 40sqm of Commercial Area	
REQUIRED	Commercial area:1148sqm equate to 28.7spaces	
PROVIDED	29 car spaces Including 1 Disable Parking	
RESIDENTIAL PARKING	DCP GUIDE: 1 Visitor Parking per 5 Units	
	1 per 1 or 2 Bedrooms Unit 2 per 3 Bedrooms Unit	
REQUIRED	Vistor: 8 spaces, Residential: 45 spaces	
PROVIDED	Vistor: 8 spaces(Including 1 Disable Parking), Residential: 45 spaces(Including 4 Disable Parking & 1 Car Wash Area)	
	PROVIDED	REQUIRED
TOTAL PARKING	82	82

DEVELOPMENT MIX

APARTMENT TYPE	No.	Mix
1 BED	6	15%
2 BED	31	75%
3 BED	4	10%
TOTAL APARTMENTS	41	
COMMERCIAL TENANCY	1148sqm	

ADAPTABLE SUMMARY

	PROVIDED	REQUIRED
APARTMENTS	4 (Unit 209, 309, 409, 509)	10% of Dwelling Or 4.1
ACCESS PARKING	4	10% of Dwelling Or 4.1



Sheet Number	Sheet Name
DA00	Cover Page
DA01	Survey/Demolition Plan
DA02	Context & Site Analysis Plan
DA03	Site Plan
DA03.1	Perspective 01
DA03.2	Perspective 02
DA04	Basement 1
DA05	Basement 2
DA06	Basement 3
DA07	Ground Floor Office
DA07.1	Floor Space Diagram
DA07.2	Orth St Frontage
DA07.3	Street View Landscape
DA07.4	Private Open Space
DA07.5	Somerset St Frontage
DA07.6	Communal Space Area
DA07.7	BBQ Area
DA08	First Floor Office
DA09	2nd Floor Plan
DA10	3rd Floor Plan
DA11	4th Floor Plan
DA12	5th Floor Plan
DA13	6th Floor Plan
DA13.1	Roof Top Communal Space
DA14	Roof Plan

Sheet Number	Sheet Name
DA15.0	North Elevation
DA15.1	North Elevation Dim
DA16.0	East Elevation
DA16.1	East Elevation Dim
DA17.0	West Elevation
DA17.1	West Elevation Dim
DA18.0	South Elevation
DA18.1	South Elevation Dim
DA19.0	Orth St Perspective
DA19.1	Somerset St Perspective
DA19.2	Somerset St View
DA19.3	Orth St Perspective 2
DA20	Section A
DA21	Section B
DA22	Section C
DA23	Section D
DA24	Section E
DA25	Floor Area Calculation
DA26	Solar Access Study
DA27	Cross Ventilation
DA28	Sun & Shadow Diagram
DA29	2-5th Pre & Post Adaptable Layout
DA30	3D Building Height Envelope
DA31	Materials & Finishes Schedule

Biogiene Property Investment Pty Ltd 38-40 Orth Street & 26 Somerset Street Kingswood NSW 2747		Basix Requirements Summary - Multi Units Prepared by Chapman Environmental Services www.basixcertificates.com.au 1300 004 914		CES CHAPMAN	
Water Target	40	Water Score	43 TBC		
Energy Target	25	Energy Score	39 TBC		
Max Average Heating Load is (MJ/m ²)	55.7	Actual Average Heating Load	26.2		
Max Average Cooling Load is (MJ/m ²)	56.2	Actual Average Cooling Load	29.6	Average Star Rating	TBC
Basix Commitments					
Fixtures	Shower heads	3 star (> 7.5 but <= 9 L/min)	Toilets	4 star	All taps 4 star
Alternative Water No water tank required in order to comply with Basix water commitments					
Energy	Hot water system	Gas instantaneous	Rating	5 star	
	Bathroom ventilation	Individual fan, ducted to facade or roof	with	Manual switch on/off	
	Kitchen ventilation	Individual fan, ducted to facade or roof	with	Manual switch on/off	
	Laundry ventilation	Individual fan, ducted to facade or roof	with	Manual switch on/off	
	Cooling - living areas	No active cooling system	Rating	n/a	
	Cooling - bedrooms	No active cooling system	Rating	n/a	
	Heating - living areas	No active heating system	Rating	n/a	
	Heating - bedrooms	No active heating system	Rating	n/a	
Gas cooktop & electric oven	No outdoor clothesline required		No indoor clothesline required		
Thermal Performance Assessment Based on the Following Requirements					
Floor Types	Concrete	with	No insulation required		
Floor Coverings	Tiles	Living and wet areas	Timber	Nil	
	Carpet	Bedrooms	Concrete	Nil	
External Walls	75mm Hebel (AAC)	with	R2.0 insulation		
Party Walls	Lightweight (Boral KH2 or similar)	with	R2.0 on both sides of shaftliner		
Internal Walls	Plasterboard	with	No insulation required		
Ceiling (floor over)	Concrete above plasterboard (Unit above)	with	No insulation required		
	Concrete above plasterboard (Terrace above)	with	R2.5 insulation		
Ceilings (roof over)	Timber above plasterboard.	with	R3.5 bulk insulation		
Roof	Metal	1 degrees	with	R1.3 roof blanket	
Windows and Doors	AF single glazed clear to all windows and glazed doors unless noted otherwise	Group A ALM-001-01 U-Value 6.70 or less SHGC 0.57 +/- 5%	Group B ALM-002-01 U-Value 6.70 or less SHGC 0.70 +/- 5%		
	AF single glazed LowE To U201 only	Group A ALM-001-04 U-Value 5.60 or less SHGC 0.36 +/- 5%	Group B ALM-002-04 U-Value 5.60 or less SHGC 0.41 +/- 5%		
	Group A windows are Awning, Bifold, Casement or Tilt'n'turn	Group A doors are Bifold, Entry, French or Hinged			
	Group B windows are Double hung, Fixed, Louvre or Sliding	Group B doors are Sliding or Stacker			
AF = Aluminium Framed	TF = Thermally Broken Aluminium Framed				

AC PROJECT GROUP

Address: SUITE 310/7 RAILWAY ST, CHATSWOOD NSW 2067
Tel: 02 9188 7258
Email: info@acproject.com.au

Document No: 8809800
Version: 1, Version Date: 18/10/2019

GENERAL NOTES:
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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019

PROJECT TITLE: Mixed Use Developments

CLIENT: Biogiene Property Investment Pty Ltd

PROJECT ADDRESS: 38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

DESIGNER: S.H & T.C

DRAWN BY: J.Y

JOB NO: 1714

DATE: 18/09/2019 12:20:16 PM

REV: A

SHEET SIZE: A3

DA00

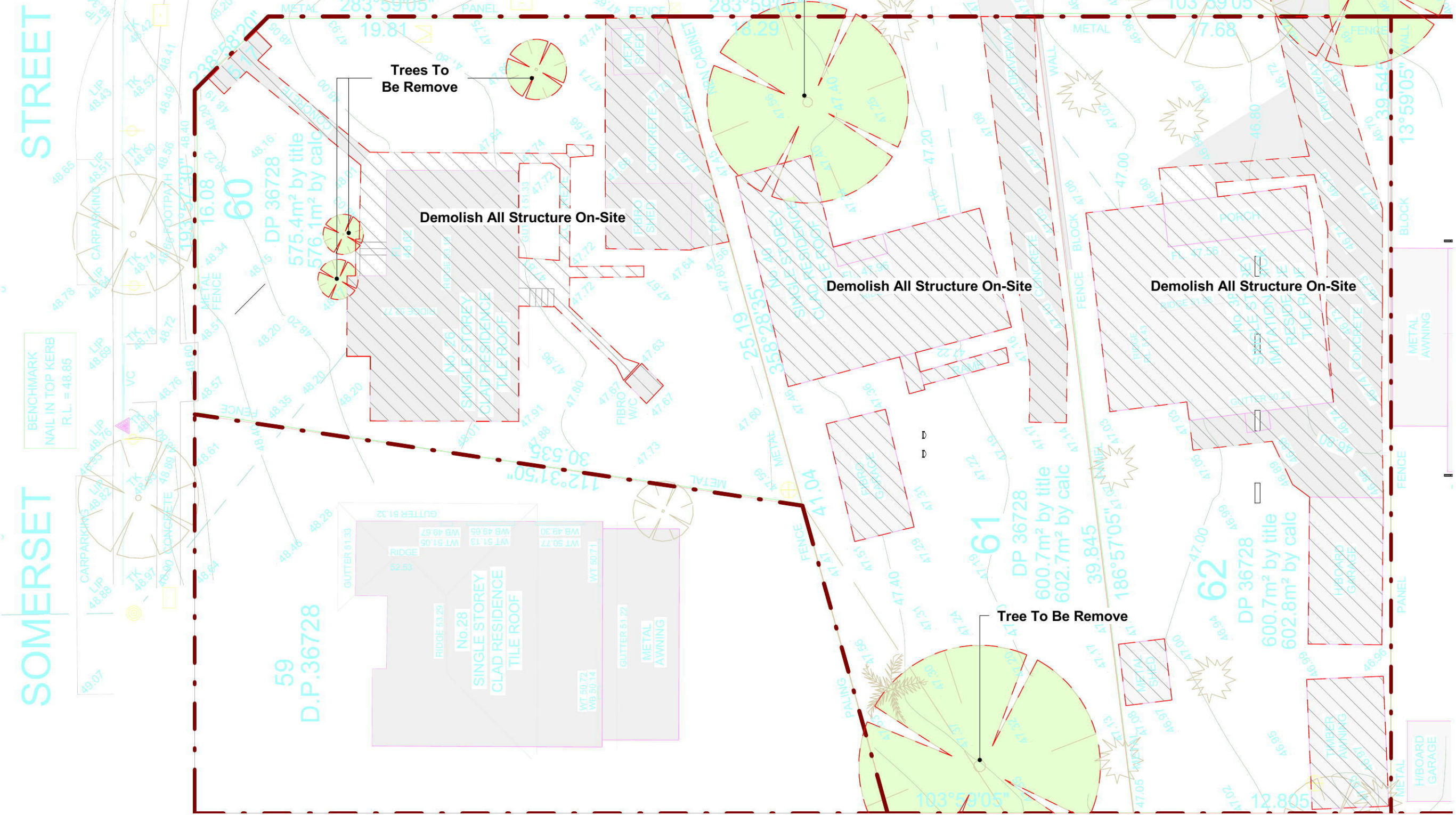


Certificate no.: 0004274530
 Assessor Name: Terry Chapman
 Accreditation no.: 20920
 Certificate date: 15 October 2019

Dwelling Address:
 38-40 Orth St
 Kingswood, NSW
 2747

www.nathers.gov.au

ABSA Accreditation Period: 30/04/19-31/03/2020
 Assessor Name: Terry Chapman
 Assessor Number: 20920



1 Demolition Plan
 Scale 1 : 200

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PROJECT ADDRESS:
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Survey/Demolition Plan


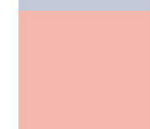
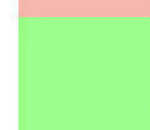
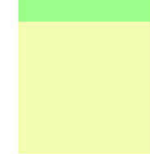
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DRAWN BY:	J.Y	REV.	A
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DA01

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-  B4 - MIXD USE
-  R3 - MEDIUM DENSITY
-  RE1 - PUBLIC RECREATION
-  SP2 - INFRASTRUCTURE



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7.6
 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME



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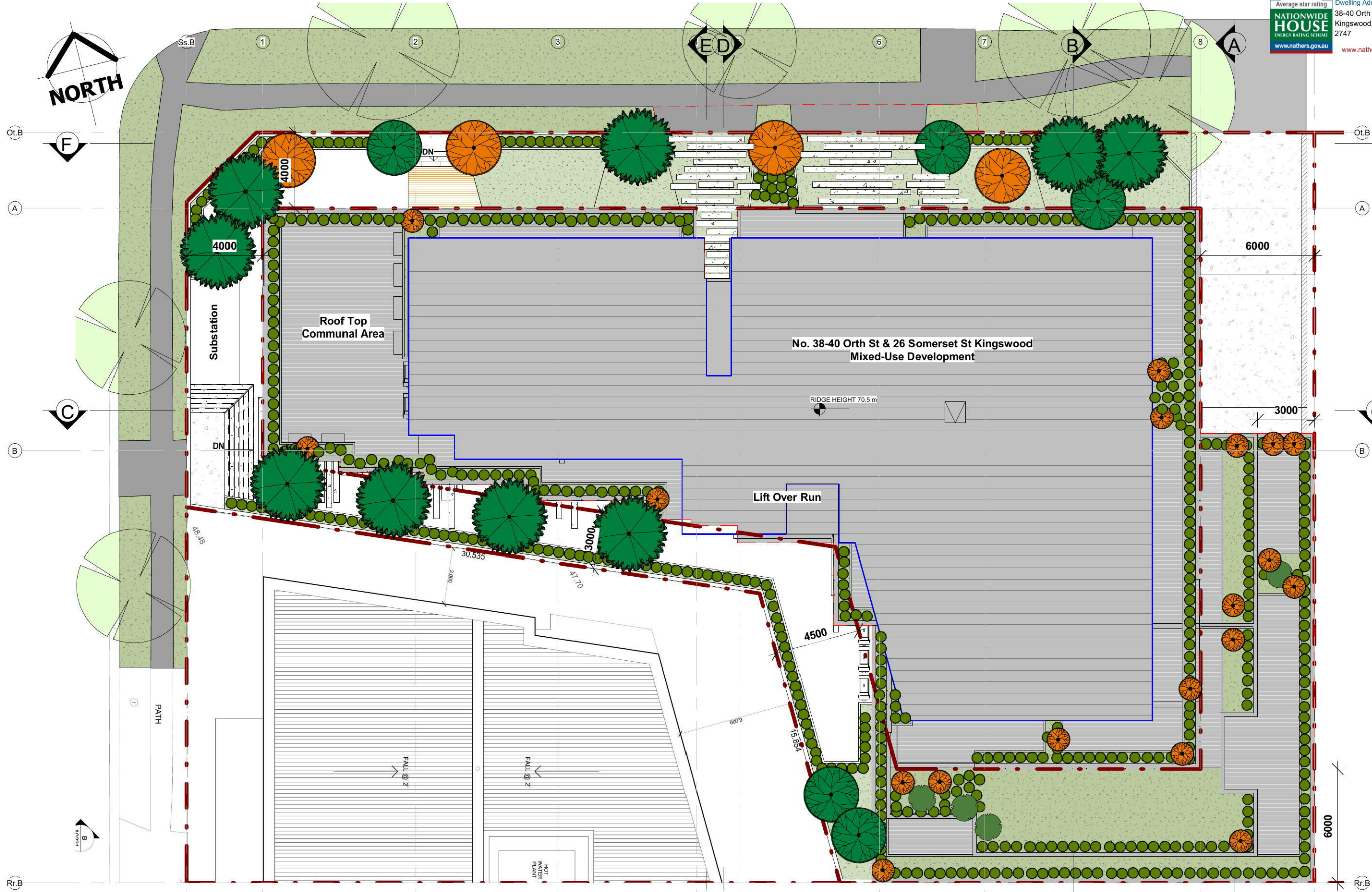
CLIENT:
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Context & Site Analysis Plan

DESIGNER:	S.H & T.C	DATE	18/09/2019 12:07:13 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA02



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CLIENT: Biogene Property Investment Pty Ltd

PROJECT ADDRESS: 38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

Site Plan Scale 1:200

DESIGNER:	S.H & T.C	DATE	18/09/2019 12:07:56 PM
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JOB NO:	1714	SHEET SIZE:	A3

DA03



SOMERSET STREET

ORTH STREET

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Mixed Use Developments

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

CLIENT
Biogene Property Investment Pty Ltd

Perspective 01				DA03.1
DESIGNER:	Designer	DATE	3/09/2019 4:32:23 PM	
DRAWN BY:	Author	REV.	A	
JOB NO:	1714	SHEET SIZE:	A3	



ORTH STREET

SOMERSET STREET

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CLIENT
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Perspective 02			
DESIGNER:	Designer	DATE	3/09/2019 4:32:27 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA03.2



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Floor Space Diagram			
DESIGNER:	Designer	DATE	3/09/2019 4:37:28 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA07.1



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Orth St Frontage			
DESIGNER:	Designer	DATE	3/09/2019 4:37:30 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA07.2



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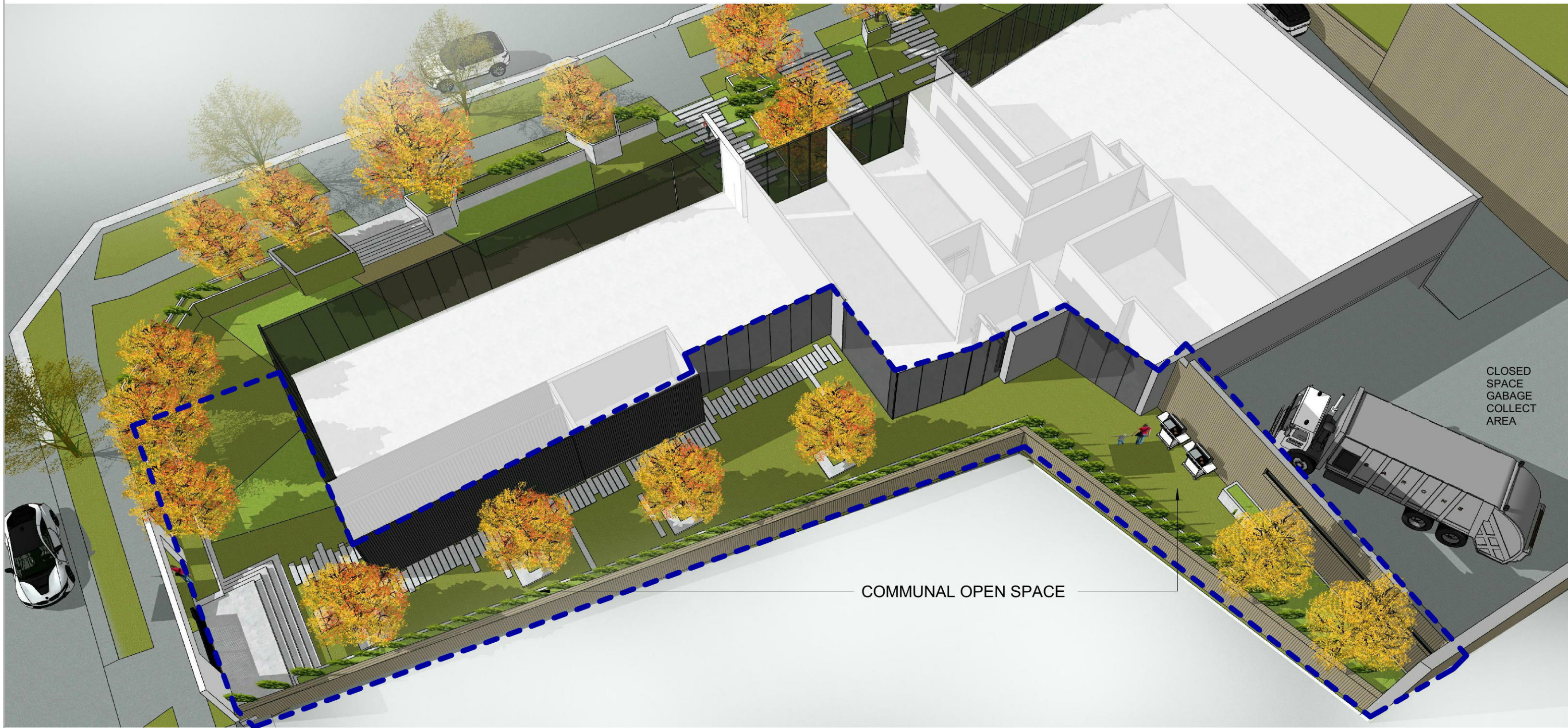
PROJECT TITLE:
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PROJECT ADDRESS:
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Street View Landscape			
DESIGNER:	Designer	DATE	3/09/2019 4:37:32 PM
DRAWN BY:	Author	REV.	A
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DA07.3



COMMUNAL OPEN SPACE

CLOSED SPACE
GABAGE
COLLECT
AREA

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CLIENT
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Private Open Space			
DESIGNER:	Designer	DATE	3/09/2019 4:37:35 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA07.4



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Somerset St Frontage

DESIGNER:	Designer	DATE	3/09/2019 4:37:37 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA07.5



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Communal Space Area			
DESIGNER:	Designer	DATE	3/09/2019 4:37:40 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA07.6



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BBQ Area			
DESIGNER:	Designer	DATE	3/09/2019 4:37:43 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA07.7



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Roof Top Communal Space			
DESIGNER:	Designer	DATE	3/09/2019 4:38:33 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA13.1



Certificate no.: 0004274530
 Assessor Name: Terry Chapman
 Accreditation no.: 20920
 Certificate date: 15 October 2019
 Dwelling Address: 38-40 Orth St Kingswood, NSW 2747
 Average star rating: 7.6
 www.nathers.gov.au

ABSA
 Accredited Assessor
 Accreditation Period: 30/04/19-31/03/2020
 Assessor Name: Terry Chapman
 Assessor Number: 20920

1 Roof Plan
 Scale 1:200

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PROJECT TITLE:
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Roof Plan	
DESIGNER:	S.H & T.C
DATE	18/09/2019 12:09:59 PM
DRAWN BY:	J.Y
REV.	A
JOB NO:	1714
SHEET SIZE:	A3

DA14

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NORTH ELEVATION
SC: 1/200

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CLIENT
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North Elevation			
DESIGNER:	Designer	DATE	4/09/2019 9:09:50 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
DA15.0			



1 North Elevation
Scale 1 : 200

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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	13/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

CLIENT
Biogene Property Investment Pty Ltd

North Elevation Dim			
DESIGNER:	S.H & T.C	DATE	15/10/2019 1:51:25 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA15.1



EAST ELEVATION
SC: 1/200

AC PROJECT GROUP

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Email: info@acproject.com.au

Document No: 8899800
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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

CLIENT
Biogene Property Investment Pty Ltd

East Elevation			
DESIGNER:	Designer	DATE	4/09/2019 9:10:10 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA16.0



1 East Elevation
 Scale 1 : 200

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PROJECT TITLE:
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PROJECT ADDRESS:
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East Elevation Dim			
DESIGNER:	S.H & T.C	DATE	18/09/2019 12:10:12 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA16.1



WEST ELEVATION
SC: 1/200

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A	ISSUED FOR DA	27/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

CLIENT
Biogene Property Investment Pty Ltd

West Elevation			
DESIGNER:	Designer	DATE	4/09/2019 9:10:37 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA17.0



1 West Elevation
 Scale 1 : 200

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PROJECT TITLE:
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PROJECT ADDRESS:
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West Elevation Dim			
DESIGNER:	S.H & T.C	DATE	18/09/2019 12:10:16 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA17.1



SOUTH ELEVATION
SC: 1/200

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Version: 1, Version Date: 18/10/2019

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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019

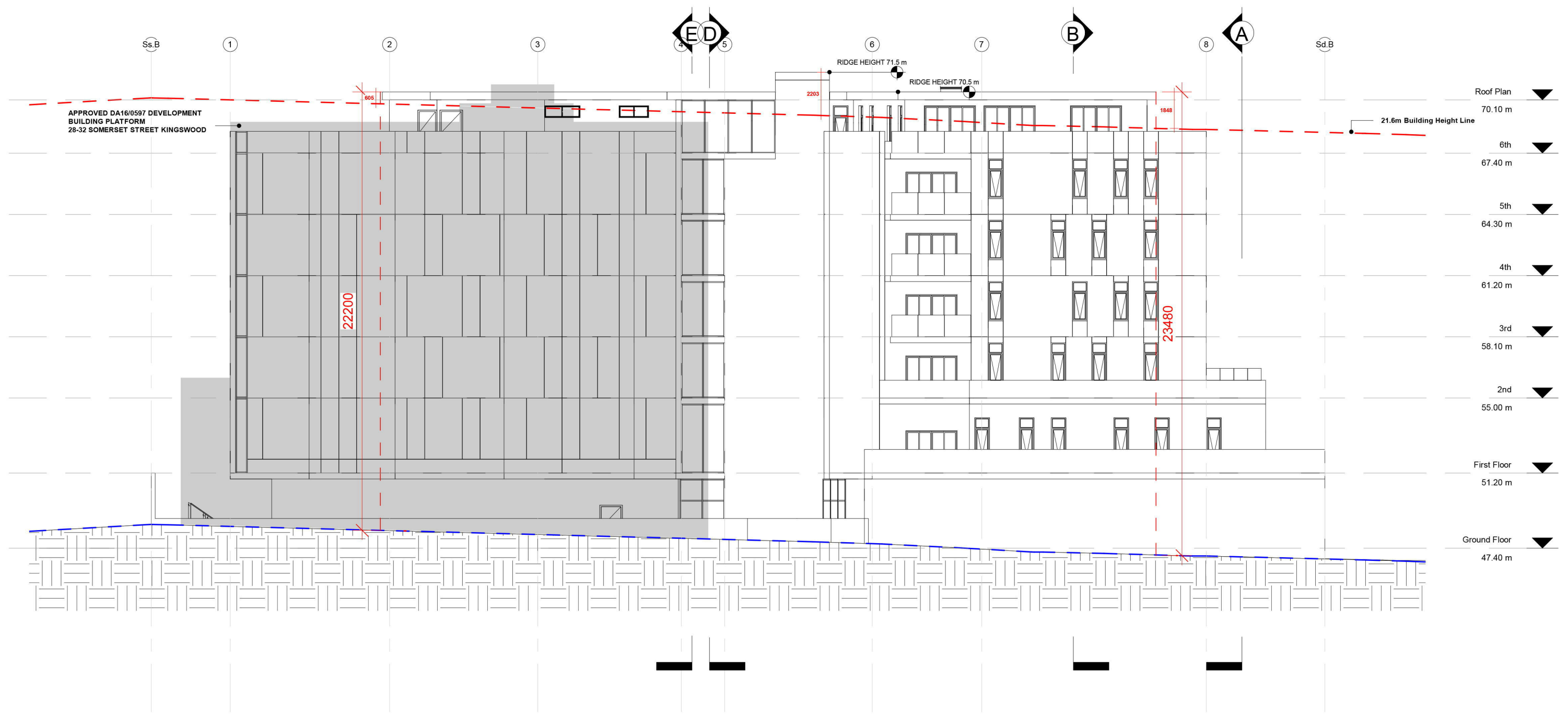
PROJECT TITLE:
Mixed Use Developments

CLIENT:
Biogene Property Investment Pty Ltd

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

South Elevation			
DESIGNER:	Designer	DATE	4/09/2019 9:11:08 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA18.0



1 South Elevation
Scale 1 : 200

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GENERAL NOTES:
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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	13/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
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CLIENT
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South Elevation Dim			
DESIGNER:	S.H & T.C	DATE	15/10/2019 1:51:30 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA18.1



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PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

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Orth St Perspective			
DESIGNER:	Designer	DATE	4/09/2019 9:11:15 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA19.0



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A	ISSUED FOR DA	27/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
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Somerset St Perspective			
DESIGNER:	Designer	DATE	4/09/2019 9:11:19 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA19.1



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A	ISSUED FOR DA	27/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
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Somerset St View				DA19.2
DESIGNER:	Designer	DATE	4/09/2019 9:11:22 AM	
DRAWN BY:	Author	REV.	A	
JOB NO:	1714	SHEET SIZE:	A3	



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A	ISSUED FOR DA	27/09/2019

PROJECT TITLE:
Mixed Use Developments

PROJECT ADDRESS:
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Orth St Perspective 2			
DESIGNER:	Designer	DATE	4/09/2019 9:11:24 AM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA19.3



1 A
 Scale 1 : 200

GENERAL NOTES:
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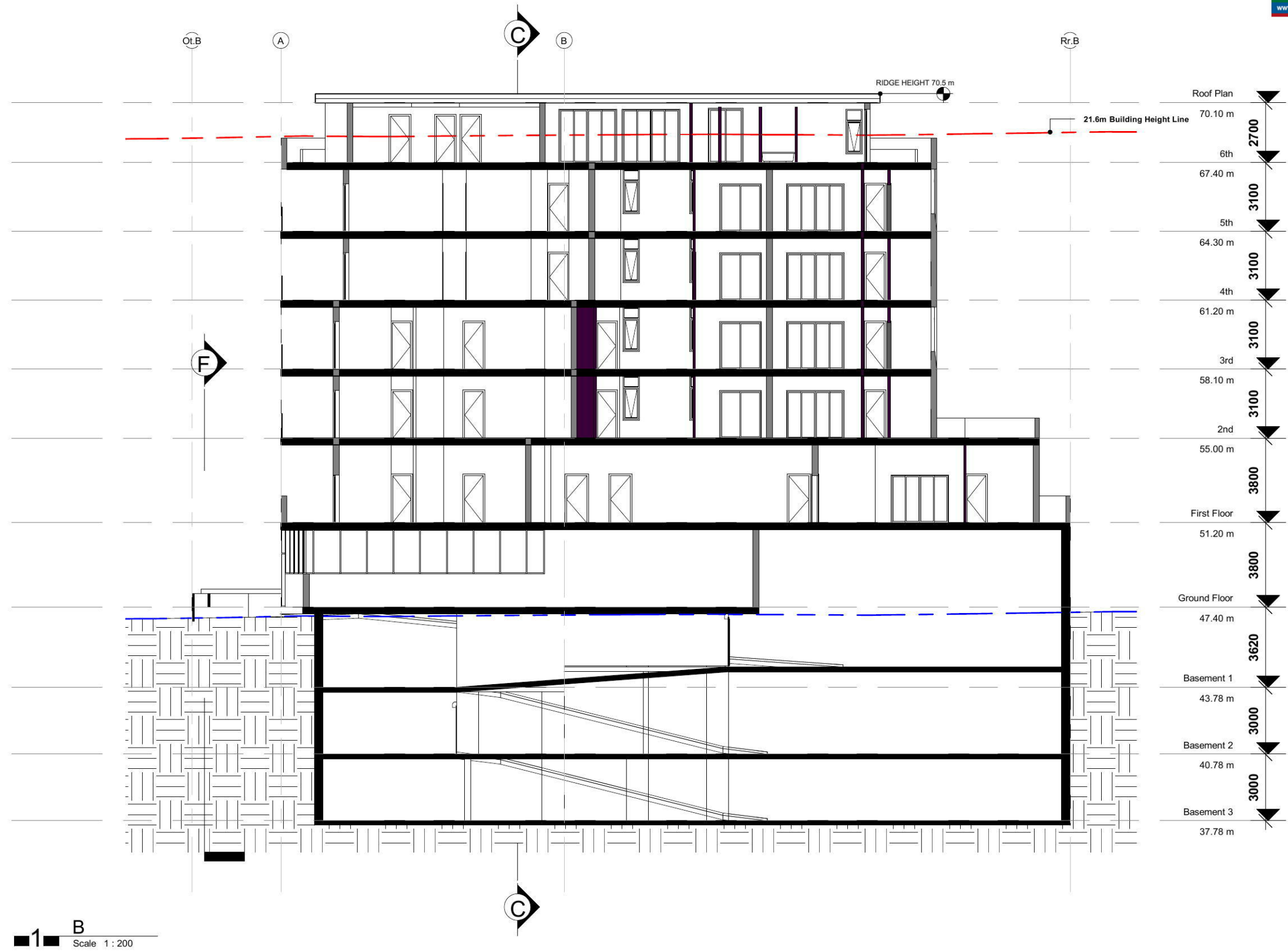
PROJECT TITLE:
 Mixed Use Developments

PROJECT ADDRESS:
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Section A			
DESIGNER:	S.H & T.C	DATE	18/09/2019 12:10:36 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA20



Scale 1 : 200

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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019

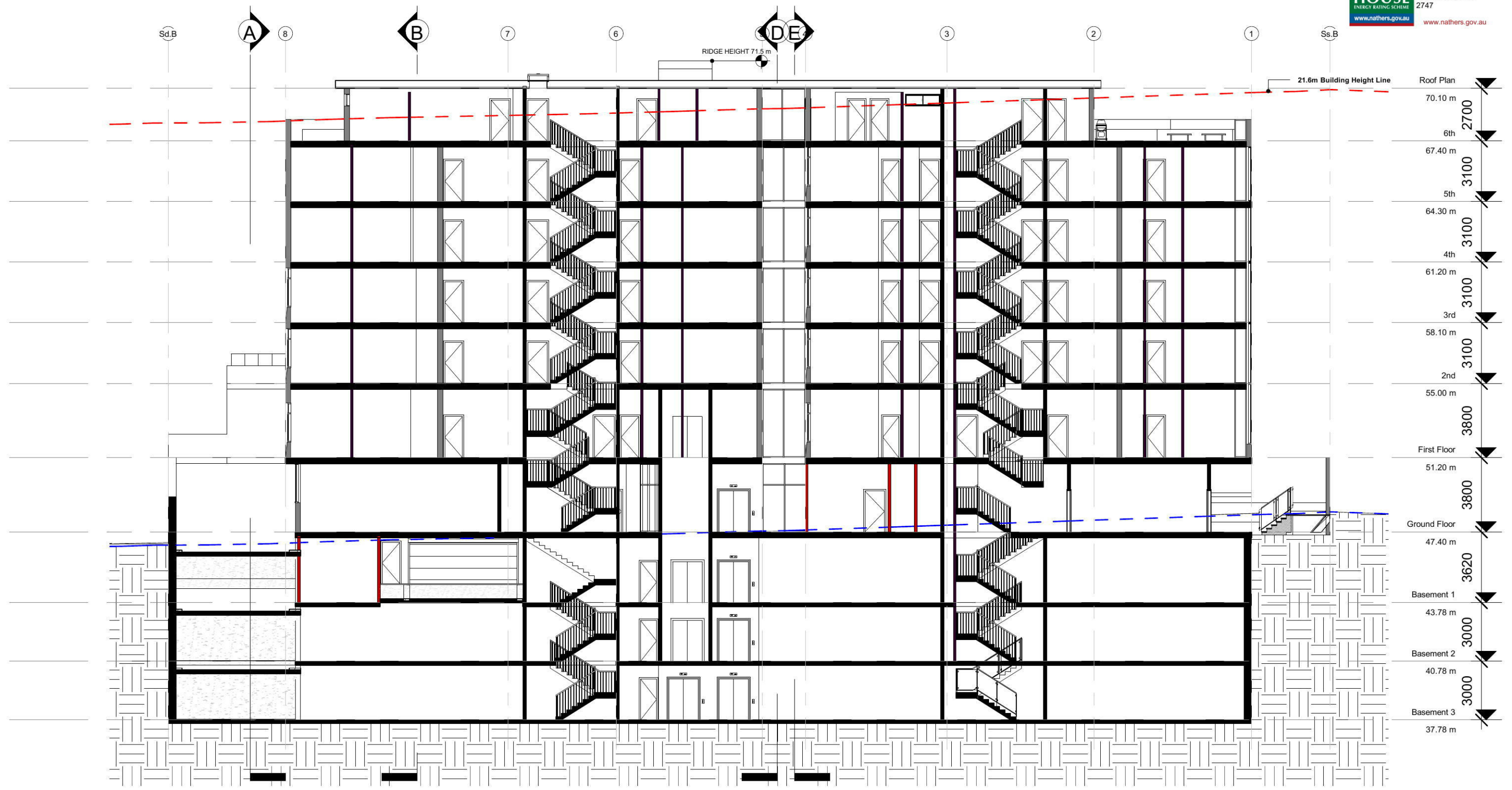
PROJECT TITLE:
 Mixed Use Developments

PROJECT ADDRESS:
 38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

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Section B	
DESIGNER:	S.H & T.C
DATE	18/09/2019 12:10:42 PM
DRAWN BY:	J.Y
REV.	A
JOB NO:	1714
SHEET SIZE:	A3

DA21



Roof Plan	70.10 m
6th	67.40 m
5th	64.30 m
4th	61.20 m
3rd	58.10 m
2nd	55.00 m
First Floor	51.20 m
Ground Floor	47.40 m
Basement 1	43.78 m
Basement 2	40.78 m
Basement 3	37.78 m

1 C Scale 1:200



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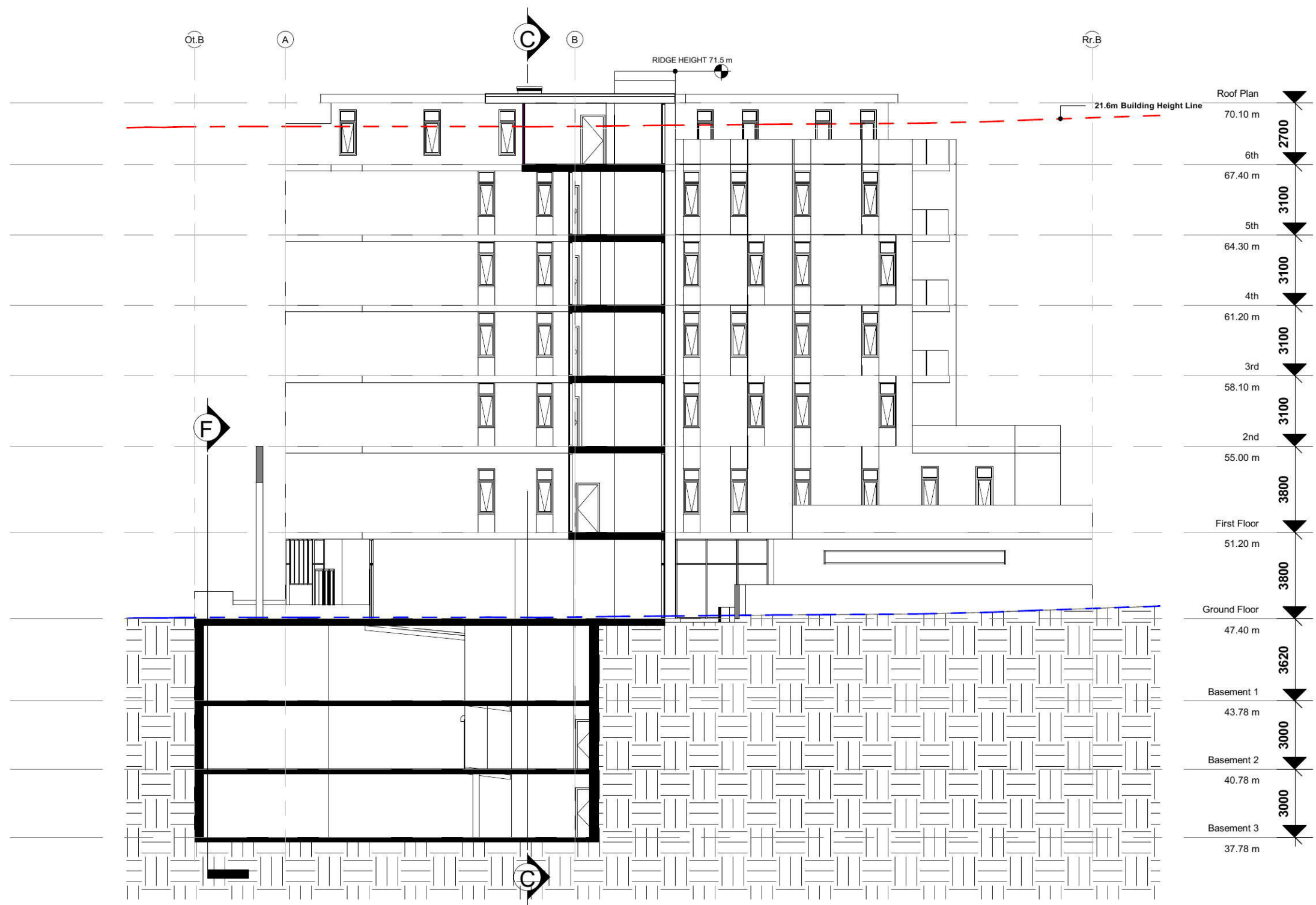
PROJECT TITLE:
Mixed Use Developments

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38-40 Orth Street Kingswood & 26 Somerset Street Kingswood

Section C			
DESIGNER:	S.H & T.C	DATE	18/09/2019 12:10:46 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA22



Roof Plan	70.10 m	2700
6th	67.40 m	3100
5th	64.30 m	3100
4th	61.20 m	3100
3rd	58.10 m	3100
2nd	55.00 m	3100
First Floor	51.20 m	3800
Ground Floor	47.40 m	3620
Basement 1	43.78 m	3000
Basement 2	40.78 m	3000
Basement 3	37.78 m	

1 **D**
 Scale 1 : 200

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REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019

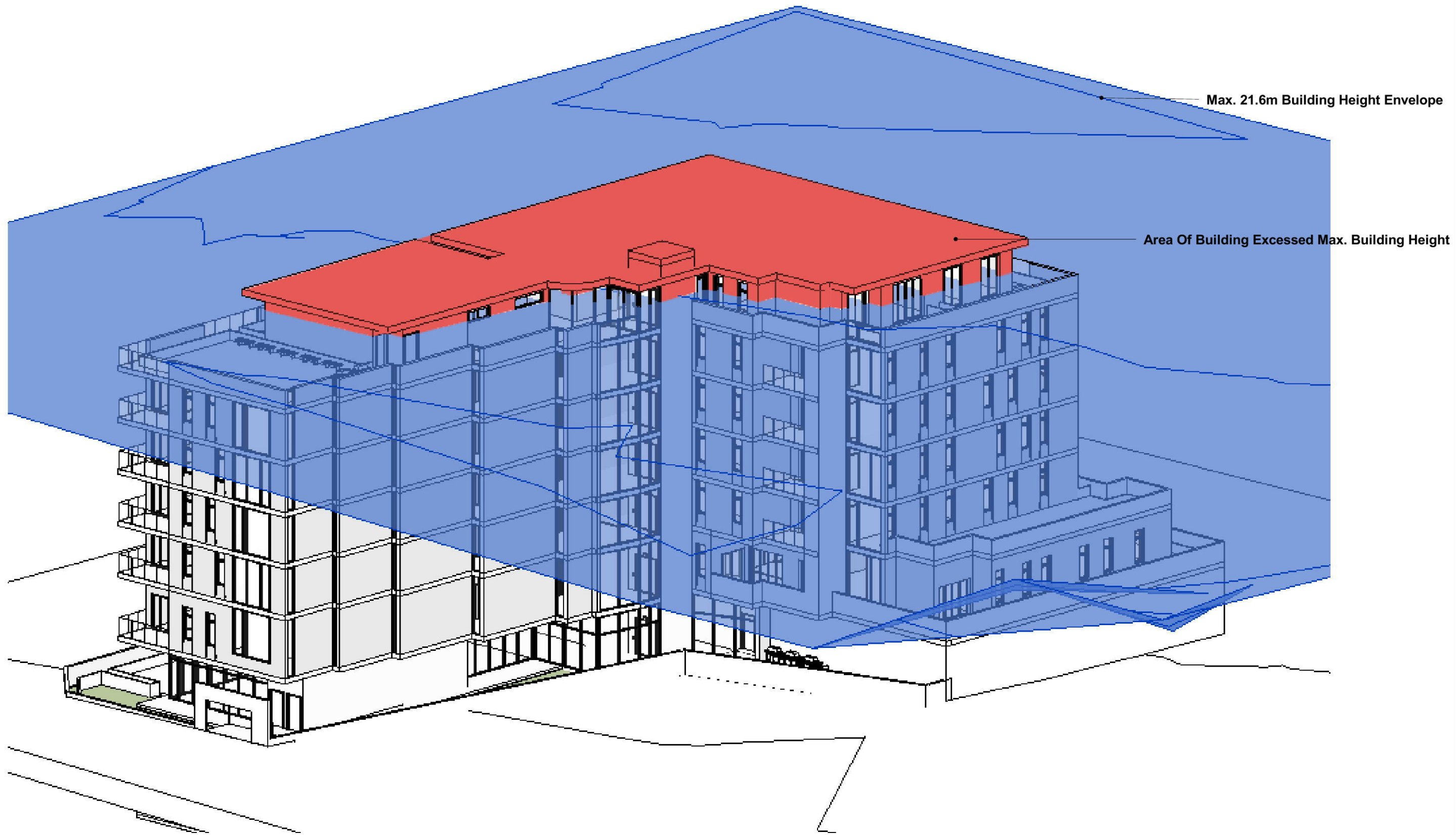
PROJECT TITLE:
 Mixed Use Developments
PROJECT ADDRESS:
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Section D			
DESIGNER:	S.H & T.C	DATE	18/09/2019 12:10:49 PM
DRAWN BY:	J.Y	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
DA23			



REV.	DESCRIPTION	DATE
A	ISSUED FOR DA	27/09/2019



Max. 21.6m Building Height Envelope

Area Of Building Exceeded Max. Building Height

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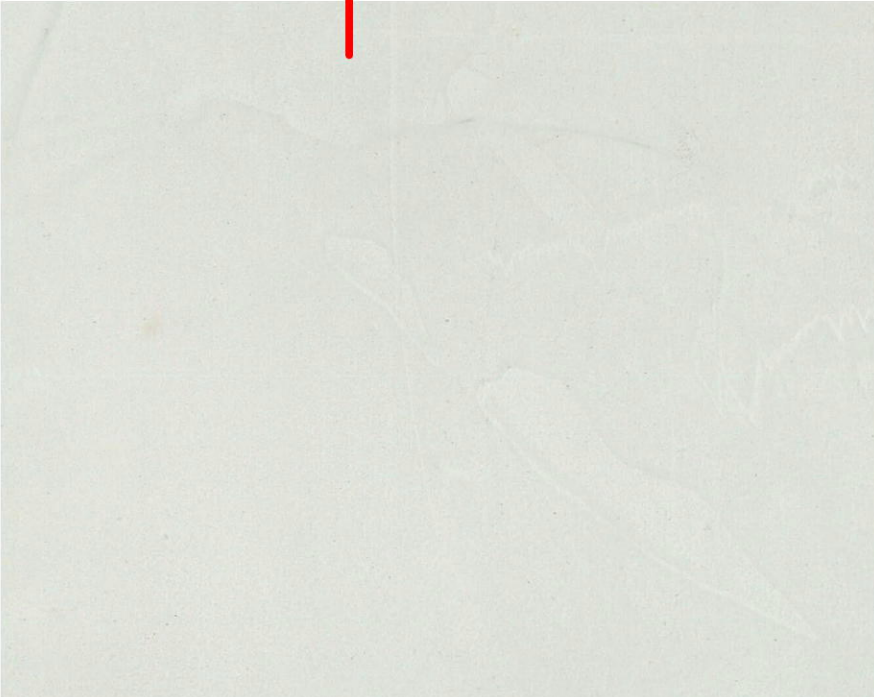
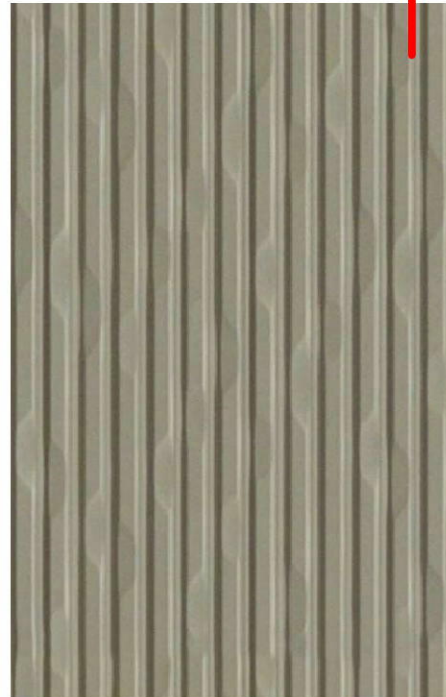
PROJECT ADDRESS:
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3D Building Height Envelope			
DESIGNER:	Designer	DATE	18/09/2019 12:11:23 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3
			DA30



- 01: CIMENTEL TERRITORY STEPPE TUNDRA _ EXTERNAL CLADDING SYSTEM
- 02: BLACK FRAME ALUMINUM WINDOWS
- 03: BLACK FRAME ALUMINUM CURTAIN WALL
- 04: DULUX WHITE PAINT FINISH
- 05: GLASS BALUSTRADE



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PROJECT TITLE:
 Mixed Use Developments

PROJECT ADDRESS:
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CLIENT:
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Materials & Finishes Schedule

DESIGNER:	Designer	DATE	18/09/2019 12:11:27 PM
DRAWN BY:	Author	REV.	A
JOB NO:	1714	SHEET SIZE:	A3

DA31

DEVELOPMENT APPLICATION

PROPOSED LANDSCAPE PLAN - MIXED USE DEVELOPMENT

38-40 ORTH STREET, KINGSWOOD, NSW, 2747

DRAWING LIST

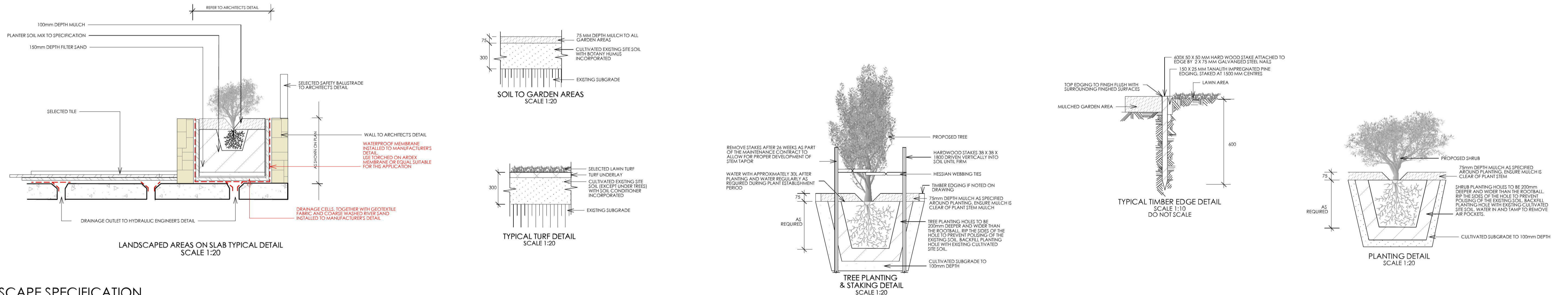
SHEET NO.	SHEET TITLE	DATE
L/00	COVER SHEET	19/06/19
L/01	PROPOSED LANDSCAPE PLAN - GROUND FLOOR	19/06/19
L/02	PROPOSED LANDSCAPE PLAN - FIRST FLOOR	19/06/19
L/03	PROPOSED LANDSCAPE PLAN - SECOND FLOOR	19/06/19
L/04	PROPOSED LANDSCAPE PLAN - SIXTH FLOOR	19/06/19

PLANTING SCHEDULE

Latin Name	Common Name	Quantity	Scheduled Size	Spread	Height
Acacia howitti	Honey Bun Wattle	39	200mm	800	1000
Acmena smithii 'Allyns Magic'	Lillybilly 'Allyns Magic'	12	200mm	800	1200
Acornis flexuosa 'Copper Wave'	Willow Peppermint	38	75lit	1000	1000
Alice 'Outback Orange'	'Outback Orange'	50	200mm	1000	1000
Banksia spinulosa	Hairpin Banksia	4	150mm	3000	3500
Callistemon viminalis	Bottlebrush	4	75lit	4000	6000
Carpobrotus glaucescens	Piñacoe	34	150mm	800	2000
Dichondra repens	Kidney Weed	322	75lit	700	100
Dorvantes excoeca	Gymea Lily	39	250mm	1800	2000
Elaeocarpus eumundi	Guandona	6	75lit	3500	8000
Gravillea 'Poppinada Royal Mantle'	Gravillea	94	200mm	1000	2000
Hibbertia scondens	Gilbina Guinea Flower	131	150mm	800	2000
Lamandra 'Tanika'	Dwarf Lamandra	48	Tube	800	500
Lophosiphon confertum	Brush Box	1	75lit	8000	45000
Myoporum parvifolium	Carpet Spreading Myoporum	154	150mm	800	2000
Philodendron 'Xanadu'	Dwarf Philodendron	22	200mm	1200	1200
Strelitzia reginae	Bird of Paradise	16	300mm	1800	2000
Syzygium australe 'Resilience'	Lillybilly	39	350mm	1200	2700
Tristramia laurina 'Luscious'	Water Gum	7	75lit	4000	8000
Zamia luridacea	Cardboard Plant	10	350mm	1800	2000

INDICATES PROPOSED AUSTRALIAN NATIVE PLANT SPECIES
NOTE: ALL PROPOSED PLANT SPECIES ARE WATER-WISE.

LANDSCAPE DETAILS



OUTLINE LANDSCAPE SPECIFICATION

Preparation by Builder: Builder shall remove all existing concrete pathways, fences, footings, walls etc. not notated to be retained and complete all necessary excavation work prior to commencement on site by Landscape Contractor (Contractor). Builder shall also install new retaining walls, kerbs, layback kerb, crossover, pathways etc. and make good all existing kerbs, gutters etc. as necessary and to approval of Council. Builder shall ensure that a minimum 450mm of topsoil in garden areas and a minimum 150mm of topsoil in lawn areas exists. Should required depths not exist Builder shall contact Landscape Architect and ask for instructions prior to completion of excavation works.

Excavate as necessary: then fill with approved site topsoil to allow for minimum 500mm soil depth in garden areas and 150mm soil depth in lawn areas and to gain required shapes & levels. Ensure all garden and lawn areas drain satisfactorily. All levels & surface drainage shall be determined by others & approved on site by Head Contractor. Note: Approved imported topsoil mix may be utilised if there is insufficient site topsoil available. State in Tender a m3 rate for additional imported topsoil and the quantities of both site topsoil and imported topsoil allowed for in Tender.

Initial Preparation: Verify all dimensions & levels on site prior to commencement. Do not scale from drawings. Locate all underground & above ground services & ensure no damage occurs to them throughout contract. Spray approved weedicide to all proposed lawn & garden areas to manufacturer's directions. Remove existing concrete pathways, footings, walls etc. not notated to be retained & weeds from site. Levels indicated on Plan are nominal only and are derived from Architectural Plans & Drawings by others. Final structural integrity of all items shall be the sole responsibility of Landscape Contractor.

Tree Protection: Trees to be retained shall be protected during site works and construction by the erection of solid barricades to the specification of Council. Storage of machinery or materials beneath canopy of trees to be retained shall not be permitted. Changes to soil level and cultivation of soil beneath canopy of trees to be retained shall not be permitted unless under direct supervision of Landscape Architect. Existing trees shall be pruned to Landscape Architects onsite instructions.

Soil Preparation: Cultivate to depth of 300mm all proposed lawn & garden areas incorporating minimum 100mm depth of organic clay breaker into existing site soil. Do not cultivate beneath existing trees to be retained. In areas where fill is required gain required shapes & levels using a premium grade soil mix. In areas where excavation is required (if in clay) over excavate as required to allow for installation of 500mm depth of premium grade topsoil mix to garden areas and 300mm depth of premium grade topsoil mix to lawn areas. Undertake all required action to ensure that no rootballs of proposed plants sit in clay wells and that all garden areas and lawn areas drain satisfactorily. Note it is intended that wherever possible existing levels shall not be altered through garden and lawn areas. It is the Contractor's responsibility to ensure that the end result of the project is that all lawn and garden areas drain sufficiently (both surface & subsurface), are at required finished levels and have sufficient soil depths to enable lawn and plants to thrive and grow. Should alternative works to those specified be required to achieve the above result, Contractor shall inform Builder at time of Tender and request instructions.

Lawn Edging and Stepping Stones: (i) 125 x 25mm approved tanalith impregnated pine edging shall be installed, to lines as indicated on plan and staked with approved stakes of maximum 1500mm centres at ends and changes of direction; stakes shall be nailed to edging with approved galvanised steel nails. Top of edging shall finish flush with surrounding surfaces. Top of stakes shall finish 25mm below top of edging. (ii) Contractor shall install approved bricks on edge on a minimum 100mm deep x 90mm wide concrete footing with brick top set in, to lines nominated on plan as brick edging. Bricks needing to be cut shall be done so with clean sharp cuts. Top of edging shall finish flush with surrounding finished surfaces. Approved sandstone stepping stones shall be positioned as indicated on plan on a 25mm river sand bed. Approved sandstone stepping stones shall be positioned as indicated on plan on a 25mm river sand bed.

Retaining Walls: Positions, detail and heights of retaining walls shall be by others.

Planting: Purchase plants from an approved nursery. Plants to be healthy & true to type & species. Set out plants to positions indicated on plan. Following approval, plant holes shall be dug approximately twice width and to 100mm deeper than plant rootballs that they are to receive. Base and sides of hole shall be further loosened. Fertiliser, followed by 100mm depth of topsoil mix shall then be placed into base of hole and lightly consolidated. Base of hole shall then be watered. Remove plant container and install plant into hole. Rootball shall be backfilled with surrounding topsoil and topsoil firmed into place. An approved shallow dish shall be formed to contain water around base of stem. Base of stem of plant shall finish flush with finished soil level. Once installed plant shall be thoroughly watered and maintained for the duration of the Contract.

Staking: All trees shall be staked using 2 x 38mm x 38mm x 2000mm long hardwood stakes per plant and with hessian webbing ties installed to Landscape Architect's on site instructions.

Mulching: Install 75mm depth of 25mm diameter hardwood mulch to all garden areas, coving mulch down around all plant stems & to finish flush with adjacent surfaces.

Turfing: Prepare for, level & lay cultivated Palmetto Buffalo turves to all areas nominated on plan as being lawn. Roll, water, fertilise, mow & maintain lawns as necessary until completion of maintenance period. At same time make good all existing lawn areas using same lawn type. Lawns in shade shall be over sown with an approved seed mix. Allow to retrim and return councils nature strip as required.

Fencing: Retain all existing fences unless advised otherwise by builder. Install timber paling fences to heights indicated on Plan.

Paving: Areas to be paved shall be excavated or filled to allow for installation of bedding materials. Levels and falls shall be as per Plan. Surface drainage on paving shall be towards grated drains with all drains connected to stormwater system and installed by Builder.

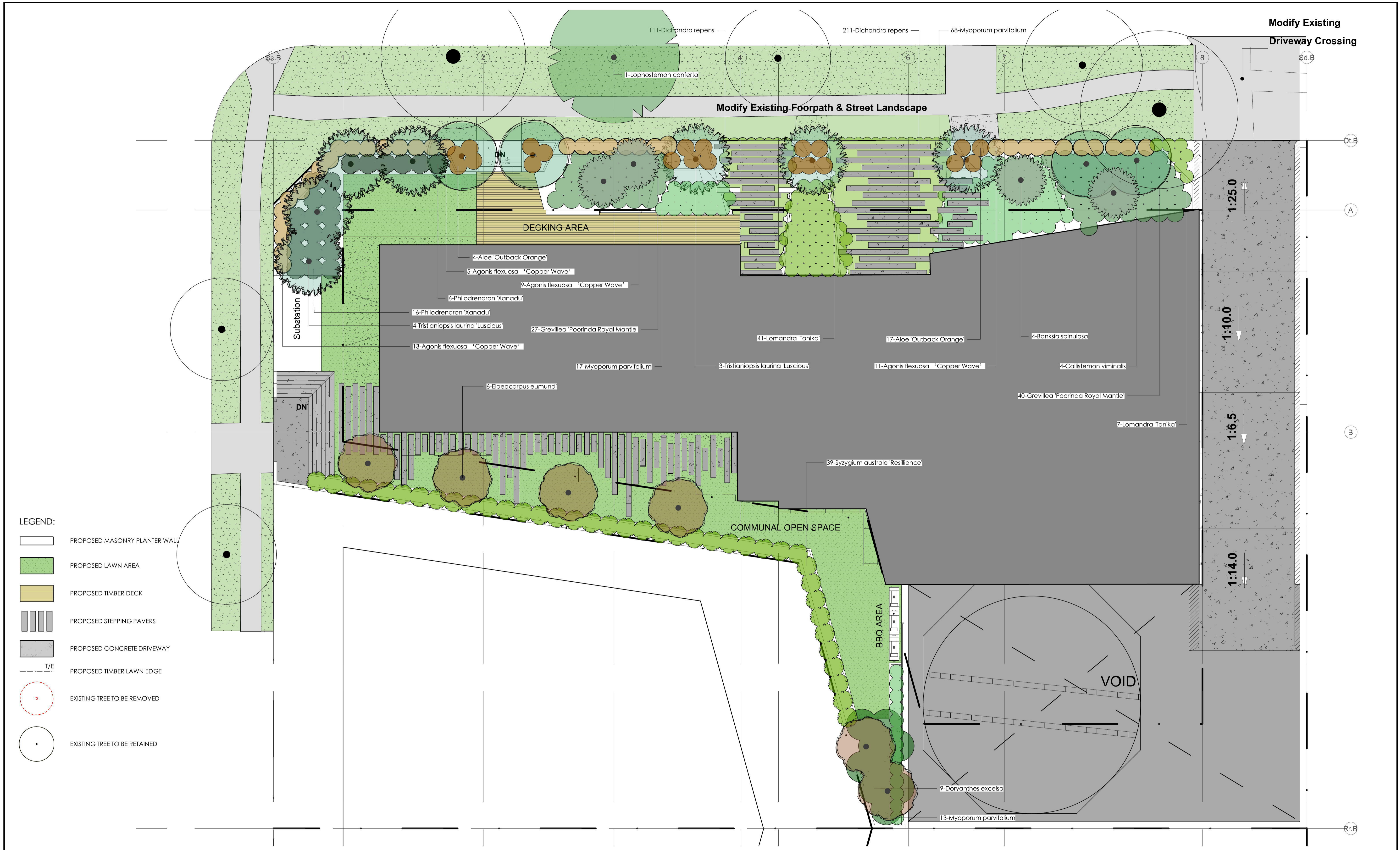
Irrigation: Contractor shall supply and install an approved fully automatic, vandal resistant, computerised irrigation system to all garden and lawn areas, excluding council nature strip. Entire system shall be to approval of Water Board.

Completion: Prior to practical completion remove from site all unwanted debris occurring from work. Satisfy Council that all landscaping work has been undertaken in strict accordance with Councils landscape codes & guidelines.

Maintenance Period: A twelve month maintenance period shall be undertaken by owner or owners representative as set out herein. Owner shall have care and maintenance of all work specified under this Contract and shall rectify any defective work for a period of 52 weeks following Practical Completion of Landscape Works. This period shall be herein known as the Maintenance Period. Work shall also include for the care and maintenance of all existing vegetation to be retained and proposed vegetation. Site shall be attended at least weekly and as otherwise required. The following works shall be undertaken during the Maintenance Period:

- Recurrent works Undertake recurrent works throughout the Maintenance Period. These works shall include but are not limited to watering, weeding, fertilising, pest and disease control, returfing, staking and tying, replanting, cultivation, pruning, aerating, renovating, top dressing and the like.
- Watering Regularly water all plants and lawn areas to maintain optimal growing conditions. Contractor shall adjust the water quantity utilised with regard to climatic conditions prevalent at the time.
- Replacements Immediately replace plants which die or fail to thrive (at discretion of Landscape Architect) with plants of same species or variety and of same size and quality unless otherwise specified. Plant replacement shall be at Contractors expense, unless replacement is required due to vandalism or theft, which shall be determined by Landscape Architect. Required replacement of plants due to vandalism or theft shall be undertaken by Contractor and shall be paid for by Client on an agreed predetermined rate.
- Mulched surfaces Maintain mulched surfaces in clean, tidy, weed-free condition and shall reinstate mulch as necessary to maintain specified depths.
- Stakes & ties Adjust and/or replace stakes and ties as required. Remove stakes and ties at end of Maintenance Period if directed by Landscape Architect.
- Lawn areas Lawn areas shall be mown at regular intervals to ensure non heading of lawn with a fine-cutting mulching mower and clippings left on lawn to mulch and self-fertilise lawn areas. Primary cut after laying of lawn by others shall be determined on site taking into consideration season, watering and growth rate of lawn. Following the primary cut all lawns shall be regularly mown as required to ensure a healthy lawn and a neat appearance. Care shall always be taken to ensure that clippings are left on surrounding roads or garden areas after mowing. Replace lawn areas that fail to thrive at discretion of Landscape Architect. All new and made good lawn areas shall be barricaded off from pedestrian traffic by use of star pickets and brightly coloured plastic safety mesh until establishment of lawn. Barricades shall be removed upon establishment of lawn area.
- Weeding Remove by hand, or by carefully supervised use of weedicide, any weed growth that may occur throughout Maintenance Period. This work shall be executed at weekly intervals so that all lawn and garden areas may be observed in a weed-free condition.
- Pruning Prune new and existing plants (excluding existing trees) as necessary to maintain dense foliage conditions. Any rogue branches, or branches overhanging or obstructing pathways, roads, doorways, etc., shall be removed by approved horticultural methods.
- Spraying Spraying for insect, fungal and disease attack shall be undertaken as required and in accordance with spray manufacturers recommendations at intervals taking into account the season of year during which landscape works are to be implemented.
- Tree Care Should any existing trees be damaged during construction works immediately engage an experienced arboriculturist and then undertake any rectification work recommended by arboriculturist.

Client	Architect	Project	Notes	Revision	Description	Date	DRAWING
BIOGIENE PROPERTY INVESTMENT PTY LTD	AO PROJECT GROUP Address: SUITE 3107 RAILWAY ST, CHATSWOOD NSW 2037 Tel: 02 9188 7255 Email: info@ao-project.com.au	PROPOSED MIXED USE DEVELOPMENT	1. All dimensions and levels shall be verified by Contractor on site prior to commencement of work. 2. Do not scale from drawings. 3. If in doubt contact Landscape Architect. 4. This design is copyright and shall not be copied, utilised or reproduced in any way without prior written permission of A Total Concept Landscape Architects. 5. This plan has been prepared for Development Application purposes only.	A	ARCHITECTURAL AMENDMENT	28.06.19	PROPOSED LANDSCAPE PLAN - GROUND FLOOR
				B	ARCHITECTURAL AMENDMENT	18.07.19	ADDRESS 38-40 ORTH STREET, KINGSWOOD, NSW, 2747
				C	ARCHITECTURAL AMENDMENT	27.09.19	A Total Concept Landscape Architects 45 West Street, North Sydney NSW 2060 Tel: (02) 9957 4055 Fax: (02) 9957 5922
							SCALE # A1 1:100 DRAWN JS CHKD SW PROJECT # AC HOMES
							DWG # L/01 atc a total concept landscape architects & swimming pool designers



- LEGEND:**
- PROPOSED MASONRY PLANTER WALL
 - PROPOSED LAWN AREA
 - PROPOSED TIMBER DECK
 - PROPOSED STEPPING PAVERS
 - PROPOSED CONCRETE DRIVEWAY
 - PROPOSED TIMBER LAWN EDGE
 - EXISTING TREE TO BE REMOVED
 - EXISTING TREE TO BE RETAINED

Client

BIOGIENE PROPERTY INVESTMENT PTY LTD

Architect

AC PROJECT GROUP

Address: SUITE 3107 RAILWAY ST, CHATSWOOD NSW 2067
Tel: 02 9188 7256
Email: info@acproject.com.au

Project

PROPOSED MIXED USE DEVELOPMENT

Notes

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Revision	Description	Date
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B	ARCHITECTURAL AMENDMENT	18.07.19
C	ARCHITECTURAL AMENDMENT	27.09.19

DRAWING

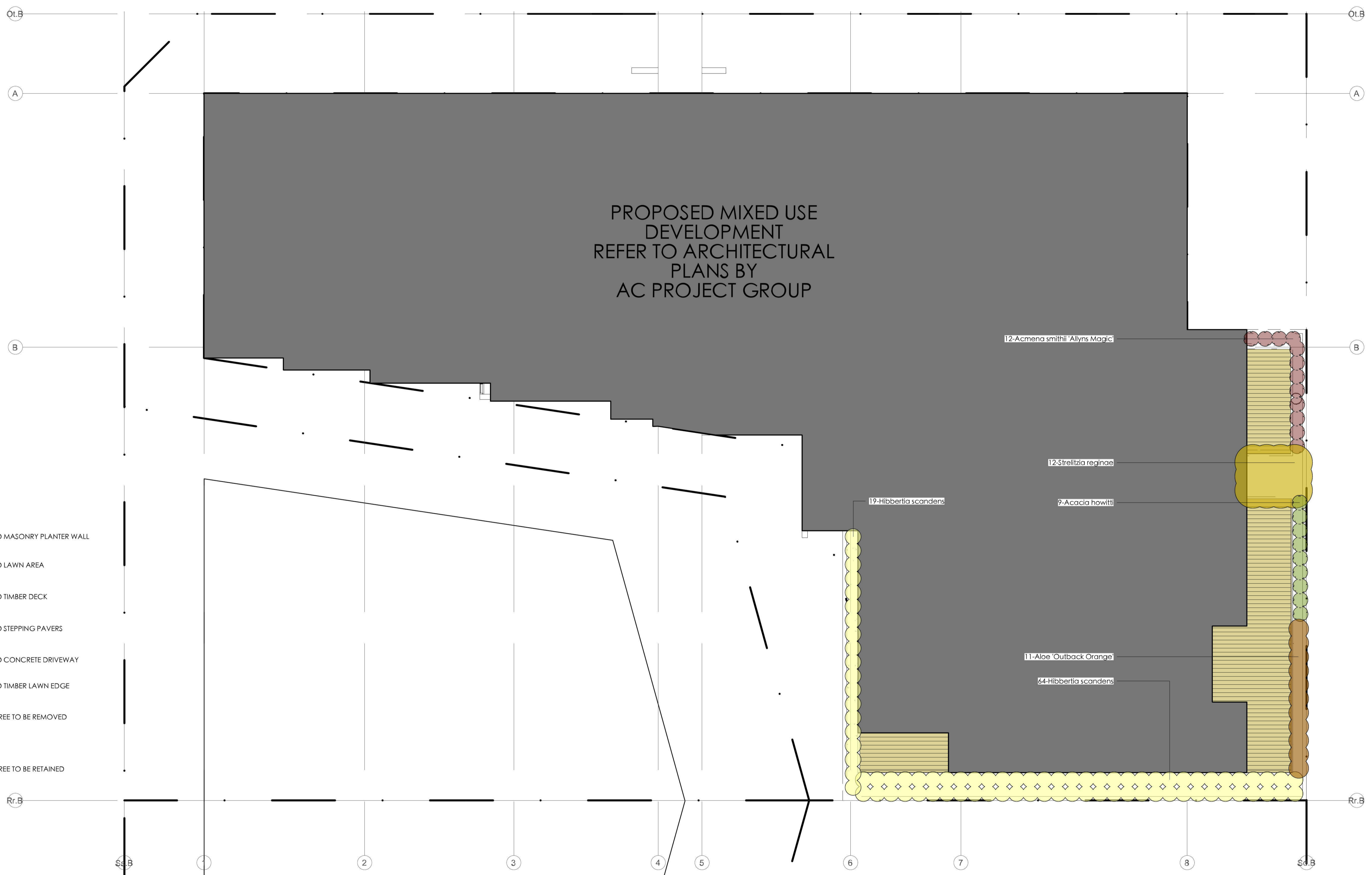
PROPOSED LANDSCAPE PLAN - GROUND FLOOR

ADDRESS
38-40 ORTH STREET, KINGSWOOD, NSW, 2747

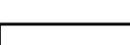





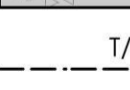

A Total Concept Landscape Architects
65 West Street, North Sydney NSW 2060
Tel: (02) 9957 4055 Fax: (02) 9957 5922

SCALE #A1 1:100
DRAWN JS
CHKD SW
PROJECT # AC HOMES

DWG # L/01



PROPOSED MIXED USE
DEVELOPMENT
REFER TO ARCHITECTURAL
PLANS BY
AC PROJECT GROUP

- LEGEND:**
-  PROPOSED MASONRY PLANTER WALL
 -  PROPOSED LAWN AREA
 -  PROPOSED TIMBER DECK
 -  PROPOSED STEPPING PAVERS
 -  PROPOSED CONCRETE DRIVEWAY
 -  PROPOSED TIMBER LAWN EDGE
 -  EXISTING TREE TO BE REMOVED
 -  EXISTING TREE TO BE RETAINED

Client

**BIOGIENE PROPERTY
INVESTMENT PTY LTD**

Architect



Address: SUITE 3107 RAILWAY ST,
CHATSWOOD NSW 2067
Tel: 02 9183 7255
Email: info@acproject.com.au

Project

**PROPOSED MIXED USE
DEVELOPMENT**

Notes

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Revision	Description	Date
B	ARCHITECTURAL AMENDMENT	18.07.19
C	ARCHITECTURAL AMENDMENT	27.09.19

DRAWING
PROPOSED LANDSCAPE PLAN - LEVEL 1

ADDRESS
38-40 ORTH STREET, KINGSWOOD, NSW, 2747

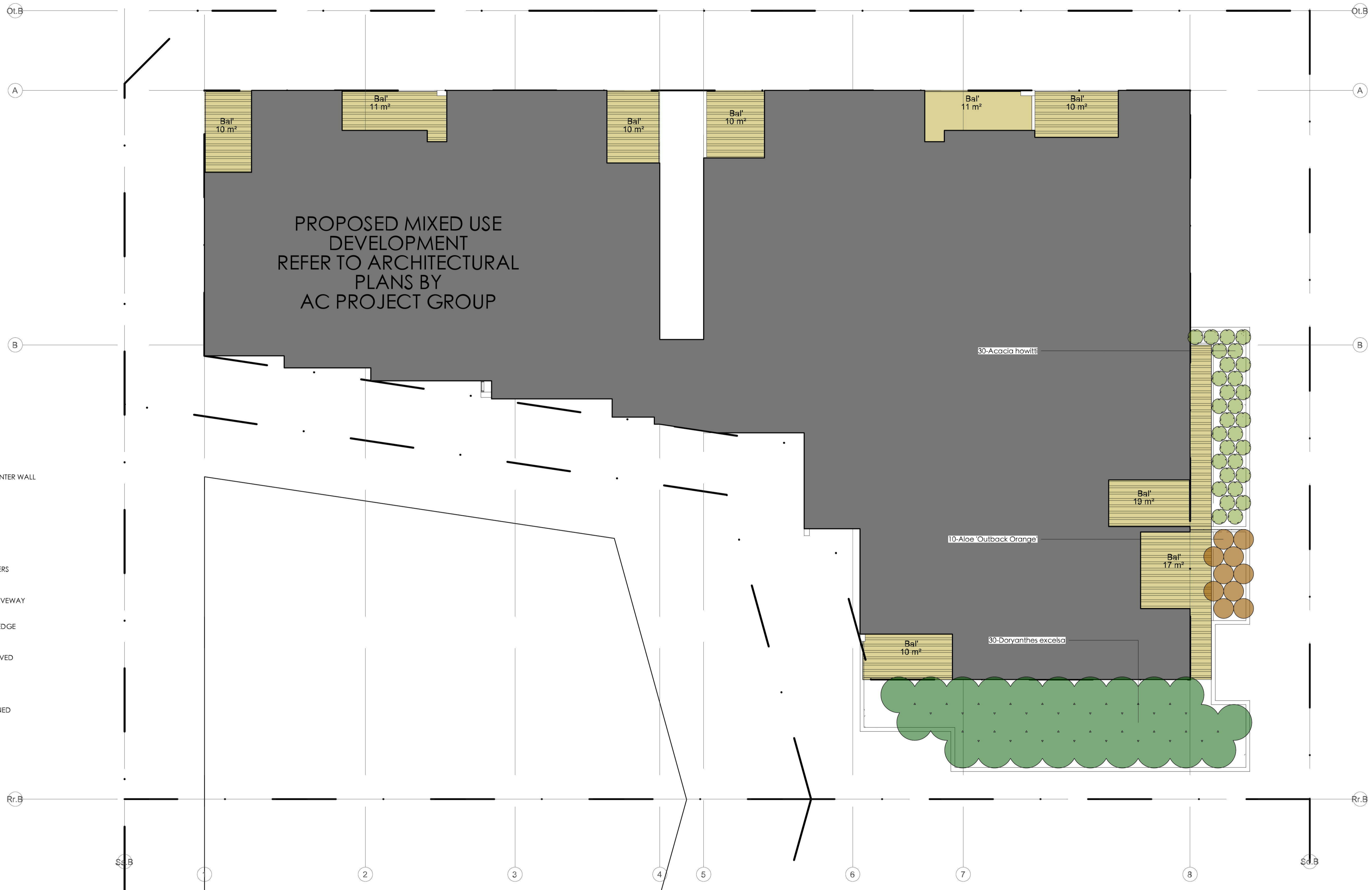
A Total Concept Landscape Architects
65 West Street, North Sydney NSW 2060
Tel: (02) 9957 4055 Fax: (02) 9957 5922

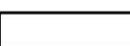
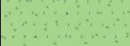








SCALE @ A1 1:100
DRAWN JS
CHKD SW
PROJECT #
AC HOMES

DWG #
L/02





- LEGEND:**
-  PROPOSED MASONRY PLANTER WALL
 -  PROPOSED LAWN AREA
 -  PROPOSED TIMBER DECK
 -  PROPOSED STEPPING PAVERS
 -  PROPOSED CONCRETE DRIVEWAY
 -  PROPOSED TIMBER LAWN EDGE
 -  EXISTING TREE TO BE REMOVED
 -  EXISTING TREE TO BE RETAINED

Client

BIOGIENE PROPERTY INVESTMENT PTY LTD

Architect

AC PROJECT GROUP

Address: SUITE 3107 RAILWAY ST. CHATSWOOD NSW 2067
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 Email: info@acproject.com.au

Project

PROPOSED MIXED USE DEVELOPMENT

Notes

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Revision	Description	Date
B	ARCHITECTURAL AMENDMENT	18.07.19
C	ARCHITECTURAL AMENDMENT	27.09.19

DRAWING
PROPOSED LANDSCAPE PLAN - LEVEL 2

ADDRESS
38-40 ORTH STREET, KINGSWOOD, NSW, 2747

A Total Concept Landscape Architects
 65 West Street, North Sydney NSW 2060
 Tel: (02) 9957 4055 Fax: (02) 9957 5922

SCALE # A1 1:100
 DRAWN JS
 CHKD SW
 PROJECT # AC HOMES

DWG # L/03





- LEGEND:**
- PROPOSED MASONRY PLANTER WALL
 - PROPOSED LAWN AREA
 - PROPOSED TIMBER DECK
 - PROPOSED STEPPING PAVERS
 - PROPOSED CONCRETE DRIVEWAY
 - PROPOSED TIMBER LAWN EDGE
 - EXISTING TREE TO BE REMOVED
 - EXISTING TREE TO BE RETAINED

Client
BIOGIENE PROPERTY INVESTMENT PTY LTD

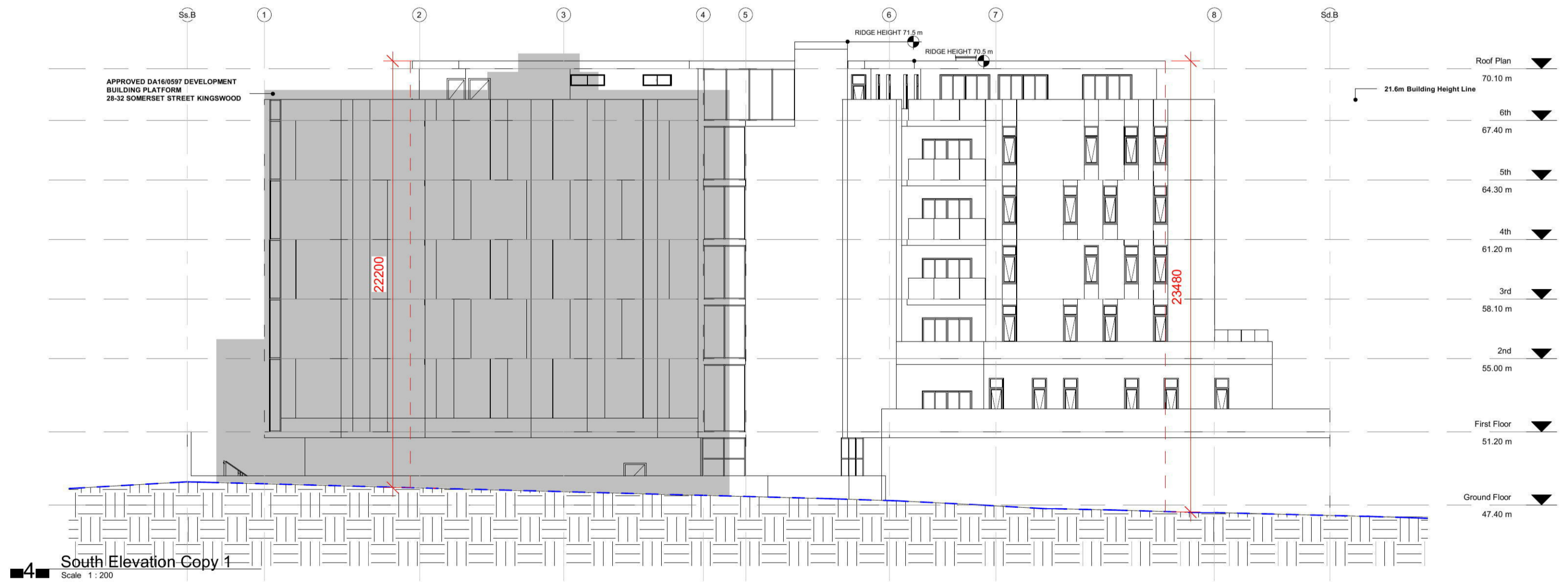
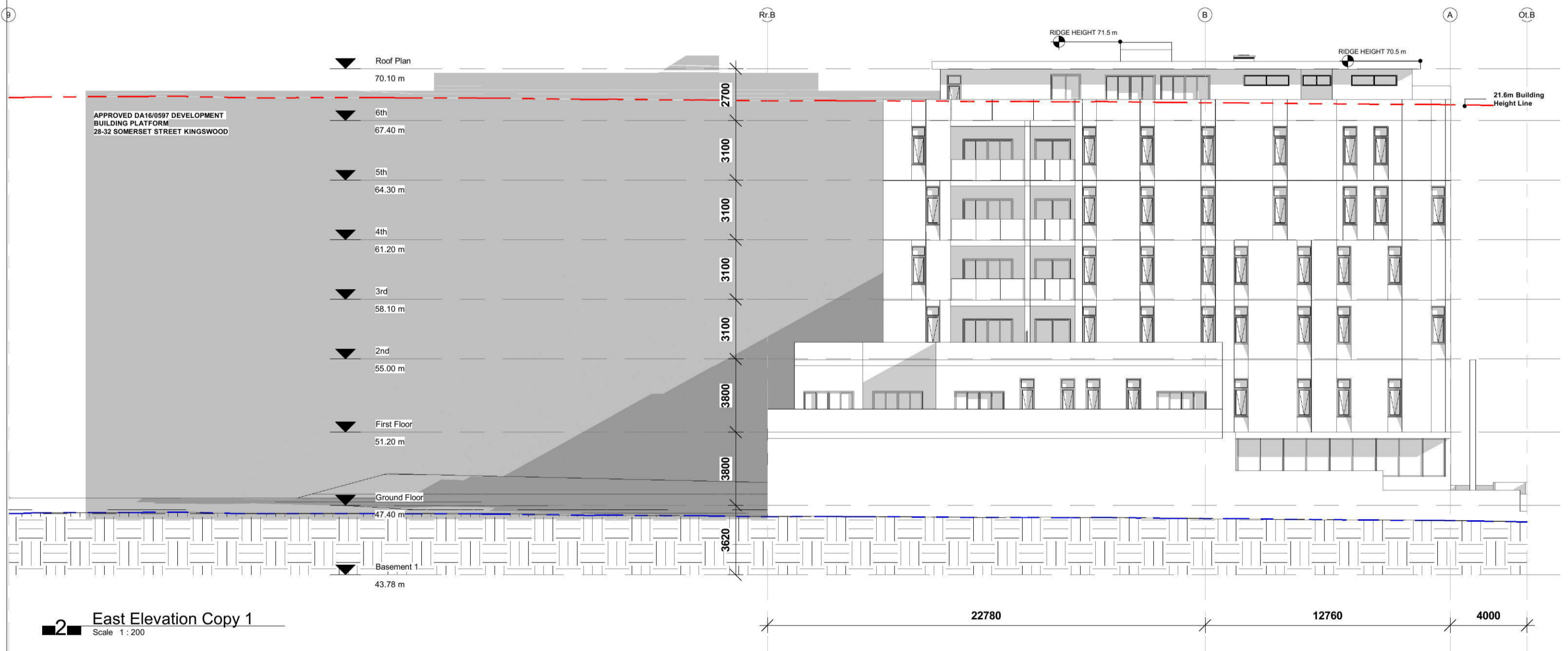
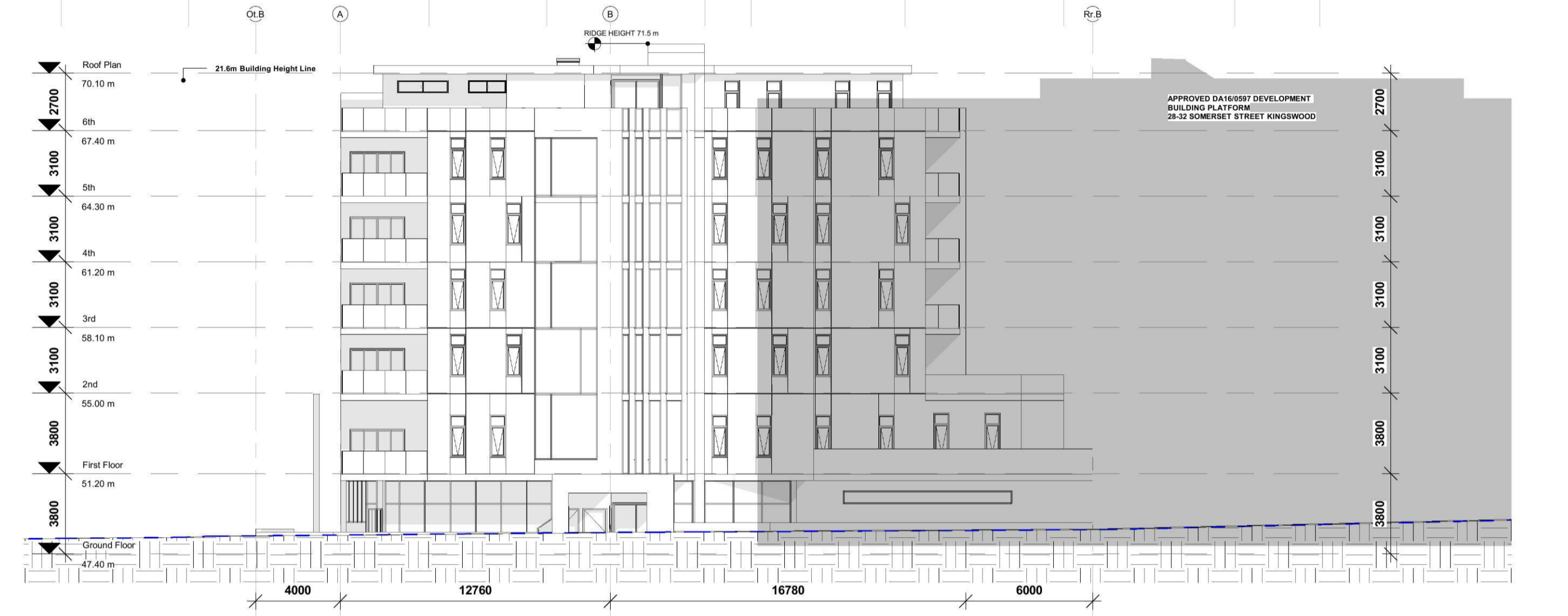
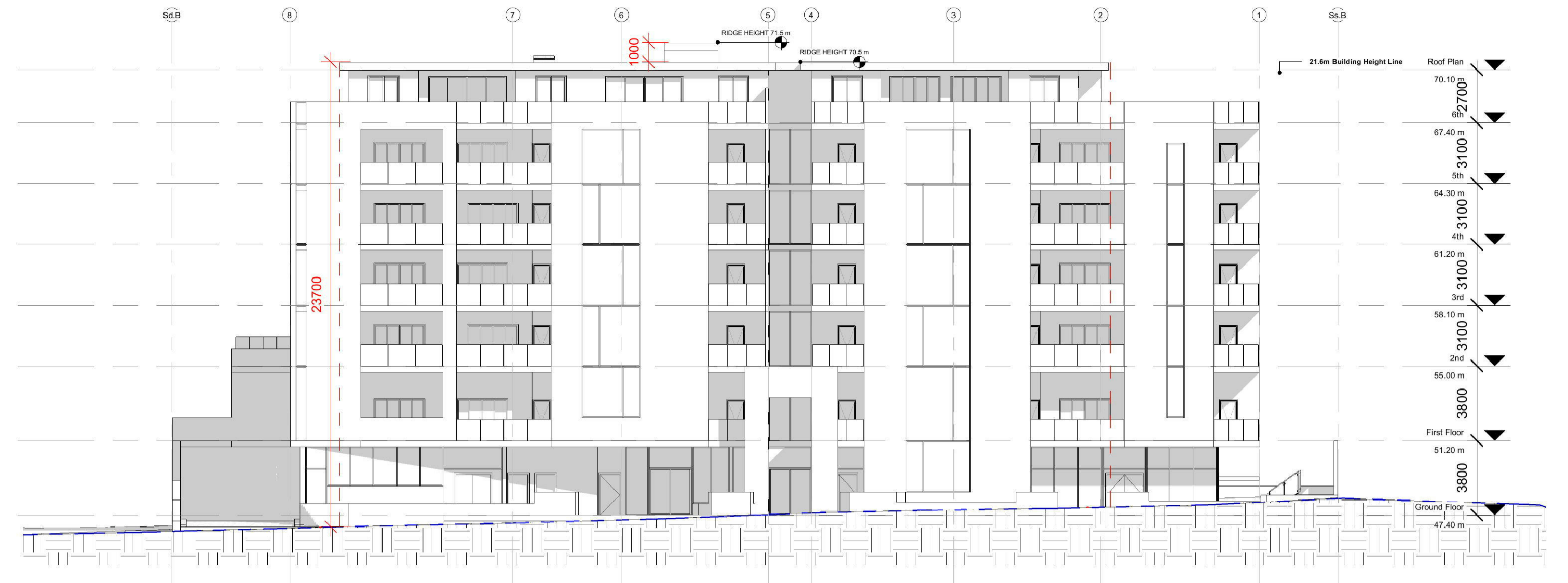
Architect
AC PROJECT GROUP
 Address: SUITE 3107 RAILWAY ST. CHATSWOOD NSW 2067
 Tel: 02 9188 7255
 Email: info@acproject.com.au

Project
PROPOSED MIXED USE DEVELOPMENT

- Notes**
1. All dimensions and levels shall be verified by Contractor on site prior to commencement of work.
 2. Do not scale from drawings.
 3. If in doubt contact Landscape Architect.
 4. This design is copyright and shall not be copied, utilised or reproduced in any way without prior written permission of A Total Concept Landscape Architects.
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Revision	Description	Date
B	ARCHITECTURAL AMENDMENT	18.07.19
C	ARCHITECTURAL AMENDMENT	27.09.19

DRAWING
PROPOSED LANDSCAPE PLAN - LEVEL 6
 ADDRESS
38-40 ORTH STREET, KINGSWOOD, NSW, 2747
 A Total Concept Landscape Architects
 65 West Street, North Sydney NSW 2060
 Tel: (02) 9957 4055 Fax: (02) 9957 5922
 SCALE @ A1 1:100
 DRAWN JS
 CHKD SW
 PROJECT # AC HOMES
 DWG # L/04



<p>AC PROJECT GROUP</p> <p>Address: SUITE 2017, 146/147 ST. CHARLES STREET, KINGSWOOD QLD 4700 AUSTRALIA Tel: 02 9398 0296 Email: info@acprojectgroup.com.au</p>	<p>GENERAL NOTES: Do not scale from drawings. Verify all dimensions including but not limited to boundary, set out and all site levels on site before commencing work. Location of services are approximate only. The work shall be constructed in accordance with the approved DA, CC's conditions, all regulations, requirements of local authorities where the site is located, the requirement of BCA (latest edition) and relevant Australian Standard.</p>	<table border="1"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>PROJECT TITLE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUED FOR DA APPROVAL</td> <td>14/10/2019</td> <td>Mixed Use Developments</td> </tr> </tbody> </table>	REV.	DESCRIPTION	DATE	PROJECT TITLE	A	ISSUED FOR DA APPROVAL	14/10/2019	Mixed Use Developments	<p>PROJECT ADDRESS: 38-40 Orth Street Kingswood & 26 Somerset Street Kingswood</p>	<p>CLIENT Biogene Property Investment Pty Ltd</p>	<p>Notification Plan</p> <table border="1"> <thead> <tr> <th>DESIGNER:</th> <th>Author</th> <th>DATE</th> <th>14/10/2019 9:44:21 AM</th> </tr> </thead> <tbody> <tr> <td>DRAWN BY:</td> <td>Author</td> <td>REV:</td> <td>D</td> </tr> <tr> <td>JOB NO:</td> <td>1714</td> <td>SHEET SIZE:</td> <td>A1</td> </tr> </tbody> </table>	DESIGNER:	Author	DATE	14/10/2019 9:44:21 AM	DRAWN BY:	Author	REV:	D	JOB NO:	1714	SHEET SIZE:	A1	<p>Notification</p>
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<p>Document Set ID: 8893800 Version: 1, Version Date: 18/10/2019</p>																										

PROPOSED DEVELOPMENT (No.38-40) ORTH STREET & (No.26) SOMERSET STREET, KINGSWOOD SOIL & WATER MANAGEMENT PLANS

GENERAL INSTRUCTIONS

- THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
- CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 1998 (BLUE BOOK).
- ALL SUBCONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN REDUCING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.

LAND DISTURBANCE INSTRUCTIONS

- DISTURBANCE TO BE NO FURTHER THAN 5 (PREFERABLY 2) METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
- WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
 - INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
 - CONSTRUCT THE STABILISED SITE ACCESS.
 - CONSTRUCT DIVERSION DRAINS AS REQUIRED.
 - INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
 - INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
 - CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
 - UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
 - GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
 - REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING.
- ON COMPLETION OF MAJOR WORKS LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.

SITE MAINTENANCE INSTRUCTIONS

- THE SITE SUPERINTENDENT WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
 - ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
 - REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
 - REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED.
 - ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
 - CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
 - MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- THE SITE SUPERINTENDENT WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
 - THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
 - THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
 - THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
 - THE NEED FOR DUST PREVENTION STRATEGIES.
 - ANY REMEDIAL WORKS TO BE UNDERTAKEN. THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.

SEDIMENT CONTROL INSTRUCTIONS

- SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
- STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
- WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE.
- TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
- ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

SOIL EROSION CONTROL INSTRUCTIONS

- EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTED, THAN:
 - 2(H):1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
 - 2.5(H):1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
 - 3(H):1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
 - 4(H):1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
- ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
- WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 1998 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
- STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.1 (60% GROUND-COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
- ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.

SOIL EROSION CONTROL INSTRUCTIONS CONT.

- FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER: JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
- PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND-COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
- REVEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

WASTE CONTROL INSTRUCTIONS

- ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
- ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
- ALL SITE STAFF AND SUB-CONTACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
- ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
- PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

PROCEDURE FOR DE-WATERING

- ENSURE PERMISSION FOR DE-WATERING IS RECEIVED FROM AUTHORITIES BEFORE PUMPING OUT.
- AN ON-SITE TREATMENT PROCESS DISCHARGING TO THE STORMWATER SYSTEM WILL BE IMPLEMENTED. ALL SITE WATERS DURING CONSTRUCTION WILL BE CONTAINED ON SITE AND RELEASED ONLY WHEN pH IS BETWEEN 8.5 & 6.5, SUSPENDED SOLIDS ARE LESS THAN 50mg/L, TURBIDITY LESS THAN 100 NTU'S, OIL AND GREASE LESS THAN 10mg/L AND BIOCHEMICAL OXYGEN DEMAND (BOD5) LESS THAN 30mg/L (FOR STORMS LESS INTENSE THAN 1 IN 5 YEAR EVENTS).
- METHODS OF SAMPLING AND ANALYSIS OF WATER QUALITY WILL BE IN ACCORDANCE WITH THE APPLICABLE METHOD LISTED IN THE EPA PUBLISHED APPROVED METHODS FOR THE SAMPLING ANALYSIS OF WATER POLLUTANTS IN NEW SOUTH WALES.
- WHERE LABORATORY ANALYSIS IS REQUIRED AS INDICATED BY IN-SITU TESTING, APPROPRIATE SAMPLE BOTTLES AND PRESERVATIVES WILL BE USED AND GUIDANCE FOR THE SAMPLING METHOD OBTAINED FROM APPLICABLE PARTS OF AS5667.1 AND AS5667.6. ANALYSIS WILL BE UNDERTAKEN WHERE PRACTICAL BY A NATA REGISTERED LABORATORY CERTIFIED TO PERFORM THE APPLICABLE ANALYSIS.
- A FURTHER INSPECTION WILL BE CARRIED OUT DURING A STORM EVENT (DURING WORK HOURS WHERE POSSIBLE) TO ENSURE CONTROLS ARE COPING WITH THE EVENT. THIS APPLIES TO ANY RAIN EVENT AS WELL.
- AS EXCAVATION TO TOP SOIL PROGRESSES, ANY WATER COLLECTED AT THE BOTTOM OF EXCAVATIONS WILL BE DIVERTED TO A TEMPORARY SEDIMENTATION BASIN OR SETTLEMENT TANK. IF THE WATER CONTAINS ONLY SEDIMENTS, IT WILL BE FILTERED AND PUMPED TO STORMWATER. BEFORE THIS CAN HAPPEN IT MUST CONTAIN LESS THAN 50mg/L TOTAL SUSPENDED SOLIDS.
- POLLUTED WATER MUST NOT ENTER THE STORMWATER SYSTEM. IN SOME CIRCUMSTANCES, A LIQUID WASTE COMPANY MAY BE REQUIRED TO COLLECT CONTAMINATED WATER FOR DISPOSAL AT A LICENSED TREATMENT FACILITY

SHEET INDEX

COVER SHEET AND NOTES	SHEET E1
SOIL & WATER MANAGEMENT PLAN	SHEET E2
SOIL & WATER MANAGEMENT DETAILS	SHEET E3

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C	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	09.10.19	RH	BK
B	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	12.08.19	RH	BK
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Issue	Description	Date	Drawn	Approved

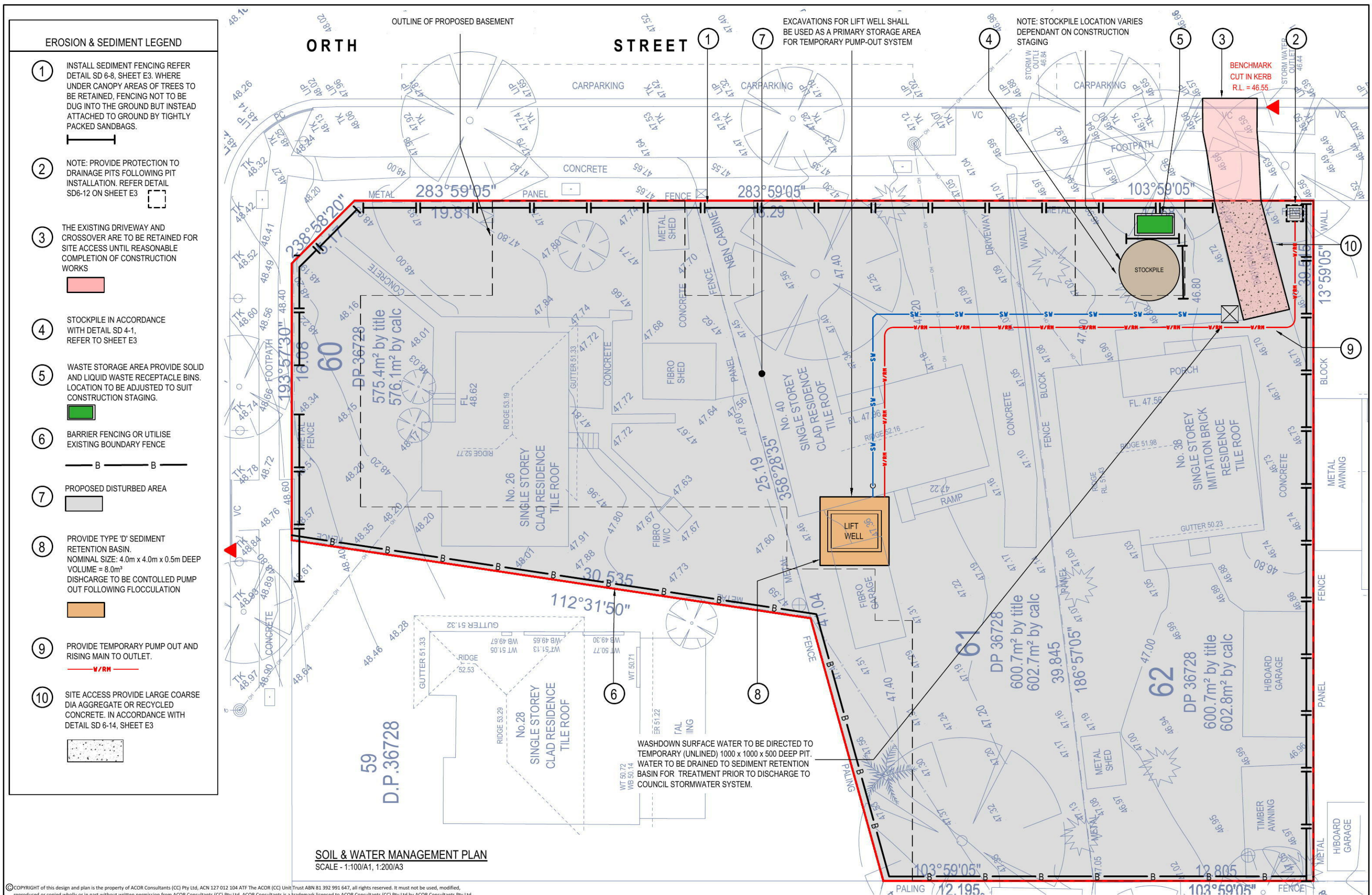
Client
AC PROJECT GROUP
(BIOGIENE PROPERTY INVESTMENT P/L)

Architect

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Project
PROPOSED MIXED USE DEVELOPMENT
(No. 38-40) ORTH STREET &
(No. 26) SOMERSET STREET
KINGSWOOD

Drawing Title COVER SHEET & NOTES				
Drawn	Date	Scale	A1	G.A. Check
RH	JUL 19	AS NOTED	-	-
Designed	Project No.	Dwg. No.	Issue	
BK	CC190128	E1	C	



- ### EROSION & SEDIMENT LEGEND
- ① INSTALL SEDIMENT FENCING REFER DETAIL SD 6-8, SHEET E3. WHERE UNDER CANOPY AREAS OF TREES TO BE RETAINED, FENCING NOT TO BE DUG INTO THE GROUND BUT INSTEAD ATTACHED TO GROUND BY TIGHTLY PACKED SANDBAGS.
 - ② NOTE: PROVIDE PROTECTION TO DRAINAGE PITS FOLLOWING PIT INSTALLATION. REFER DETAIL SD6-12 ON SHEET E3
 - ③ THE EXISTING DRIVEWAY AND CROSSOVER ARE TO BE RETAINED FOR SITE ACCESS UNTIL REASONABLE COMPLETION OF CONSTRUCTION WORKS
 - ④ STOCKPILE IN ACCORDANCE WITH DETAIL SD 4-1. REFER TO SHEET E3
 - ⑤ WASTE STORAGE AREA PROVIDE SOLID AND LIQUID WASTE RECEPTACLE BINS. LOCATION TO BE ADJUSTED TO SUIT CONSTRUCTION STAGING.
 - ⑥ BARRIER FENCING OR UTILISE EXISTING BOUNDARY FENCE
 - ⑦ PROPOSED DISTURBED AREA
 - ⑧ PROVIDE TYPE 'D' SEDIMENT RETENTION BASIN. NOMINAL SIZE: 4.0m x 4.0m x 0.5m DEEP VOLUME = 8.0m³ DISCHARGE TO BE CONTROLLED PUMP OUT FOLLOWING FLOCCULATION
 - ⑨ PROVIDE TEMPORARY PUMP OUT AND RISING MAIN TO OUTLET.
 - ⑩ SITE ACCESS PROVIDE LARGE COARSE DIA AGGREGATE OR RECYCLED CONCRETE. IN ACCORDANCE WITH DETAIL SD 6-14, SHEET E3

SOIL & WATER MANAGEMENT PLAN
SCALE - 1:100/A1, 1:200/A3

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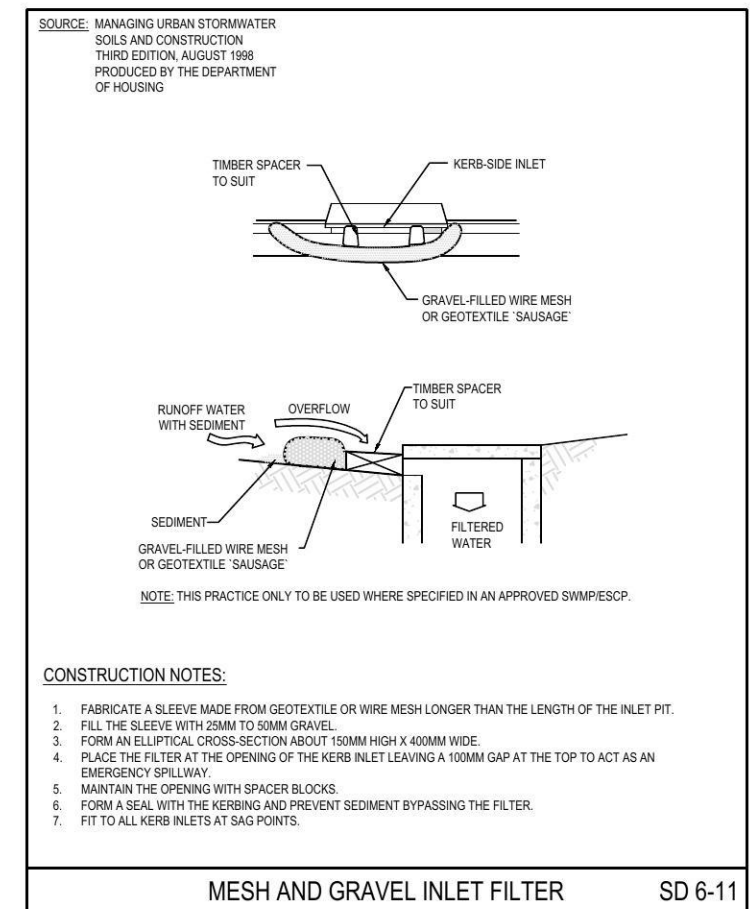
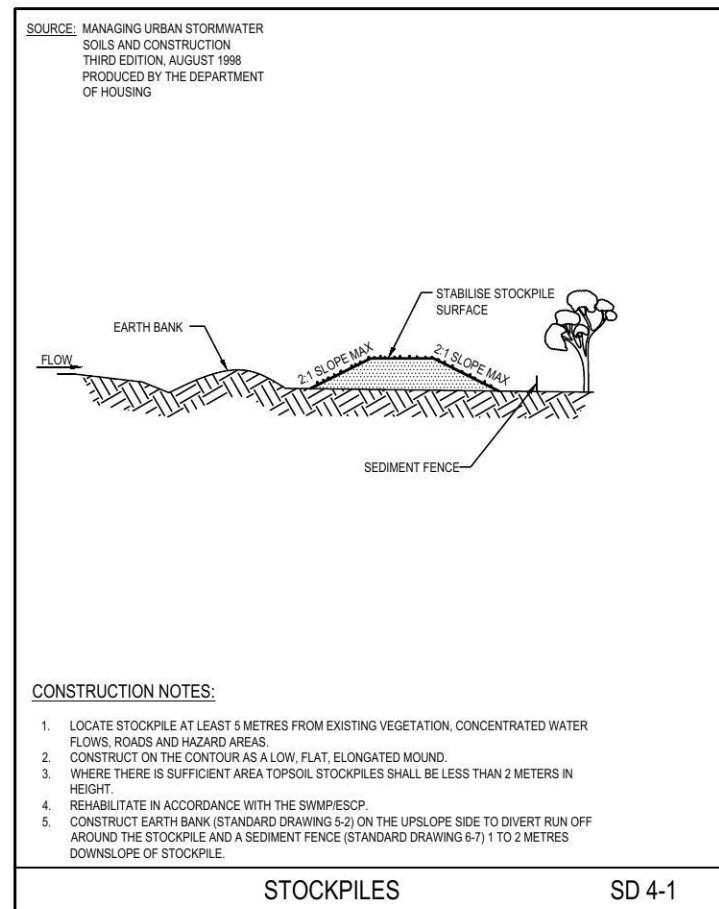
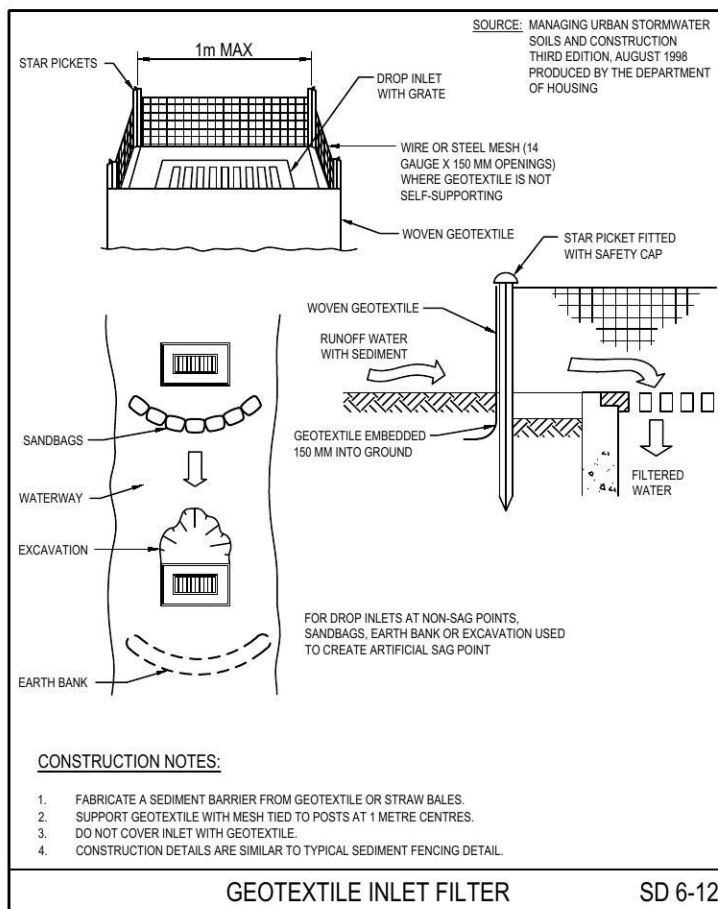
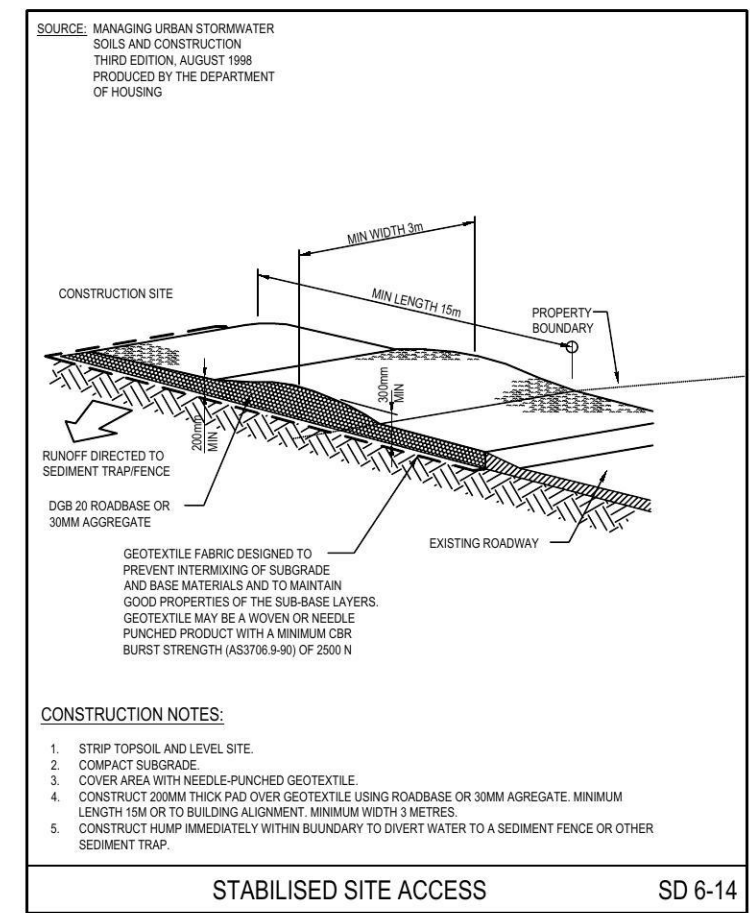
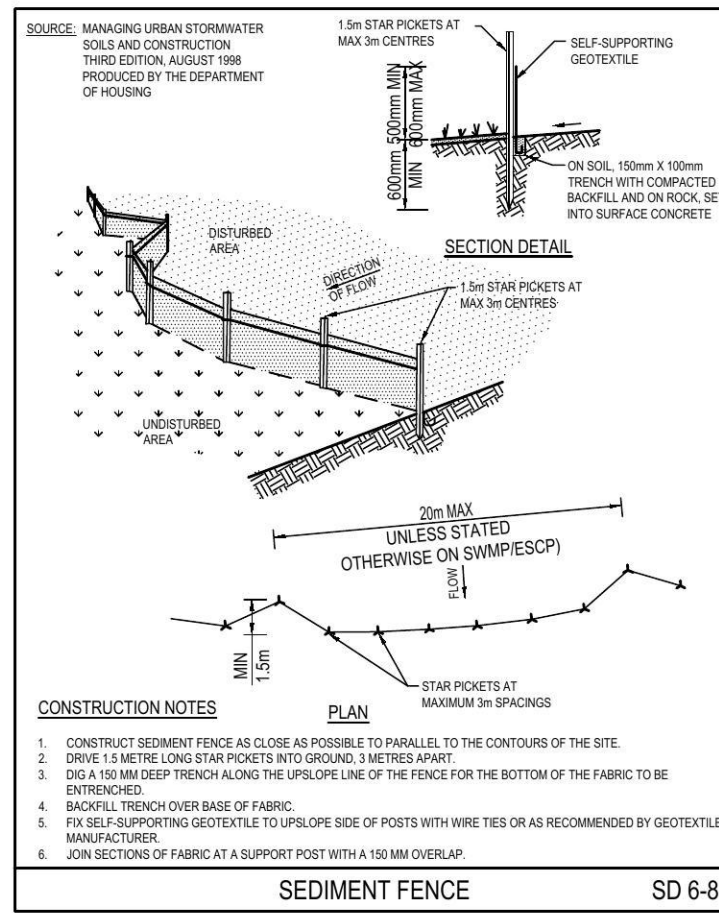
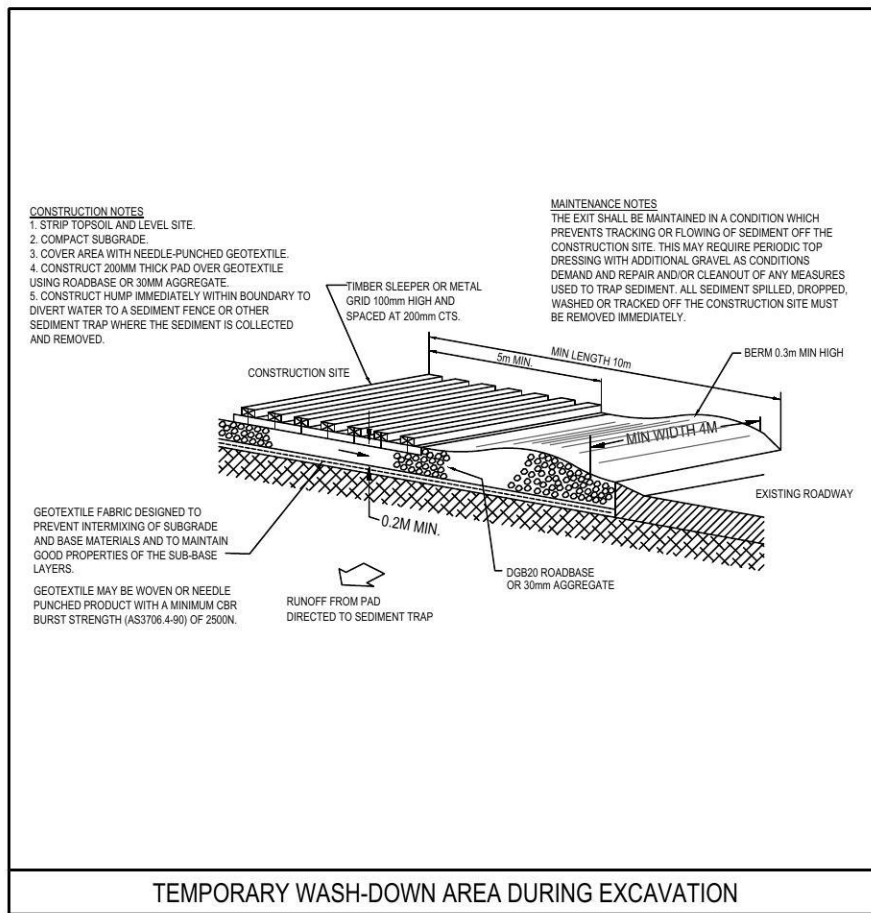
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(No. 38-40) ORTH STREET & (No. 26) SOMERSET STREET
KINGSWOOD

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BK		CC190128	E2	C



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




















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Drawing Title		Scale		G.A. Check		Date	
SOIL & WATER MANAGEMENT DETAILS		A1		AS NOTED			
Drawn	Date	Scale	A1	G.A. Check	Date		
RH	JUL 19	AS NOTED					
Designed	Project No.	Dwg. No.	Issue				
BK	CC190128	E3	C				

PROPOSED DEVELOPMENT (No.38-40) ORTH STREET & (No.26) SOMERSET STREET, KINGSWOOD STORMWATER MANAGEMENT PLANS

LEGEND	
	DENOTES ON-SITE DETENTION TANK
	DENOTES ON-SITE RETENTION TANK
	DENOTES DWELLING FOOTPRINT
	DENOTES 100mm DIA. STORMWATER/SURFACE WATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O.
	DENOTES 100mm DIA. FULLY SEALED RAINWATER SYSTEM PIPE U.N.O.
	DENOTES RAINWATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
	DENOTES STORMWATER/SURFACE WATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
	DENOTES RISING MAIN AND PIPE DIA. U.N.O.
	DENOTES SUBSOIL DRAINAGE LINE AND DIA. WRAPPED IN GEOFABRIC U.N.O.
	DENOTES DOWNPIPE
	DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL
	DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL FOR SYSTEM FLUSHING PURPOSES
	STORMWATER PIT - SOLID COVER
	STORMWATER PIT - GRATED INLET
	DENOTES GRATED DRAIN
	DENOTES ABSORPTION TRENCH
	NON RETURN VALVE
	PUMP
	STOP VALVE (ISOLATION VALVE)
	240v REQUIRED
	DENOTES LEVEL OF INLET /OUTLET OF STORMWATER PIPE. NOTE: UNLESS NOTED OTHERWISE, THE BASE OF THE PIT IS THE SAME AS THE PIPE INLET/OUTLET.

GENERAL NOTES	
1.	THESE PLANS SHALL BE READ IN CONJUNCTION WITH OTHER RELEVANT CONSULTANTS' PLANS, SPECIFICATIONS, CONDITIONS OF DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE REQUIREMENTS. WHERE DISCREPANCIES ARE FOUND ACOR CONSULTANTS (CC) MUST BE CONTACTED IMMEDIATELY FOR VERIFICATION
2.	WHERE THESE PLANS ARE NOTED FOR DEVELOPMENT APPLICATION PURPOSES ONLY, THEY SHALL NOT BE USED FOR OBTAINING A CONSTRUCTION CERTIFICATE NOR USED FOR CONSTRUCTION PURPOSES
3.	SUBSOIL DRAINAGE SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER. SUBSOIL DRAINAGE SHALL NOT BE CONNECTED INTO THE STORMWATER SYSTEM IDENTIFIED ON THESE PLANS UNLESS APPROVED BY ACOR CONSULTANTS (CC)

STORMWATER CONSTRUCTION NOTES	
1.	ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500 (CURRENT EDITION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES
2.	THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY
3.	THE MINIMUM GRADIENT OF STORMWATER DRAINS SHALL BE 1%, UNLESS NOTED OTHERWISE
4.	COUNCIL'S TREE PRESERVATION ORDER IS TO BE STRICTLY ADHERED TO. NO TREES SHALL BE REMOVED UNTIL PERMIT IS OBTAINED
5.	PUBLIC UTILITY SERVICES ARE TO BE ADJUSTED AS NECESSARY AT THE CLIENT'S EXPENSE
6.	ALL PITS TO BE BENCHED AND STREAMLINED. PROVIDE STEP IRONS FOR ALL PITS OVER 1.2m DEEP
7.	MAKE SMOOTH JUNCTION WITH ALL EXISTING WORK
8.	VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION
9.	SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION
10.	ANY VARIATION TO THE WORKS AS SHOWN ON THE APPROVED DRAWINGS ARE TO BE CONFIRMED BY ACOR CONSULTANTS (CC) PRIOR TO THEIR COMMENCEMENT

RAINWATER RE-USE SYSTEM NOTES	
1.	RAINWATER SUPPLY PLUMBING TO BE CONNECTED TO OUTLETS WHERE REQUIRED BY BASIX CERTIFICATE (BY OTHERS)
2.	TOWN WATER CONNECTION TO RAINWATER TANK TO BE TO THE SATISFACTION OF THE REGULATORY AUTHORITY. THIS MAY REQUIRE PROVISION OF: 2.1. PERMANENT AIR GAP 2.2. BACKFLOW PREVENTION DEVICE
3.	NO DIRECT CONNECTION BETWEEN TOWN WATER SUPPLY AND THE RAIN WATER SUPPLY
4.	AN APPROVED STOP VALVE AND/OR PRESSURE LIMITING VALVE AT THE RAINWATER TANK
5.	PROVIDE AT LEAST ONE EXTERNAL HOSE COCK ON THE TOWN WATER SUPPLY FOR FIRE FIGHTING
6.	PROVIDE APPROPRIATE FLOAT VALVES AND/OR SOLENOID VALVES TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL
7.	ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE
8.	PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN
9.	ONLY ROOF RUN-OFF IS TO BE DIRECTED TO THE RAINWATER TANK. SURFACE WATER INLETS ARE NOT TO BE CONNECTED
10.	PIPE MATERIALS FOR RAINWATER SUPPLY PLUMBING ARE TO BE APPROVED MATERIALS TO AS/NZS3500 PART 1 SECTION 2 AND TO BE CLEARLY AND PERMANENTLY IDENTIFIED AS 'RAINWATER'. THIS MAY BE ACHIEVED FOR BELOW GROUND PIPES USING IDENTIFICATION TAPE (MADE IN ACCORDANCE WITH AS2648) OR FOR ABOVE GROUND PIPES BY USING ADHESIVE PIPE MARKERS (MADE IN ACCORDANCE WITH AS1345)
11.	EVERY RAINWATER SUPPLY OUTLET POINT AND THE RAINWATER TANK ARE TO BE LABELED 'RAINWATER' ON A METALLIC SIGN IN ACCORDANCE WITH AS1319
12.	ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE MEASURES PROVIDED TO PREVENT MOSQUITO AND VERMIN ENTRY

SHEET INDEX	
COVER SHEET & NOTES	SHEET C1
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STORMWATER MANAGEMENT PLAN - BASEMENT 2	SHEET C3
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STORMWATER QUALITY REPORT SHEET 3	SHEET C11
COUNCIL'S STORMWATER CONCEPT PLAN CHECKLIST SHT1	SHEET C12
COUNCIL'S STORMWATER CONCEPT PLAN CHECKLIST SHT2	SHEET C13

PENRITH COUNCIL REQUIREMENTS	
REFER TO DRAINS MODEL REFERENCE CC190128.dwg	
SITE AREA (m ²)	= 1781.6
PRE DEVELOPED IMPERVIOUS AREA (m ²)	= 630 (35%)
POST DEVELOPED IMPERVIOUS AREA (m ²)	= 1530 (85%)
IMPERVIOUS AREA DRAINAGE TO OSD TANK (m ²)	= 1353 (76%)

DESIGN PREPARED IN ACCORDANCE WITH PENRITH COUNCIL'S DCP, COUNCILS STORMWATER DRAINAGE FOR BUILDING DEVELOPMENTS AND WATER SENSITIVE URBAN DESIGN POLICY, AR&R AND AS/NZS 3500.



**DEVELOPMENT APPLICATION ISSUE
NOT FOR CONSTRUCTION**

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Client	AC PROJECT GROUP (BIOGIENE PROPERTY INVESTMENT P/L)
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Architect	ACOR CONSULTANTS
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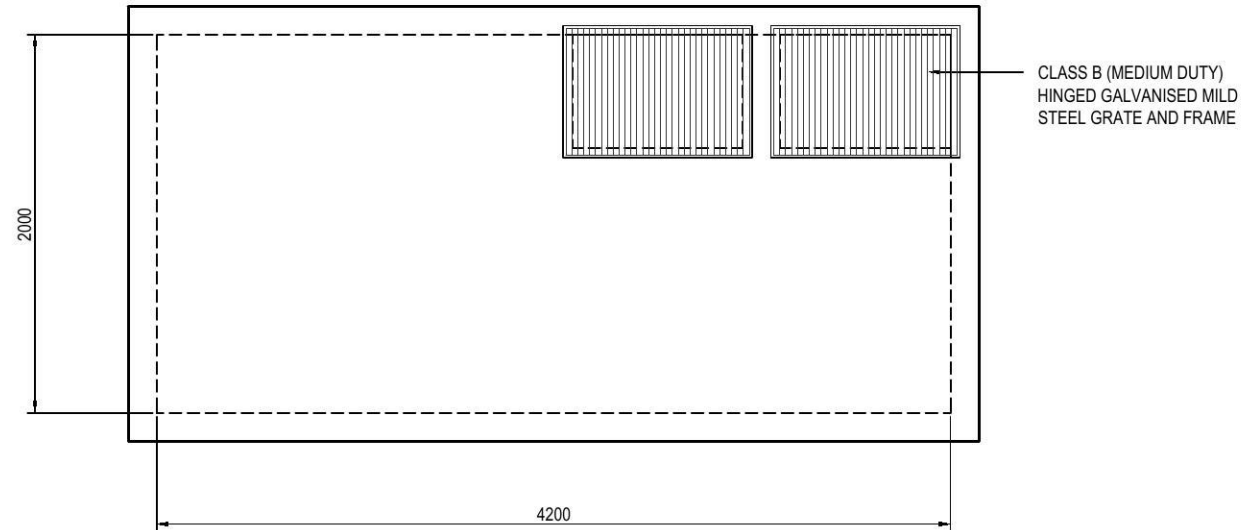
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Drawing Title					
COVER SHEET & NOTES					



PUMP OUT TANK PLAN
SCALE 1:20/A1, 1:40/A3

BASEMENT STORMWATER PUMP SYSTEM CALCULATIONS

BASEMENT STORMWATER PUMP SYSTEM SUMMARY:

CONTRIBUTING CATCHMENT AREA = 152 SQUARE METRES

DESIGN STORM EVENT - 120 MIN HOUR 10 YEAR ARI

RAINFALL INTENSITY - 28.89mm/h

DESIGN VOLUMETRIC RUNOFF - 8.7 CUBIC METRES (PROVIDE 10m³)

IN ACCORDANCE WITH PENRITH COUNCILS STORMWATER DRAINAGE SPECIFICATION FOR BUILDING DEVELOPMENTS CLAUSE 3.4

PUMP DUTY DESIGN FLOW RATE = 9 L/S EACH
C - 1.0

IN ACCORDANCE WITH PENRITH COUNCILS STORMWATER DRAINAGE SPECIFICATION FOR BUILDING DEVELOPMENTS CLAUSE 3.4

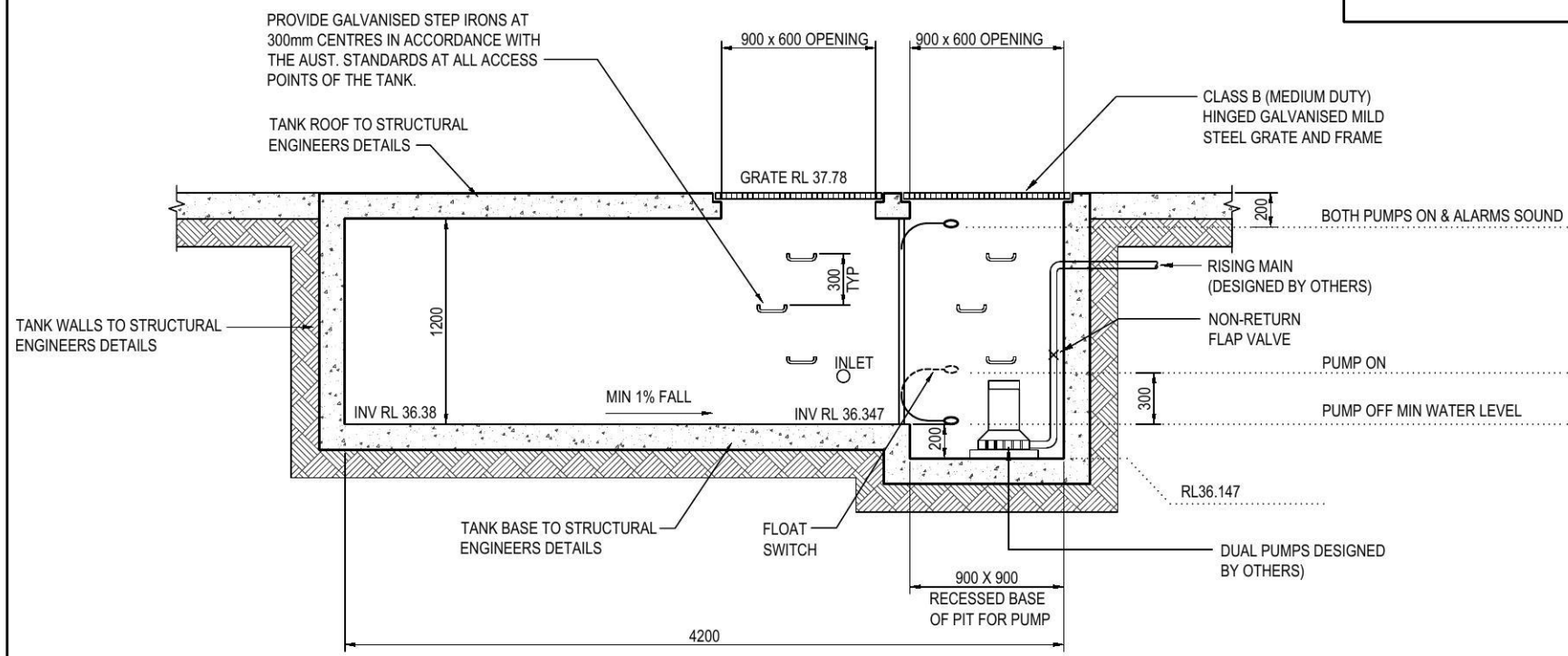
'EACH PUMP SHALL HAVE A MINIMUM CAPACITY OF 5 L/S OR SHALL BE BASED ON THE FLOW RATE GENERATED FROM 1% AEP 5 MINUTE DURATION STORM EVENT OF THE AREA OF THE RAMP THAT IS DRAINING INTO THE SYSTEM, WHICHEVER IS GREATER.'

RAINFALL INTENSITY - 219.79mm/h

STANDARD PUMP OUT DESIGN NOTES

THE PUMP SYSTEM SHALL BE OPERATED IN THE FOLLOWING MANNER:-

1. THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE
2. A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
3. A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
4. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
5. A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK.



PUMP OUT TANK
AVERAGE HEIGHT = 1.2m
WIDTH = 2.0m
LENGTH = 4.2m
VOLUME PROVIDED = 10m³

TYPICAL SECTION THROUGH PUMP OUT TANK
SCALE 1:20/A1, 1:40/A3



INSTALL CONFINED SPACE WARNING SIGN

PUMP-OUT TANK MAINTENANCE SCHEDULE

MAINTENANCE CONTRACT

NOTE: A 24 HOUR X 12 MONTHLY EMERGENCY AND MAINTENANCE CONTRACT SHALL BE OBTAINED FROM A COMPANY CAPABLE OF EXECUTING THE WORK AND SHALL BE KEPT IN FORCE BY THE PROPERTY OWNER(S) FOR THE LIFE OF THE BUILDING.

THE MAINTENANCE CONTRACT SHALL BE CARRIED OUT EVERY THREE (3) MONTHS AND SHALL INCLUDE THE FOLLOWING ACTIVITIES:

1. CLEAN OUT ALL PITS OF SILT AND DEBRIS.
2. CHECK AND CLEAN OUT, IF NECESSARY, ALL PIPELINES.
3. CHECK:
 - 3.1. PUMPS FOR WEAR
 - 3.2. PUMP OIL SEALS
 - 3.3. PUMP STRAINER AND CLEAN
4. CARRY OUT ROUTINE MAINTENANCE TO PUMPS AS RECOMMENDED BY THE MANUFACTURER.
5. CHECK OPERATIONAL SEQUENCE OF LEVEL SWITCHES, PUMPS AND CONTROL PANEL.
6. THE EMERGENCY CONTRACT SHALL PROVIDE FOR A 24 HOUR X 7 DAY PER WEEK SERVICE.

THE CONTRACTOR SHALL PROVIDE A NAME PLATE STATING NAME, WORKING HOURS, TELEPHONE NUMBER AND OUT OF HOURS NUMBER AND SUCH NAME PLATE SHALL BE FIXED TO THE FRONT OF THE CONTROL PANEL.

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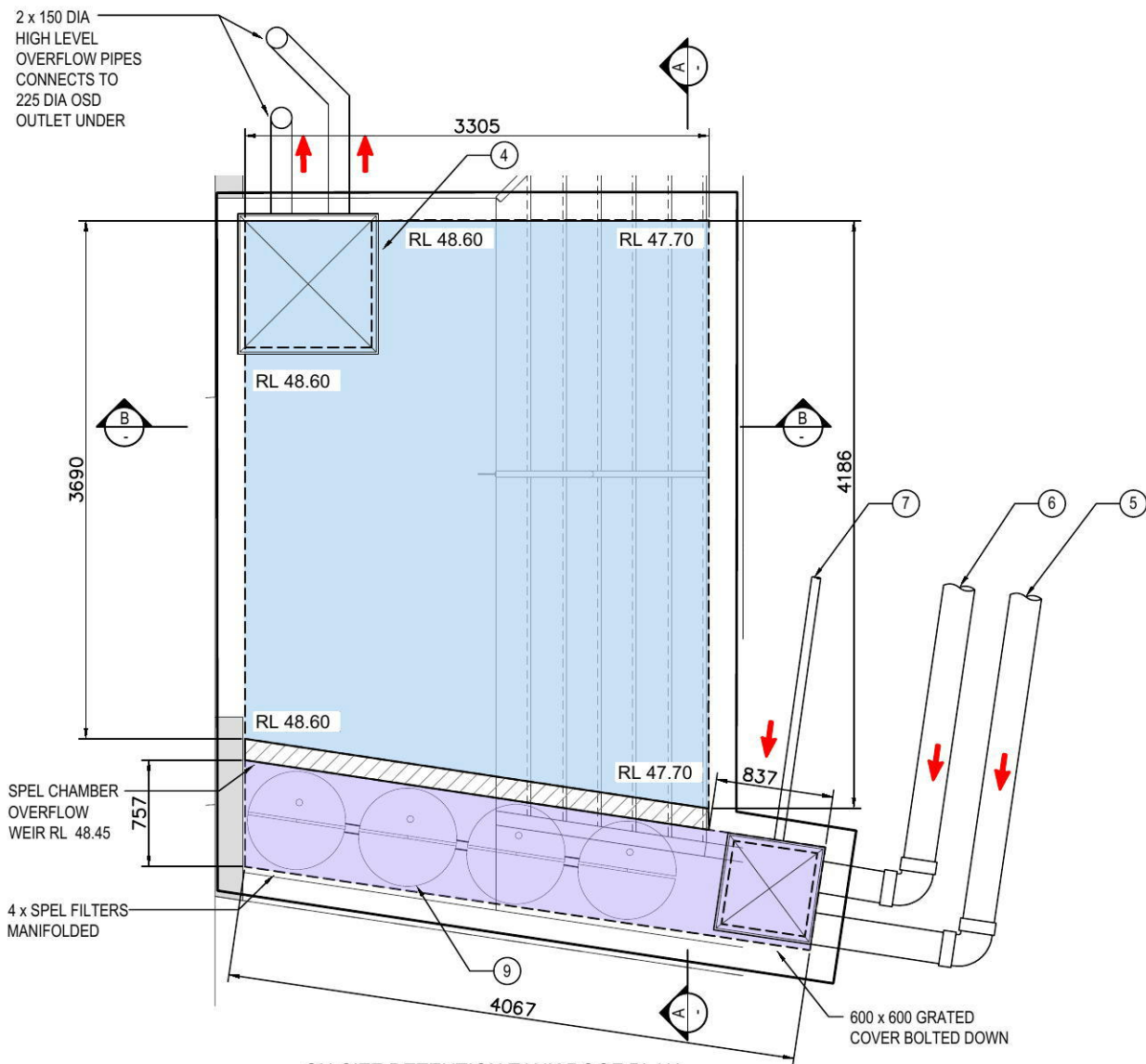
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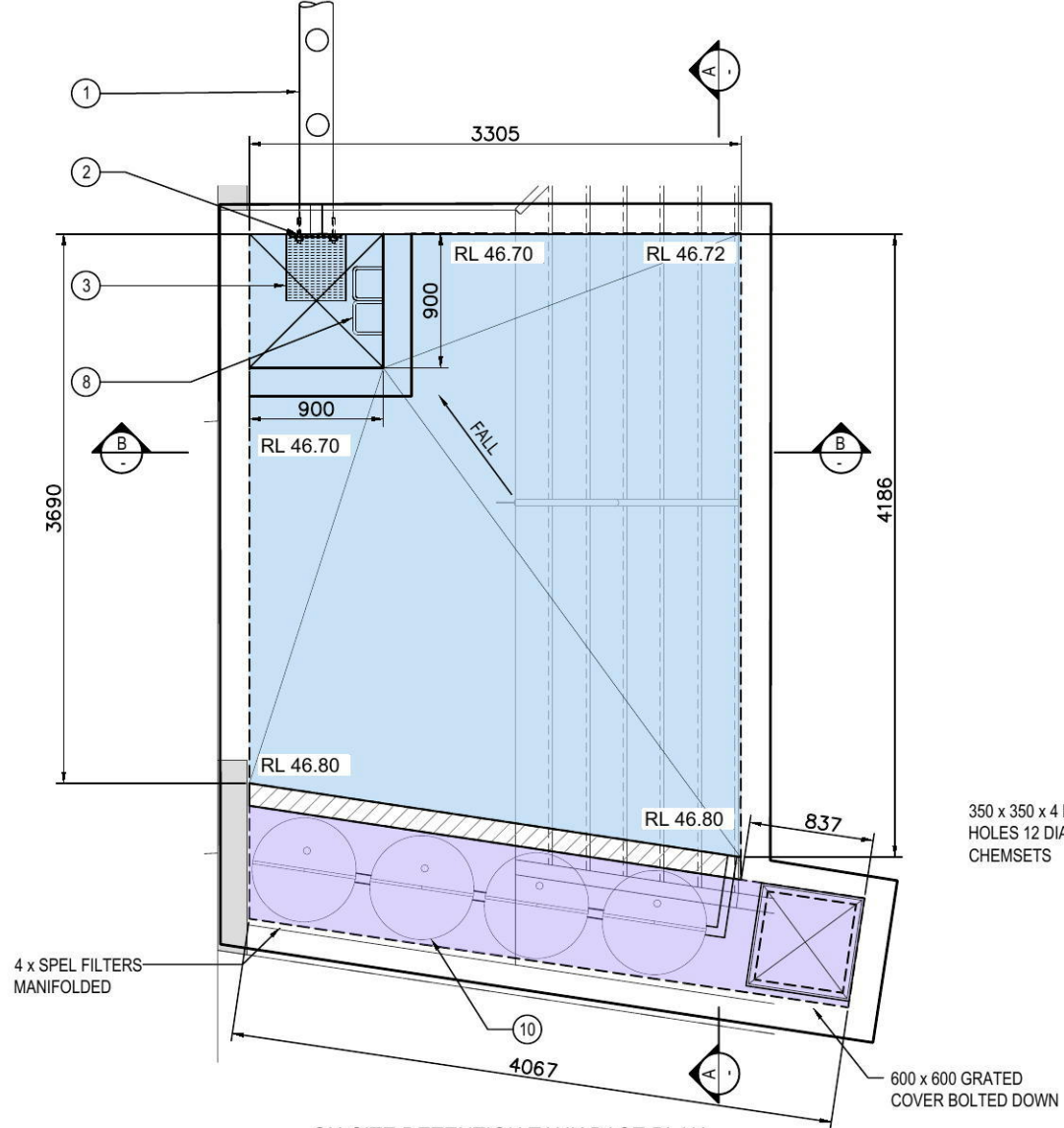
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Drawing Title
**STORMWATER MANAGEMENT
DETAIL SHEET No. 1**

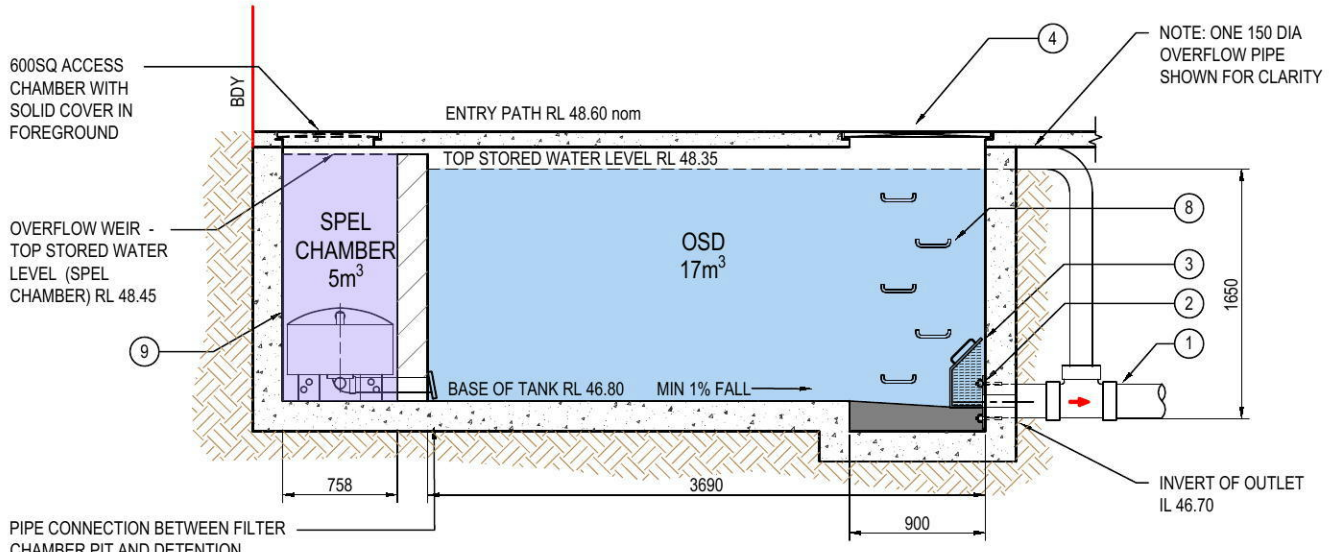
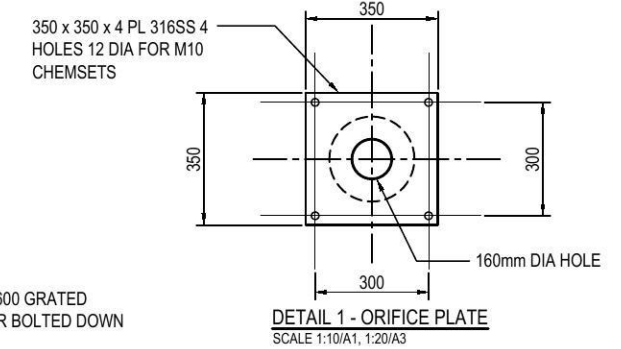


ON-SITE DETENTION TANK ROOF PLAN
SCALE - 1:25/A1, 1:50/A3

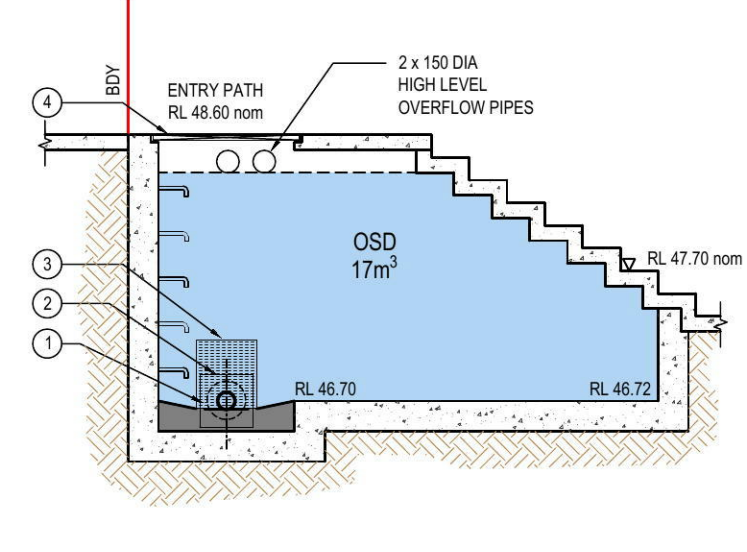


ON-SITE DETENTION TANK BASE PLAN
SCALE - 1:25/A1, 1:50/A3

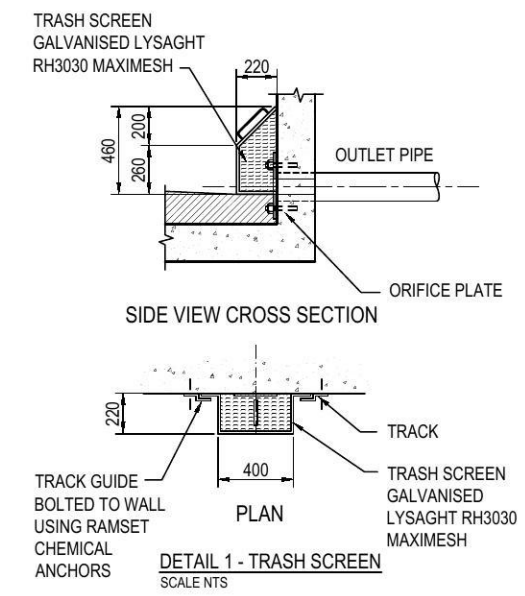
LEGEND	
①	225 DIA OUTLET PIPE
②	350 x 350 x 4 PL 316SS 4 HOLES 12 DIA FOR M10 CHEMSETS - DETAIL 1
③	TRASH SCREEN LYSAGHT RH3030 GALV. REMOVABLE WITH HANDLE DETAIL 2
④	900 x 900 SOLID COVER BOLTED DOWN U.N.O
⑤	225 DIA RAINWATER INLET
⑥	225 DIA SURFACE STORMWATER INLET
⑦	PVC PIPE CLASS '16' RISING MAIN - BY OTHERS
⑧	PROVIDE GALVANISED STEP IRONS AT 300mm CENTRES WHERE DEPTH EXCEEDS 1100mm IN ACCORDANCE WITH THE AUST. STANDARDS AT ALL ACCESS POINTS OF THE TANK, TYP.
⑨	SPEL WATER QUALITY TREATMENT CHAMBER & FILTERS



SECTION A
SCALE: 1:25/A1, 1:50/A3



SECTION B
SCALE: 1:25/A1, 1:50/A3



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Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	09.10.19	RH	BK
B	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	12.08.19	RH	BK
A	ISSUED FOR DEVELOPMENT APPROVAL	01.08.19	RH	BK

Client
AC PROJECT GROUP
(BIOGIENE PROPERTY INVESTMENT P/L)

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ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project
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Project
PROPOSED MIXED USE DEVELOPMENT
(No. 38-40) ORTH STREET &
(No. 26) SOMERSET STREET
KINGSWOOD

Drawing Title				
STORMWATER MANAGEMENT DETAIL SHEET No. 2				
Drawn	Date	Scale	A1	G.A. Check
RH	JUL 19	AS NOTED	-	-
Designed	Project No.	Dwg. No.	Issue	
BK	CC190128	C7	C	

ON-SITE STORMWATER DETENTION REPORT

1.1. METHODOLOGY

- 1.1.1. THE DRAINS PROGRAM WAS ADOPTED AS AN APPROPRIATE MODEL FOR THIS PROJECT. PRE-DEVELOPED AND POST-DEVELOPED HYDROLOGICAL AND HYDRAULIC MODELS WERE DEVELOPED FOR THE 10 YEAR AND 100 YEAR ARI DESIGN STORM EVENTS, ASSESSING STACKED RAINFALL PATTERNS RANGING FROM 5 MINUTES TO 2 HOURS.

1.2. PRE-DEVELOPED DRAINS MODEL

- 1.2.1. THE PRE-DEVELOPED DRAINS MODEL COMPRISED A SINGLE SUB-CATCHMENT DISCHARGING TO A DUMMY NODE. THE PARAMETERS INPUT TO THE DRAINS MODEL FOR THE SUB-CATCHMENTS ARE IDENTIFIED IN THE DRAINS SUB-CATCHMENT DATA INPUT FILE. REFER TO DRAINS FILE CC190128.drn
- 1.2.2. THE PEAK FLOWRATES FOR THE PRE-DEVELOPED SCENARIO CALCULATED BY THE DRAINS PROGRAM ARE SUMMARISED BELOW:
 CATCHMENT AREA = 1780m²
 PRE-DEVELOPED IMPERVIOUS AREA = 35%
 POST-DEVELOPED IMPERVIOUS AREA = 85%

LOT	
SITE AREA (m ²)	1780
ARI (YEARS)	PEAK FLOWRATE (PRE-DEVELOPED) (L/s)
10	54
100	79

1.3. POST-DEVELOPED MODEL

- 1.3.1 THE POST DEVELOPED DRAINS MODEL COMPRISES TWO CATCHMENTS:-
 1. 1353m² (100% IMPERVIOUS) FORMED BY THE BUILDING AND PAVEMENT WHICH DRAINS INTO THE OSD TANK.
 2. 428m² (35% IMPERVIOUS) COMPRISING LANDSCAPE AND RESIDUAL PAVEMENT WHICH BYPASSES THE OSD SYSTEM.
- 1.3.2 THE PARAMETERS INPUT INTO THE DRAINS MODEL FOR THE POST-DEVELOPED SUB-CATCHMENTS ARE IDENTIFIED IN THE DRAINS SUB-CATCHMENT DATA. REFER TO DRAINS MODEL CC190128.drn FOR DETAILS.
- 1.3.3 THE OSD STORAGE/OUTFLOW PARAMETERS ADOPTED IN THE DRAINS MODEL ARE IDENTIFIED IN DRAINS MODEL CC190128.drn
- 1.3.4 THE PEAK STORAGE VOLUME CALCULATED BY THE DRAINS MODEL OCCURS DURING THE 100 YEAR ARI 60 MINUTE DESIGN STORM EVENT. THE VOLUMETRIC GRAPH FOR THIS STORM EVENT IS IDENTIFIED IN DRAINS MODEL CC190128.drn

1.3. POST-DEVELOPED MODEL (CONTINUED)

- 1.3.5. THE INFLOW AND OUTFLOW HYDROGRAPH FOR THIS STORM EVENT IS IDENTIFIED IN DRAINS MODEL CC190128.drn
- 1.3.6. THE PEAK FLOWRATES AND WATER SURFACE LEVELS DEVELOPED BY THE DRAINS MODEL FOR THE 100 YEAR ARI DESIGN STORM EVENT. REFER TO DRAINS MODEL CC190128.drn FOR DETAIL.
- 1.3.7. THE POST-DEVELOPED PEAK FLOWRATES ARE TABLED BELOW:

LOT	
ARI (YEARS)	PEAK FLOWRATE (POST-DEVELOPED) (L/s)
10	50
100	70

1.4. CONCLUSION

- 1.4.1. BASED ON THE FOREGOING THE PROPOSED OSD SYSTEM WILL ATTENUATE POST-DEVELOPED PEAK FLOWRATES TO EQUIVALENT FLOWRATES OR LESS THAN THE COMPARABLE PRE-DEVELOPED FLOWRATES. THE PEAK FLOWRATES FOR THE PRE & POST-DEVELOPED STORM EVENTS ARE TABLED BELOW:

ARI (YEARS)	PEAK FLOWRATE (L/s)	
	LOT	
	PRE	POST
10	54	50
100	79	70

STORAGE VOLUME REQUIRED EQUALS 20m³. REFER TO SHEET C5 FOR LAYOUT AND SHEET C7 FOR DETAILS

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<table border="1"> <thead> <tr> <th>Issue</th> <th>Description</th> <th>Date</th> <th>Drawn</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS</td> <td>09.10.19</td> <td>RH</td> <td>BK</td> </tr> <tr> <td>B</td> <td>ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS</td> <td>12.08.19</td> <td>RH</td> <td>BK</td> </tr> <tr> <td>A</td> <td>ISSUED FOR DEVELOPMENT APPROVAL</td> <td>01.08.19</td> <td>RH</td> <td>BK</td> </tr> </tbody> </table>				Issue	Description	Date	Drawn	Approved	C	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	09.10.19	RH	BK	B	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	12.08.19	RH	BK	A	ISSUED FOR DEVELOPMENT APPROVAL	01.08.19	RH	BK	AC PROJECT GROUP (BIOGIENE PROPERTY INVESTMENT P/L)	ACOR CONSULTANTS	ACOR Consultants (CC) Pty Ltd Platinum Building, Suite 2.01, 4 Ilya Avenue ERINA NSW 2250, Australia T +61 2 4324 3499	ON SITE STORMWATER DETENTION REPORT
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Drawn	Date	Scale	A1	G.A. Check	Date																						
RH	JUL 19	AS NOTED	-	-	-																						

STORMWATER QUALITY REPORT

1 INTRODUCTION

A CATCHMENT BASED WATER QUALITY MODEL WAS DEVELOPED TO ASSESS THE STORMWATER RUNOFF QUALITY IN ACCORDANCE WITH THE REQUIREMENTS OF PENRITH DEVELOPMENT CONTROL PLAN 2014, SECTION C3 - 'WATER MANAGEMENT' & PENRITH COUNCIL'S WSUD TECHNICAL GUIDELINES. IN THIS REGARD WE REFER TO THE PRESCRIBED TARGETS TABLED FOLLOWING:

TABLE 1 - STORMWATER POLLUTANT REDUCTION TARGETS

STORMWATER POLLUTANT	REDUCTION TARGETS
GROSS POLLUTANT	90%
TOTAL SUSPENDED SOLIDS (TSS)	85%
TOTAL PHOSPHORUS (TP)	60%
TOTAL NITROGEN (TN)	45%

2 STUDY METHODOLOGY

THE OBJECTIVES OF THIS REPORT ARE TO:

- ASSESS THE RUNOFF QUALITY FOR THE UNTREATED POST DEVELOPED SCENARIO AND IDENTIFY STORMWATER QUALITY CONTROLS LIKELY TO IMPACT ON RUNOFF QUALITY.
- ASSESS THE STORMWATER QUALITY FOR THE POST DEVELOPED SCENARIO INCLUDING THE MEASURES PROPOSED TO MEET THE POLLUTANT REMOVAL TARGETS.

THE REPORT IS BASED ON THE APPLICATION OF MUSIC SOFTWARE (MODEL FOR URBAN STORMWATER IMPROVEMENT CONCEPTUALISATION). IN THIS REGARD THE MODEL IS DEFINED AS FOLLOWS:

- A STORMWATER QUALITY MODEL TO CONVERT RAINFALL AND EVAPOTRANSPIRATION INTO RUNOFF.
- ESTIMATION OF STORMWATER FLOW AND POLLUTION GENERATION BY SIMULATING THE PERFORMANCE OF STORMWATER TREATMENT DEVICES INDIVIDUALLY AND AS PART OF A TREATMENT TRAIN.

THE MODEL DEFINES WATER QUALITY PROFILES FOR BOTH TREATED AND UNTREATED POST DEVELOPED SCENARIOS. THE TREATED POST DEVELOPED MODEL INCLUDES PARAMETERS WHICH REPRESENT THE WATER QUALITY MEASURES.

3 STORMWATER QUALITY MODELLING

3.1 GENERAL

THE FOLLOWING PARAMETERS WERE ASSESSED FOR THE HYDROLOGICAL MODELLING ASSOCIATED WITH THE CATCHMENT.

- RAINFALL/RUNOFF AND EVAPOTRANSPIRATION.
- SUB CATCHMENT DIVERSIONS.
- LAND USE (PERVIOUS AND IMPERVIOUS)

3.2 RAINFALL/RUNOFF AND EVAPOTRANSPIRATION

COUNCIL'S MUSIC-LINK DATA VERSION 6.32 WAS UTILISED IN THIS STUDY. THEREFORE DAILY RAINFALL DATA WAS OBTAINED FROM THE PENRITH RAINFALL STATION WITH 6 min TIMESTEP, STATION NO. 67113. THE DEFAULT PENRITH COUNCIL MUSIC LINK MONTHLY AVERAGE POTENTIAL EVAPOTRANSPIRATION DATA WAS ALSO UTILISED IN THIS STUDY. DETAILS OF RAINFALL AND ET DATA ARE SUMMARISED IN TABLE 3.1 AND 3.2

TABLE 3.1 - DETAILS OF DAILY RAINFALL DATA			
STATION	NAME	PERIOD	TIMESTEP
67113	PENRITH	01/01/1999-31/12/2009	6 min

TABLE 3.2 - SUMMARY OF POTENTIAL EVAPOTRANSPIRATION (PET)					
JAN	FEB	MAR	APR	MAY	JUN
159	122	115	77	50	39
JUL	AUG	SEP	OCT	NOV	DEC
41	57	81	122	142	152

3.3 CATCHMENT DEFINITION

THE POST DEVELOPED CATCHMENT CHARACTERISTICS ARE IDENTIFIED IN TABLE 3.3.

TABLE 3.3 - POST DEVELOPMENT SUB CATCHMENT DETAILS			
SUB CATCHMENT ID	SUB CATCHMENT AREA (ha)	% IMPERVIOUS AREA	% PERVIOUS AREA
ROOF	0.079	100	0
FOOTPATHS & PLANTER BOXES	0.056	100	30
DRIVEWAY	0.042	0	100

4 MUSIC MODEL

THE MUSIC MODEL IS BASED ON A 6 min RAINFALL-RUNOFF MODEL IN CONJUNCTION WITH REPRESENTATIVE BASEFLOW AND STORMFLOW EVENT MEAN CONCENTRATIONS (EMCs).

4.1 WATER QUALITY PARAMETERS

THE ADOPTED VALUES OF VARIOUS MUSIC RAINFALL AND RUNOFF PARAMETERS ARE SUMMARISED IN TABLE 4.1 AS PER THE DEFAULT NODE VALUES WHEN ADOPTING THE PENRITH CITY COUNCIL MUSIC LINK.

TABLE 4.1 - ADOPTED MUSIC RAINFALL/RUNOFF PARAMETERS	
PARAMETER	VALUE
IMPERVIOUS AREA PROPERTIES	
RAINFALL THRESHOLD (mm/DAY)	1.4
PERVIOUS AREA PROPERTIES	
SOIL STORAGE CAPACITY (mm)	105
SOIL INITIAL STORAGE (% OF CAPACITY)	30
FIELD CAPACITY (mm)	70
INFILTRATION CAPACITY COEFFICIENT - a	150
INFILTRATION CAPACITY EXPONENT - b	3.50
GROUNDWATER PROPERTIES	
INITIAL DEPTH (mm)	10
DAILY RECHARGE RATE (%)	25
DAILY BASEFLOW RATE (%)	10
DAILY DEEP SEEPAGE RATE (%)	0

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Client

AC PROJECT GROUP
(BIOGIENE PROPERTY INVESTMENT P/L)

Architect



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Project

PROPOSED MIXED USE DEVELOPMENT
(No. 38-40) ORTH STREET & (No. 26) SOMERSET STREET KINGSWOOD

Drawing Title

STORMWATER QUALITY REPORT SHEET 1

Drawn	Date	Scale	A1	G.A. Check	Date
RH	JUL 19	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC190128	C9	C		

4.1 WATER QUALITY PARAMETERS CONT.

STORMWATER QUALITY IS CHARACTERISED USING EVENT MEAN CONCENTRATION (EMCs) UNDER STORM AND BASE FLOW CONDITIONS. THE VALUE OF WATER QUALITY PARAMETERS ADOPTED IN THIS STUDY IS SUMMARISED IN TABLE 4.2

LAND-USE CATEGORY		Log ₁₀ TSS (mg/L)		Log ₁₀ TP (mg/L)		Log ₁₀ TN (mg/L)	
		STORM FLOW	BASE FLOW	STORM FLOW	BASE FLOW	STORM FLOW	BASE FLOW
GENERAL URBAN	MEAN	2.15	1.20	-0.60	-0.85	0.30	0.11
	STD DEV	0.32	0.17	0.25	0.19	0.19	0.12
ROADS	MEAN	2.43	n/a	-0.3	n/a	0.34	n/a
	STD DEV	0.32	n/a	0.25	n/a	0.19	n/a
ROOFS	MEAN	1.30	n/a	-0.89	n/a	0.30	n/a
	STD DEV	0.32	n/a	0.25	n/a	0.19	n/a

4.2 STORMWATER TREATMENT MEASURES

THE PROPOSED STORMWATER TREATMENT MEASURES INCLUDED IN THE POST DEVELOPED MODEL ARE AS FOLLOWS:

- 20,000 LITRE OSD TANK
- 4 x SPELFILTERS (HALF HEIGHT)
- 1 x STORMSACK

MUSIC MODEL PARAMETERS FOR OSD TANK SHOWN IN FIGURE 4.1.

THE SCHEMATIC LAYOUT FOR THE POST DEVELOPED MUSIC MODEL IS DEPICTED IN FIGURE 4.2

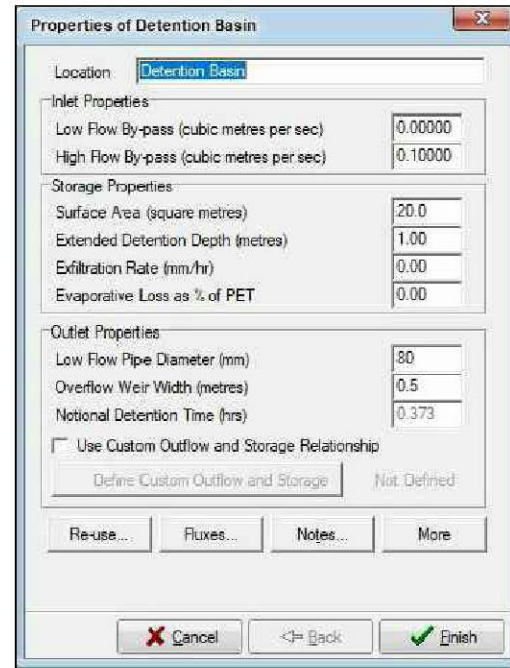


FIGURE 4.1 - OSD PARAMETERS

5 RESULTS & CONCLUSION

BASED ON THE FOREGOING THE PROPOSED STORMWATER QUALITY TREATMENT MEASURES MEET THE REQUIRED TARGETS OF PENRITH CITY COUNCIL.

REFER TO THE ASSOCIATED MUSIC LINK REPORT: 'CC190128 musicLink Report.pdf' AS PREPARED BY ACOR CONSULTANTS (CC) PTY LTD FOR FURTHER INFORMATION.

TABLE 5.1 - TREATMENT TRAIN EFFECTIVENESS

	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.769	0.769	0
Total Suspended Solids (kg/yr)	66.4	6.23	90.6
Total Phosphorus (kg/yr)	0.16	0.0361	77.4
Total Nitrogen (kg/yr)	1.69	0.919	45.5
Gross Pollutants (kg/yr)	20.9	0	100

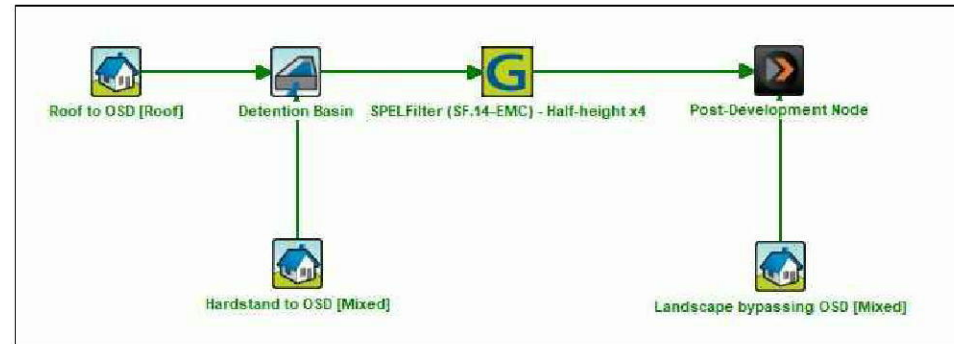


FIGURE 4.2 - MUSIC MODEL SCHEMATIC

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7. CHECKLISTS

7.1. Appendices – Development Application Checklist (lodged with DA)

PENRITH		Water Sensitive Urban Design Development Application Checklist	
Site/ Project Name	No.'s 38 - 40 Orth Street & No. 26 Somerset Street, Kingswood		
Lot and DP Number:	Lots 60, 61, 62 (DP 36728)	DA Number:	
Information Required with DA Submission:		Y	N
1	Has a Water Sensitive Urban Design Strategy been submitted as part of the development application?	✓	
2	Is a BASIX Certificate required? If so, Yes - Attach certificate with DA	✓	
3	Has the digital version of MUSIC and report on the MUSIC model using data prescribed outlined in Council's Technical Guideline been attached?	✓	
	Have stormwater quality retention criteria (TSS 85%, TP 60%, and TN 45%) and water quantity / drainage requirements been met and documented in the WSUD Strategy?	✓	
	If relevant, have the Water Conservation, Quantity and quantity targets been achieved?	✓	
4	Does WSUD Strategy contain the following information?		
	• Review of the WSUD principles and ensure that these are considered throughout development of the WSUD strategy.	✓	
	• Confirmation of the WSUD objectives that are relevant to the development application.	✓	
	• Confirmation of the WSUD targets for potable water conservation, stormwater quality management and stormwater quality management that are relevant to the development application.	✓	
	• Complete a site analysis to evaluate the site characteristics that potentially will impact on the feasibility of WSUD for the site.	✓	
	• WSUD measures that would be appropriate for the development considering the development scale, site characteristics, stormwater quality management function and stormwater quantity management function.	✓	
	• A preliminary WSUD strategy that positions the selected WSUD measures in appropriate locations and arranges the measures in an appropriate series.	✓	
	• Numerical modelling utilising MUSIC software to evaluate appropriate sizes of the WSUD measures.	✓	
• Concept designs of the WSUD measures.	✓		
• WSUD strategy report that summarises the methodology and WSUD outcomes, and provide this with the development application for the site.	✓		
5	Have the conceptual plans of the proposed stormwater treatment measures been included on the plans? (Detailed engineering plans will be required for the construction certificate)	✓	

25

6	Has a Draft Operation and Maintenance Plan which includes details on the following been provided?		
	• Site description (area, imperviousness, land use, annual rainfall, topography etc)	✓	
	• Site access description	✓	
	• Likely pollutant types, sources and estimated loads	✓	
	• Locations, types and descriptions of measures proposed	✓	
	• Operation and maintenance responsibility (council, developer or owner)	✓	
	• Inspection methods	✓	
	• Maintenance methods (frequency, equipment and personnel requirements including Work Health and Safety requirements)	✓	
	• Landscape and weed control requirements		✓
	• Operation and maintenance costs		✓
• Waste management and disposal options, and		✓	
• Reporting.		✓	

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7. APPENDICES

APPENDIX A

CHECKLIST FOR STORMWATER CONCEPT PLAN (SCP)

Survey Information	Yes	No	NA
1. Site boundaries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. North point	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Services within the public footway	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Site features, including tree, structures, depressions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Contours at 0.1m for flat sites ranging to 0.5m for steep sites and extending 10m into adjoining properties	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Top of kerb levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Boundary levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Benchmarks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Levels to AHD where site is affected by overland flow, flooding or where works on Council's drainage network are required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General	Yes	No	NA
1. Plans to scale of 1:100 or 1:200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Designer's name, qualifications, contact details provided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Design report, including details of any variations provided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Plan number and date of issue shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Consistency between stormwater, architectural and landscape plans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 1% AEP overland flow extents shown	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Development layout, building envelope and proposed driveway locations shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Drainage calculations to support the proposed design submitted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Proposed finished floor, garage and ground surface levels shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Compliance with freeboard requirements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Location and level of proposed retaining walls indicated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Appropriate tail water selected	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. No adverse impact on other properties or the stormwater network	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Mainstream flood / local overland flow flood report (if any)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Drainage Layout	Yes	No	NA
1. Pipe size, grade and invert level indicated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Pit location, size, invert level and surface level indicated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Proposed connection point to Council's stormwater system	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OSD	Yes	No	NA
1. A catchment plan showing areas draining to the OSD system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Location and size of OSD system and WSUD measures shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Location and level of OSD discharge points shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Compliance with detention volume required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Compliance with less than 15% of site area bypassing OSD system REFER TO DRAINS MODEL	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Compliance with the Permissible Site Discharge (PSD) requirements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Compliance with OSD storage depths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Overland flows clear from the OSD system	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. OSD storage located within common areas, clear of private courtyards and accessible from the street	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Overflow weir provided and shown	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Details of discharge control pit shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Orifice details and calculations shown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Typical sections of OSD storage, including basin invert level, centreline level of outlet orifice, top water level, finished surface levels provided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Provision of design certification of the OSD system in accordance with this policy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	09.10.19	RH	BK
B	ISSUED FOR DEVELOPMENT APPROVAL - UPDATED TO SUIT NEW ARCHITECTURAL PLANS	12.08.19	RH	BK
A	ISSUED FOR DEVELOPMENT APPROVAL	01.08.19	RH	BK

Client
AC PROJECT GROUP
(BIOGIENE PROPERTY INVESTMENT P/L)

Architect



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T +61 2 4324 3499

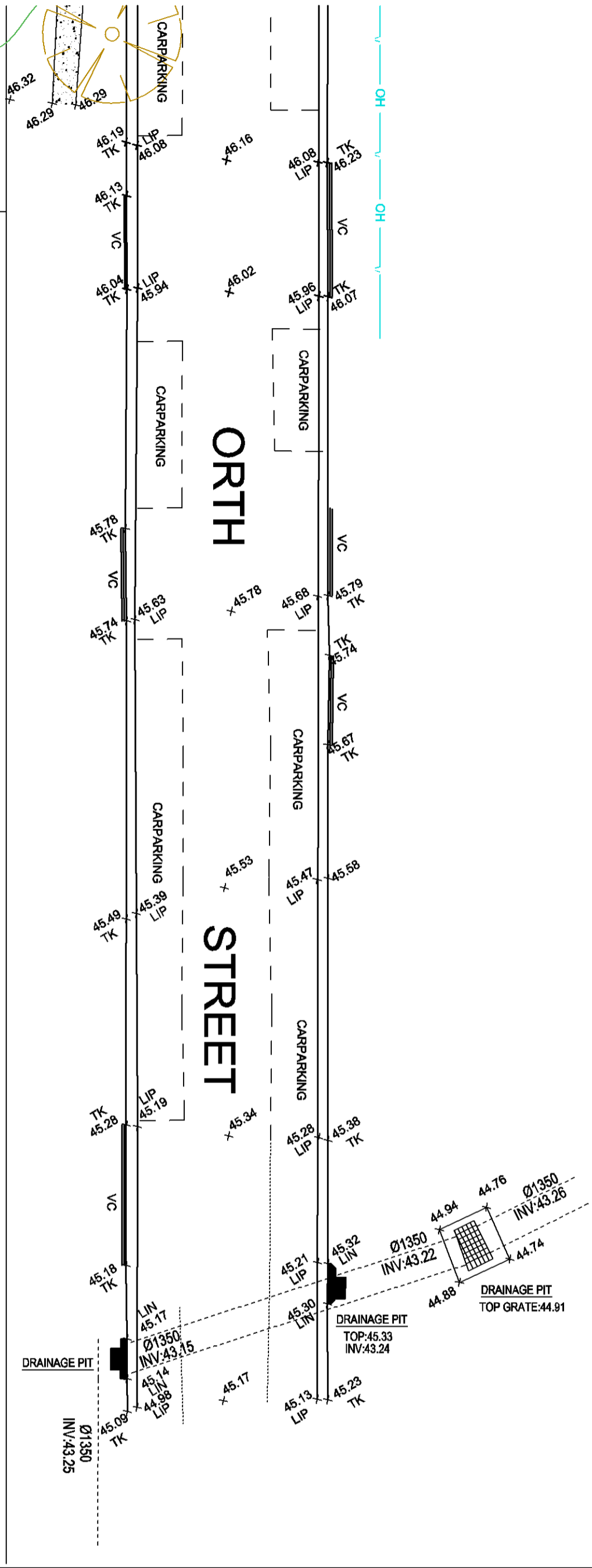


Project
PROPOSED MIXED USE DEVELOPMENT
(No. 38-40) ORTH STREET & (No. 26) SOMERSET STREET KINGSWOOD

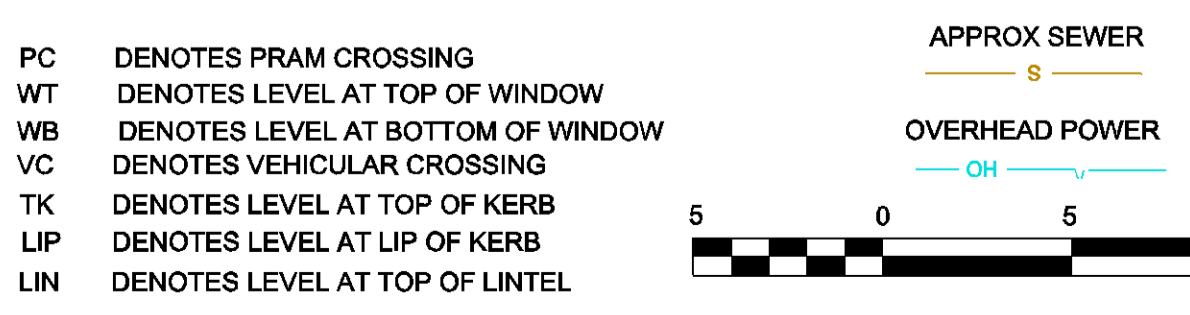
Drawing Title					
COUNCIL'S STORMWATER CONCEPT PLAN CHECKLIST - SHT 1					
Drawn	Date	Scale	A1	G.A. Check	Date
RH	JUL 19	AS NOTED	-	-	-
Designed	Project No.	Dwg. No.	Issue		
BK	CC190128	C12	C		



DIAGRAM



- NOTES:**
1. THIS DETAIL SURVEY IS NOT A 'SURVEY' AS DEFINED BY THE SURVEYING & SPATIAL INFORMATION ACT, 2002.
 2. DATUM OF LEVELS - AUSTRALIAN HEIGHT DATUM
 3. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY THE OFFICE OF LAND & PROPERTY INFORMATION (NSW) AND ARE SUBJECT TO FINAL SURVEY.
 4. NO SEARCH MADE OF LOCATION AND NATURE OF TELEPHONE, ELECTRICITY, SEWER, WATER, GAS AND DRAINAGE RECORDS AT THE RELEVANT AUTHORITY. PRIOR TO ANY CONSTRUCTION THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR LOCATION OF SERVICES.
 5. THE POSITION OF IMPROVEMENTS IN RELATION TO BOUNDARIES IS DIAGNOSTIC ONLY.
 6. VISIBLE, ACCESSIBLE SERVICES LOCATED ONLY.
 7. SIGNIFICANT TREES LOCATED ONLY.
 8. NEIGHBOURING HOUSES, RIDGE AND ROOF POSITIONS ARE APPROXIMATE ONLY.
 9. THIS TITLE BLOCK AND NOTES IS AN INTEGRAL PART OF THIS DRAWING WHICH IS NOT TO BE REMOVED.
 10. CONTOURS ARE INDICATIVE ONLY. SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- DENOTES SHRUB
 - HYDRANT
 - SEWER MANHOLE
 - COMMS. PIT
 - SIGN POST
 - WATER METER
 - POWER POLE
 - SEWER INSPECTION POINT
 - WATER



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RHCO RICHARD HOGAN & CO.
 SURVEYING & DEVELOPMENT CONSULTANTS

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SURVEYOR: SR/HN/SW
 DRAWN: DM/CL/SW
 REDUCTION RATIO: 1:200 @ A1
 CONTOUR INTERVAL: 0.2m
 SHEET 1 OF 1

ORIGIN OF LEVELS:
 PM 30119
 R.L. = 43.443 (SCIMS)
 DATUM: AUSTRALIAN HEIGHT DATUM
 DATE: 06.06.2019
 VERSION No.: A

PLAN OF DETAIL AND LEVELS OVER LOTS 60, 61 & 62 IN DP 36728 AT No. 38 & 40 ORTH STREET & No. 26 SOMERSET STREET KINGSWOOD	
CLIENT: J. YUAN	
L.G.A.: PENRITH	JOB REF: 19333