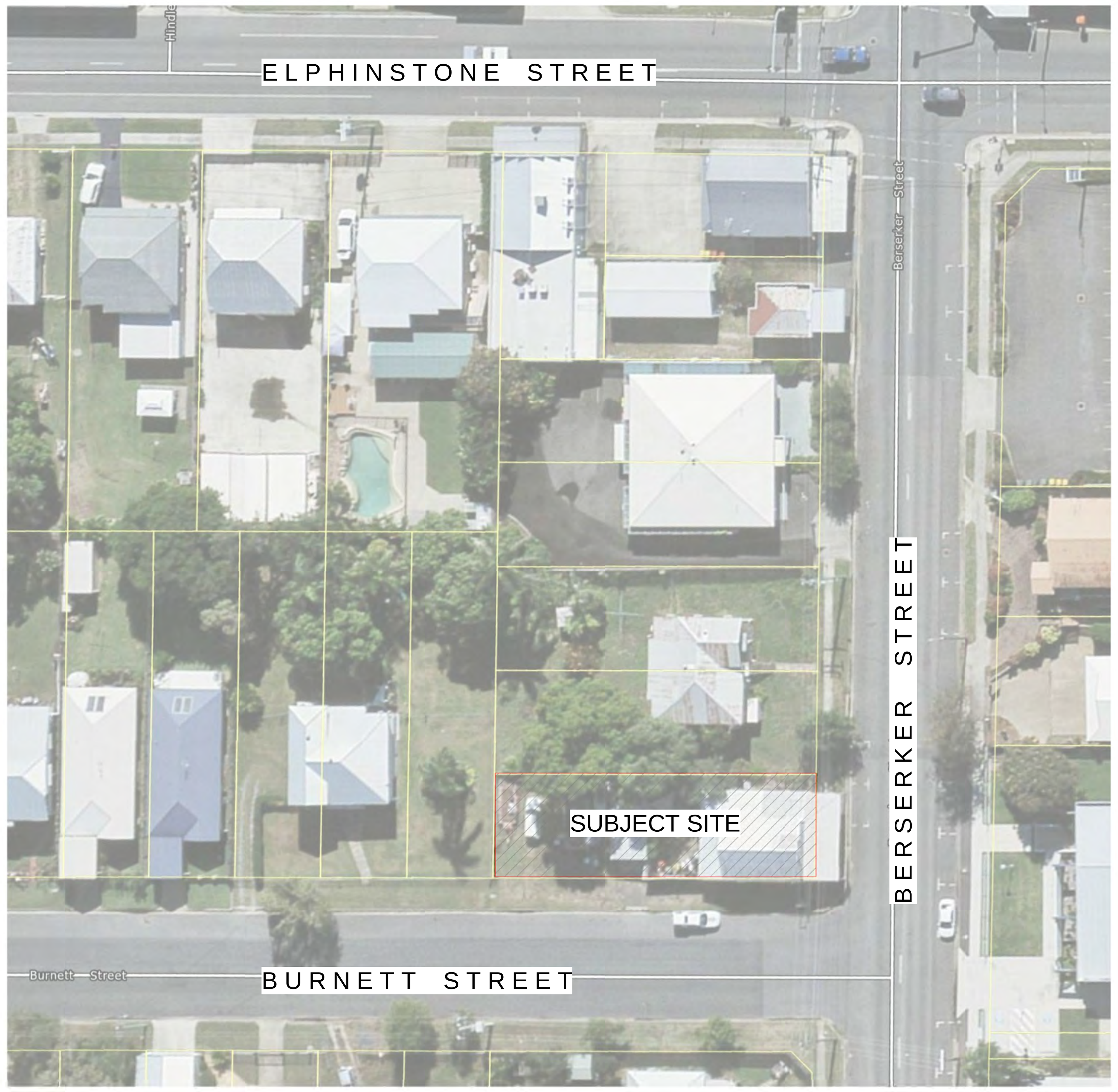

5 1. LOCALITY PLAN
1 : 500

2 2. EXISTING SITE PLAN
1 : 200

1 3. PROPOSED SITE PLAN
1 : 200

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/65-2021

Dated: 24 December 2021

NOTES

AMENDMENTS

REV	DATE	DESCRIPTION	DRN	CKD	STAGE
1	27-02-2021	FOR REVIEW			
2	29-04-2021	MCU APPLICATION			

DRAWING SCHEDULE

MCU-01	LOCALITY PLAN, EXIST. & PROPOSED SITE PLANS
MCU-02	PROPOSED FLOOR & ELEVATIONS
MCU-03	PROPOSED AREA PLANS
MCU-04	PROPOSED 3D VIEWS
MCU-05	EXISTING PHOTOS & PROPOSED PERSPECTIVE VIEWS

CLIENT:
DALE DALTON

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SITE: 161 BERSERKER STREET, NTH R'TON

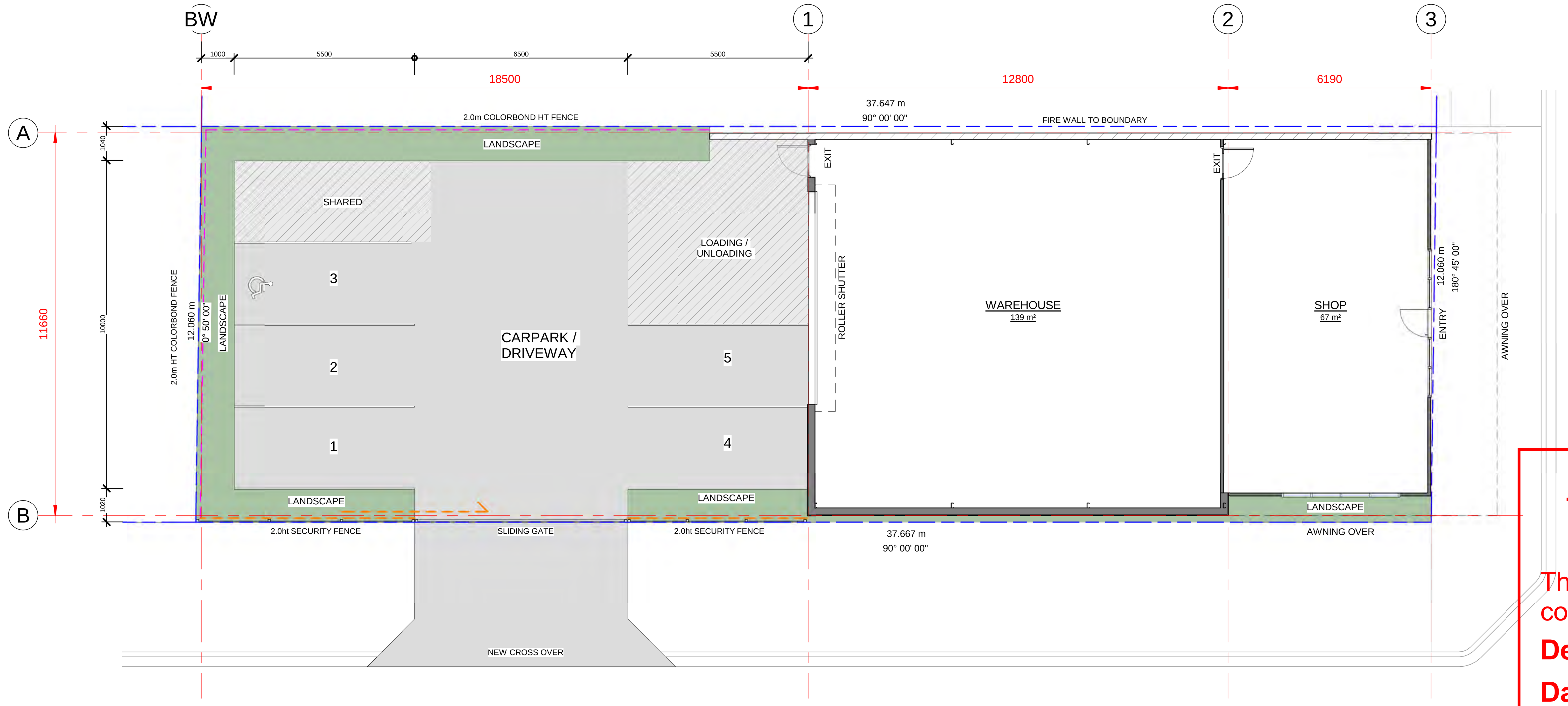
29/04/2021 3:13:47 PM

PROJECT:
PROPOSED COMMERICAL RE-DEVELOPMENT, 161 BERSERKER STREET, NTH ROCKHAMPTON

DISCIPLINE:
BUILDING DESIGN SERVICES

TITLE:
LOCALITY PLAN, EXIST. & PROPOSED SITE PLANS

DATE: 29-04-2021	SCALE: As indicated ON A1	DESIGNED BY:
PROJECT MANAGER:		DRAWN BY: gt
CAD FILE NAME:		APPROVED BY:
	PROJECT NO. 2009-07	SHEET NO: 01 OF 05
	DRAWING NO. MCU-01	REVISION: 2



1 / 2 4. PROPOSED FLOOR PLAN
1 : 100

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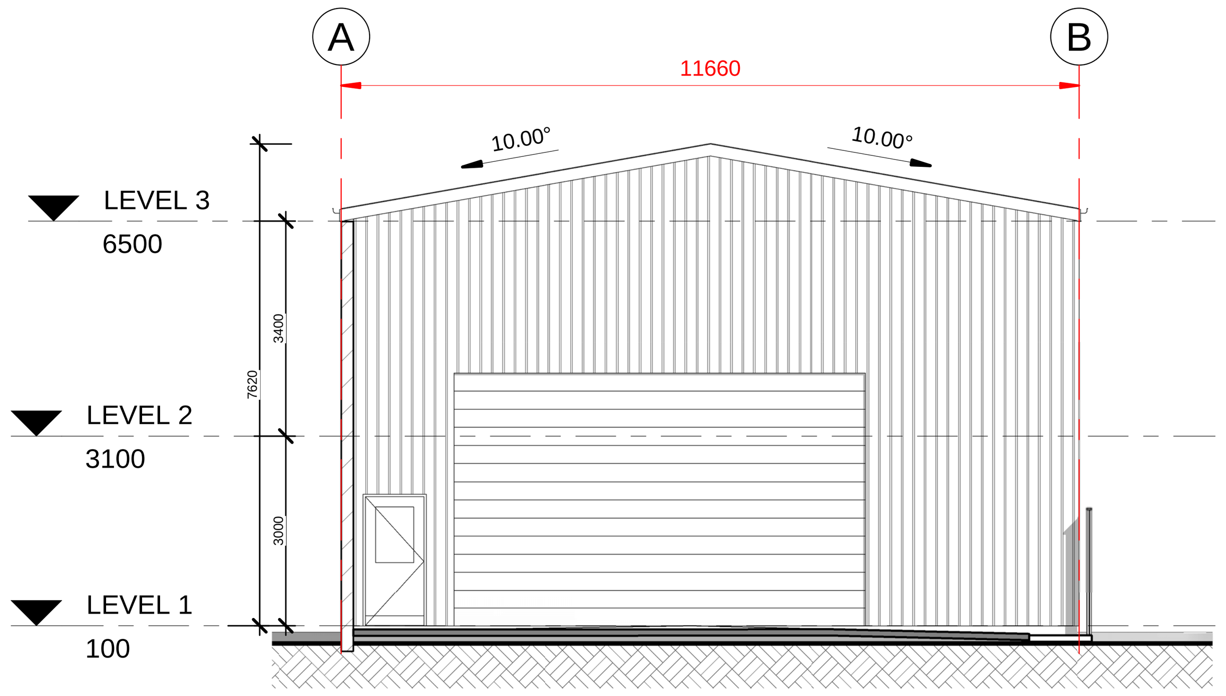
APPROVED PLANS

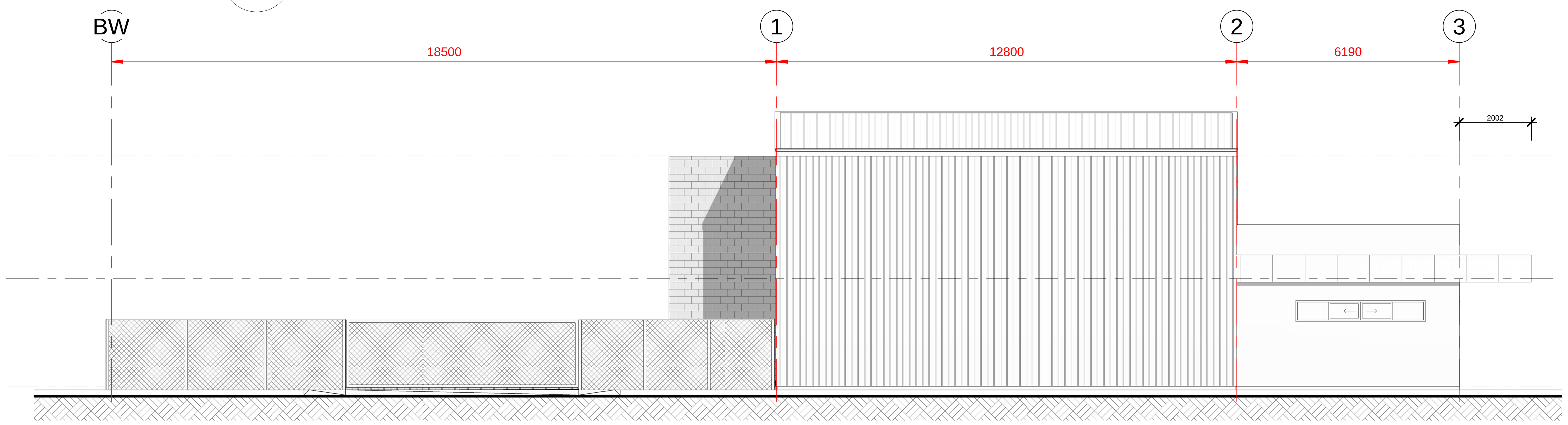
These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/65-2021

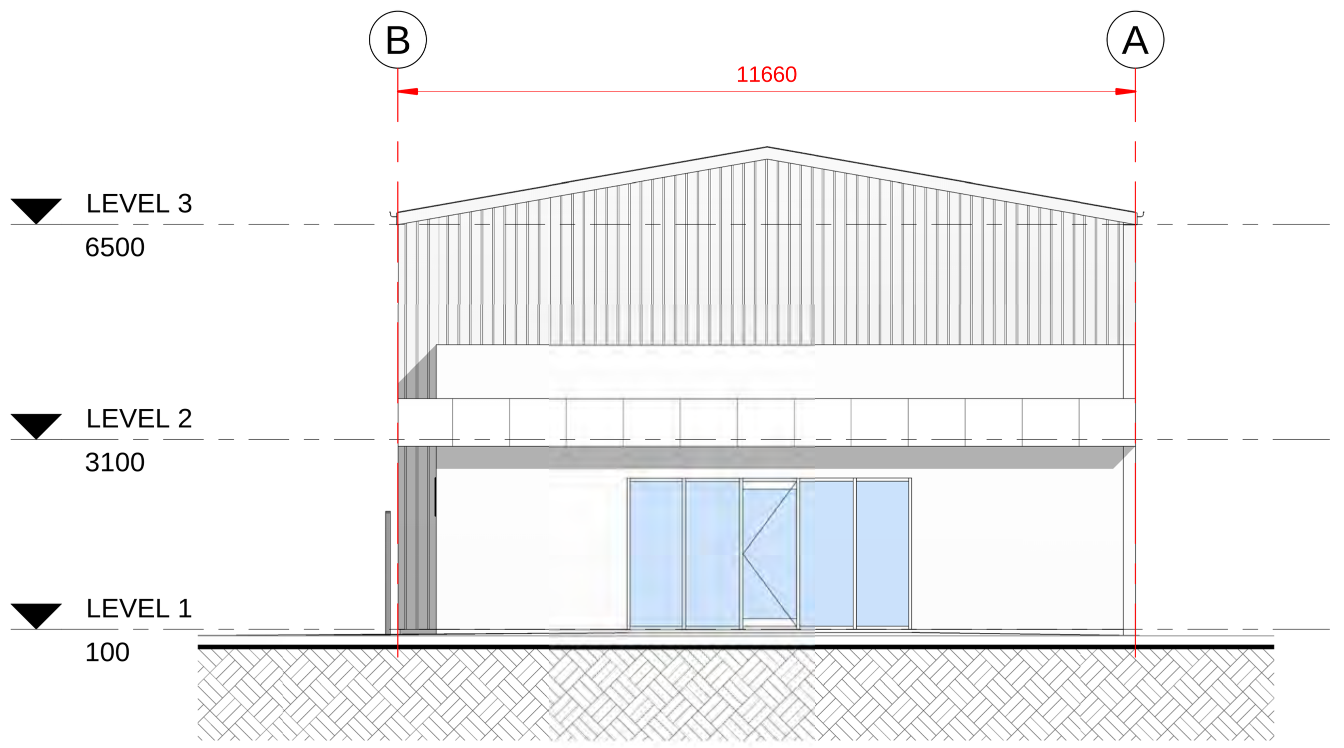
Dated: 24 December 2021



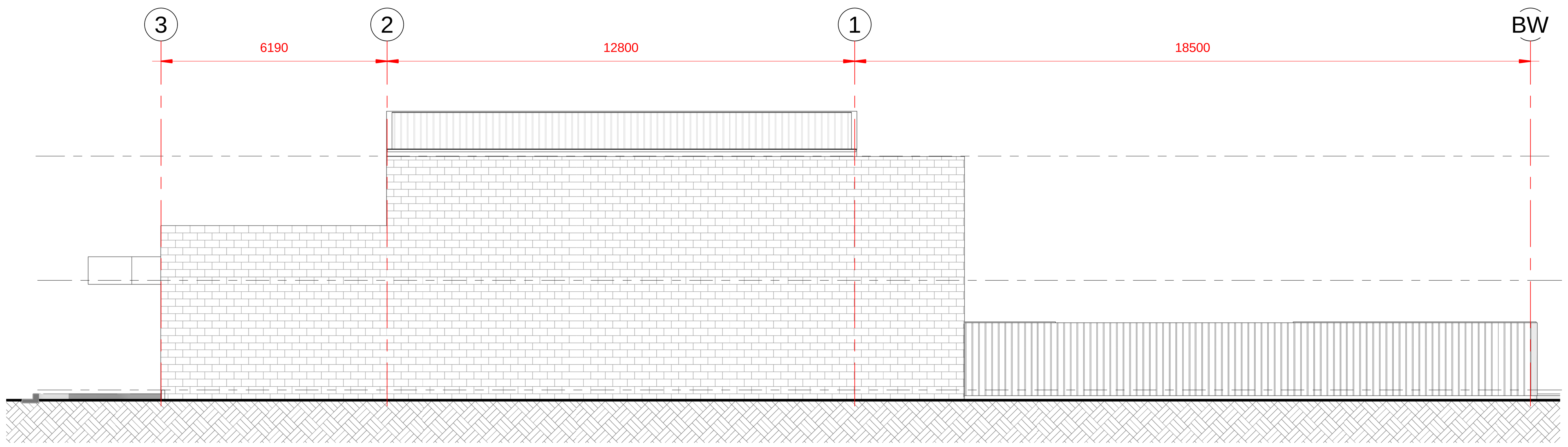
2 WEST ELEVATION
1 : 100



3 SOUTH ELEVATION
1 : 100



5 EAST ELEVATION
1 : 100



4 NORTH ELEVATION
1 : 100

NOTES

AMENDMENTS

REV	DATE	DESCRIPTION	DRN	CKD	STAGE
1	27-02-2021	FOR REVIEW			
2	29-04-2021	MCU APPLICATION			

CLIENT:
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SITE: 161 BERSERKER STREET, NTH R'TON

PROJECT:
PROPOSED COMMERICAL RE-DEVELOPMENT, 161 BERSERKER STREET, NTH ROCKHAMPTON

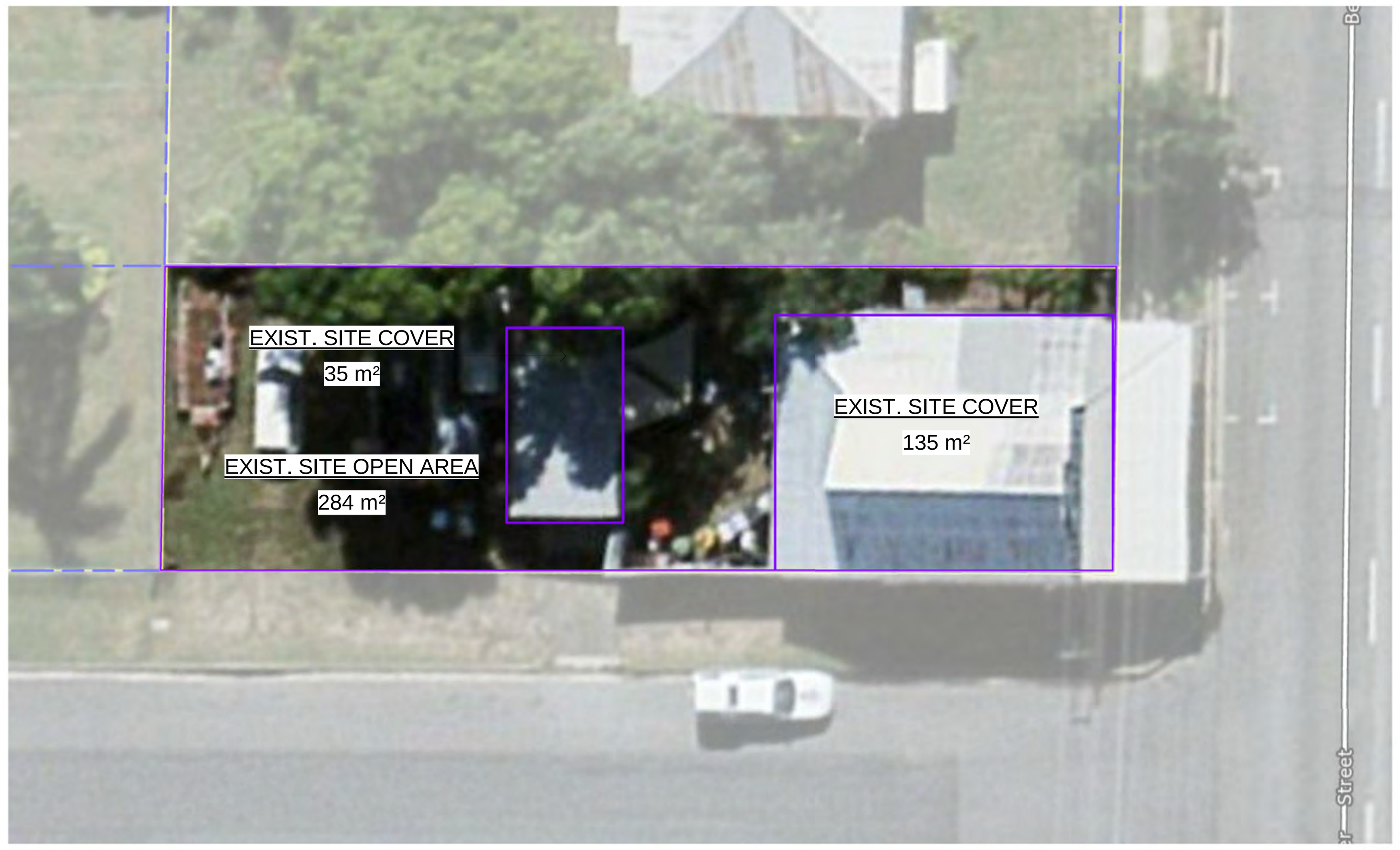
29/04/2021 3:14:20 PM

DISCIPLINE:
BUILDING DESIGN SERVICES

TITLE:
PROPOSED FLOOR & ELEVATIONS

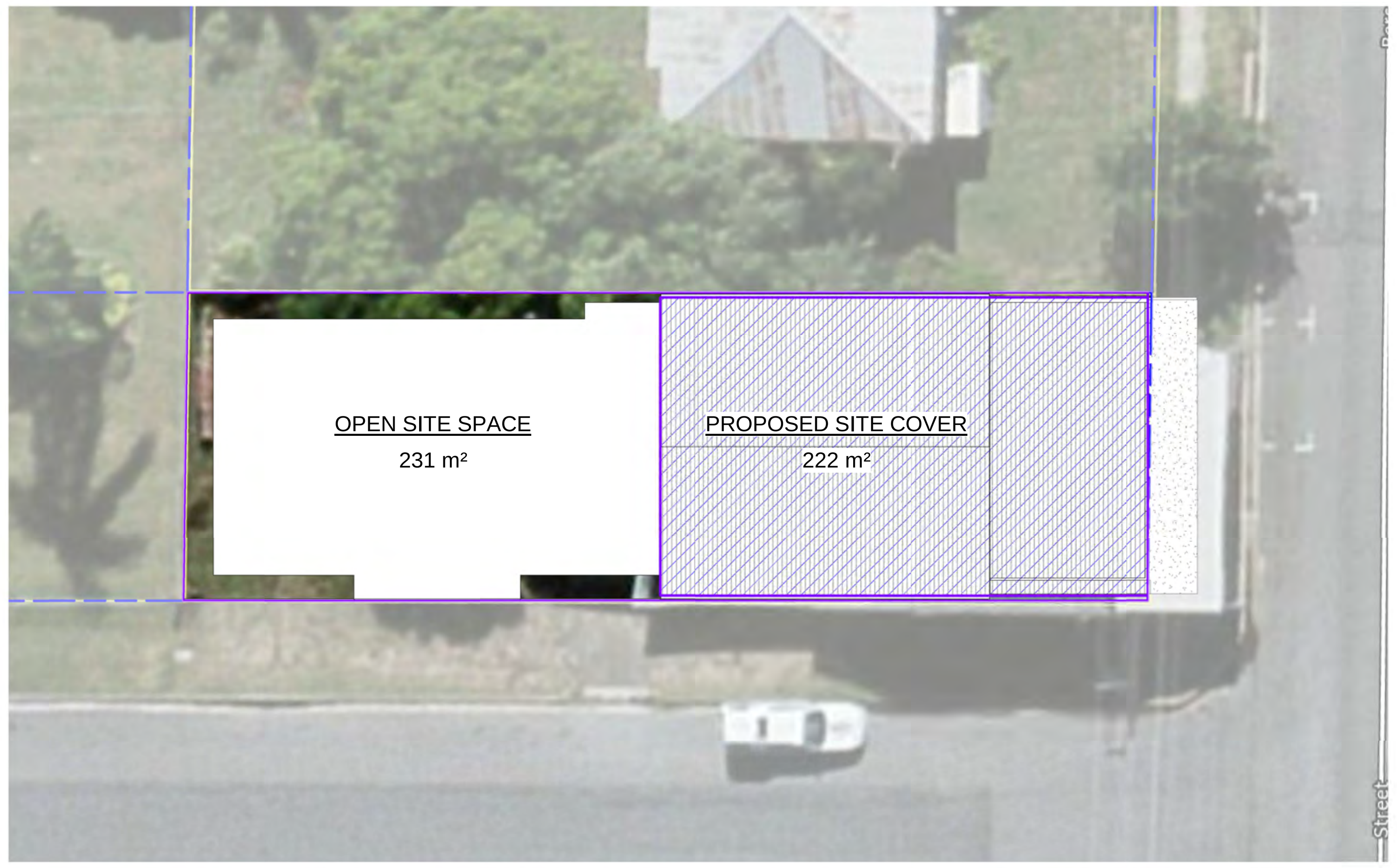
DATE: 29-04-2021	SCALE: 1 : 100 ON A1	DESIGNED BY:
PROJECT MANAGER:		DRAWN BY: gt
CAD FILE NAME:		APPROVED BY:
PROJECT NO. 2009-07		SHEET NO: 02 OF 05
DRAWING NO. MCU-02		REVISION: 2

Document Set ID: 18960924
Version: 1, Version Date: 06/05/2021



3 EXISTING AREA PLAN - SITE COVERAGE
1 : 200

AREA SCHEDULE - EXIST. SITE COVERAGE		
Name	Area	%
EXIST. SITE COVER	35 m²	8%
EXIST. SITE COVER	135 m²	30%
EXIST. SITE OPEN AREA	284 m²	63%
	454 m²	100%



2 PROPOSED AREA PLAN - SITE COVERAGE
1 : 200

AREA SCHEDULE - PROPOSED SITE COVERAGE		
Name	Area	%
PROPOSED SITE COVER	222 m²	49%
OPEN SITE SPACE	231 m²	51%
	453 m²	100%

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

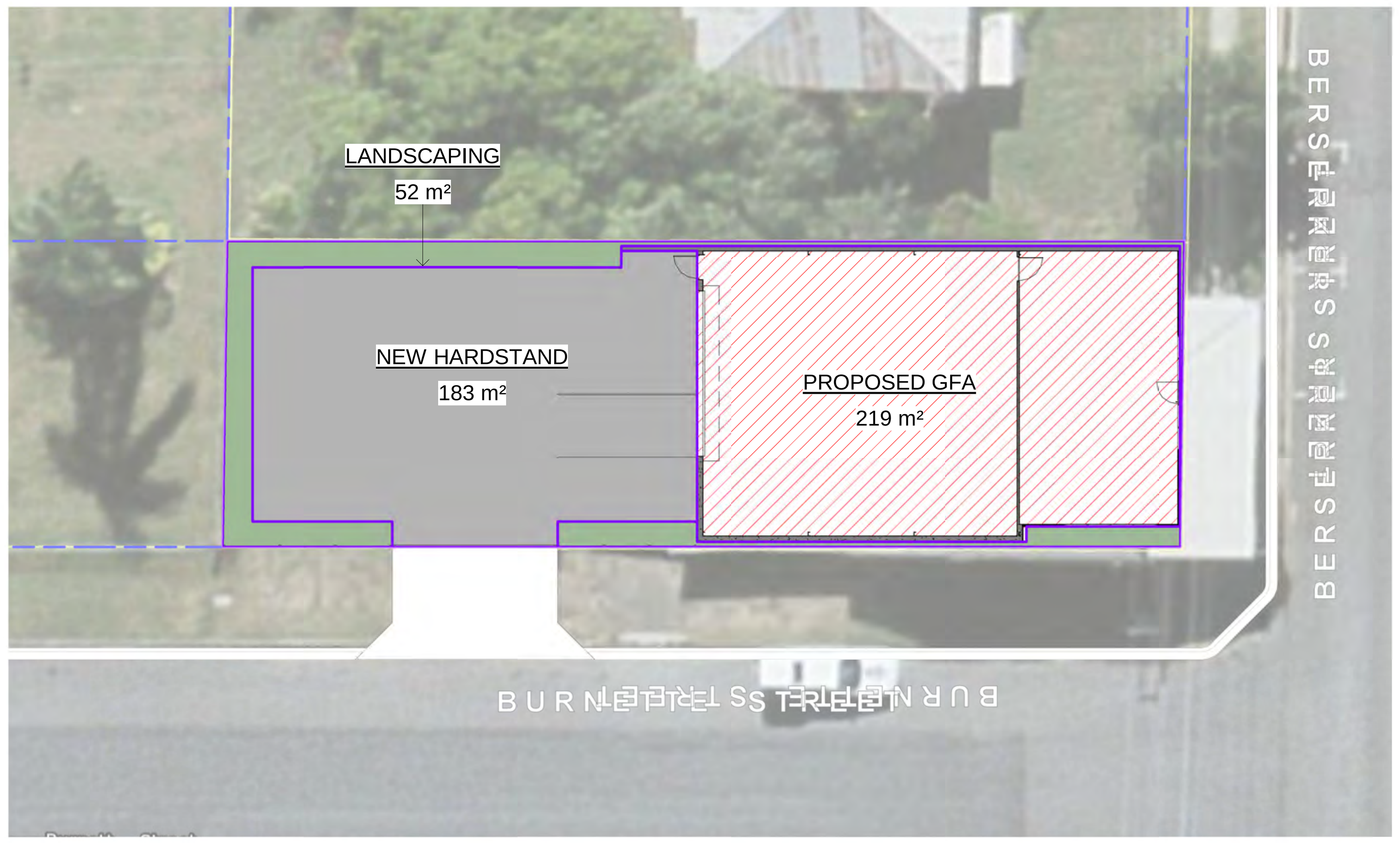
These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/65-2021

Dated: 24 December 2021

4 EXISTING AREA PLAN - GROSS FLOOR AREA
1 : 200

AREA SCHEDULE - EXIST. GROSS FLOOR AREA		
Name	Area	%
EXIST. GFA	33 m²	7%
EXIST. GFA	136 m²	30%
EXIST. GFA OPEN AREA	285 m²	63%
	454 m²	100%



1 PROPOSED AREA PLAN - GROSS FLOOR AREA
1 : 200

AREA SCHEDULE - PROPOSED GROSS FLOOR AREA		
Name	Area	%
PROPOSED GFA	219 m²	48%
NEW HARDSTAND	183 m²	40%
LANDSCAPING	52 m²	12%
	454 m²	100%

NOTES

AMENDMENTS

REV	DATE	DESCRIPTION	DRN	CKD	STAGE
1	27-02-2021	FOR REVIEW			
2	29-04-2021	MCU APPLICATION			

CLIENT:
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SITE: 161 BERSERKER STREET, NTH R'TON

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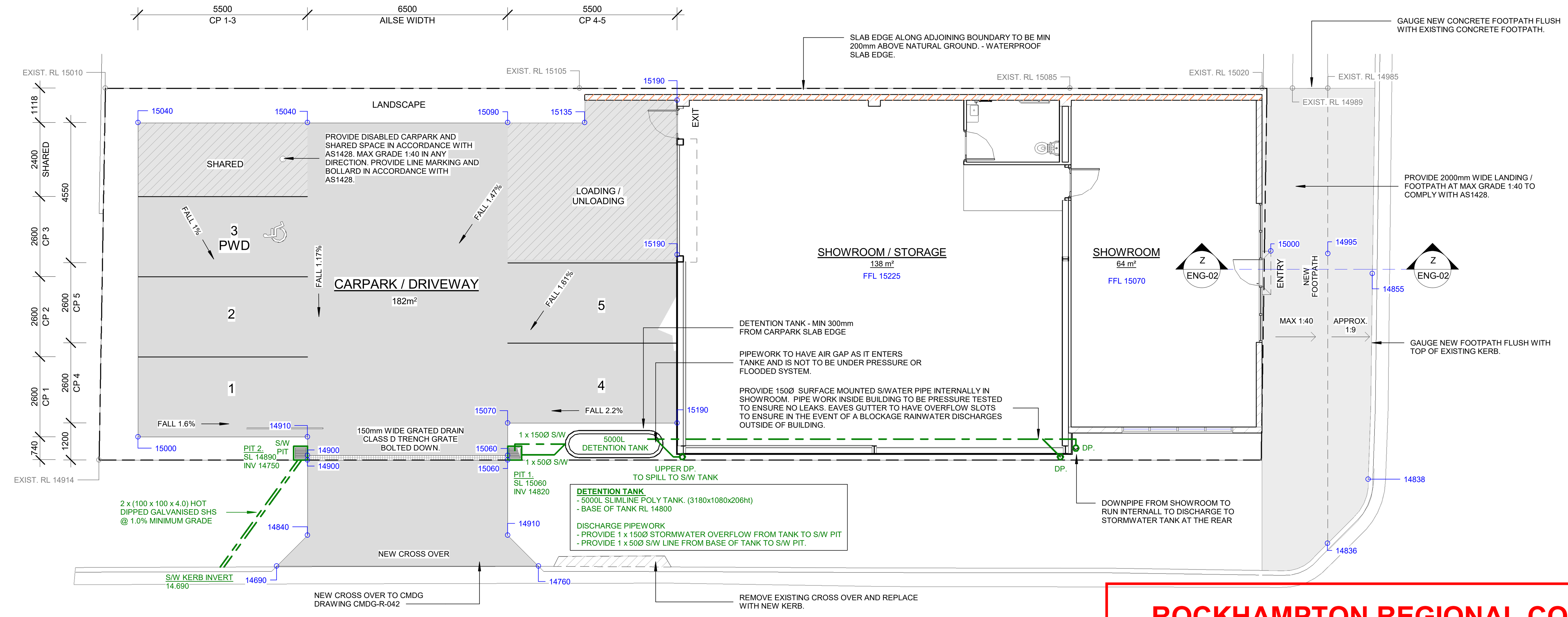
PROJECT:
PROPOSED COMMERICAL RE-DEVELOPMENT, 161 BERSERKER STREET, NTH ROCKHAMPTON

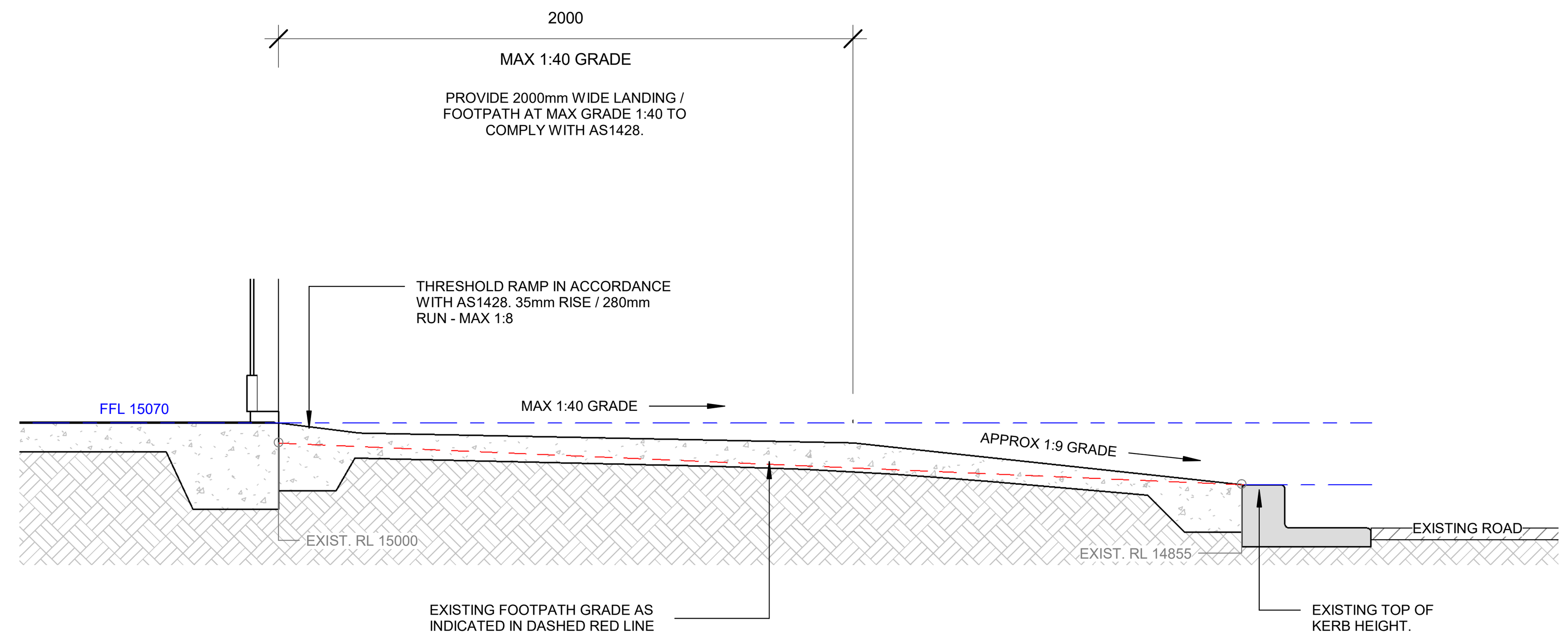
DISCIPLINE:
BUILDING DESIGN SERVICES

TITLE:
PROPOSED AREA PLANS

DATE: 29-04-2021	SCALE: 1 : 200 ON A1	DESIGNED BY:
PROJECT MANAGER:		DRAWN BY: gt
CAD FILE NAME:		APPROVED BY:
PROJECT NO. 2009-07		SHEET NO: 03 OF 05
DRAWING NO. MCU-03		REVISION: 2



1 3. SITE PLAN - RELATIVE LEVELS & STORMWATER
1 : 100



Z SECTION Z
1 : 20

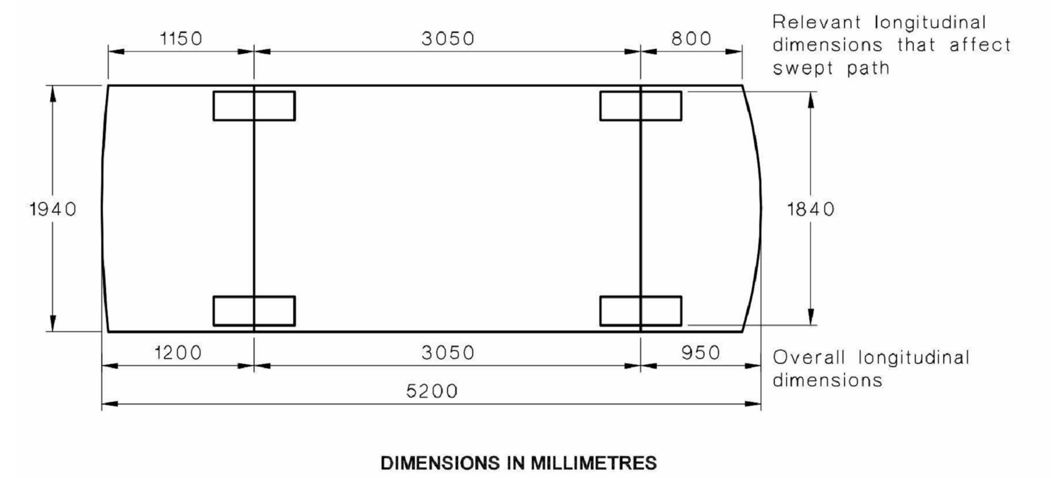
ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

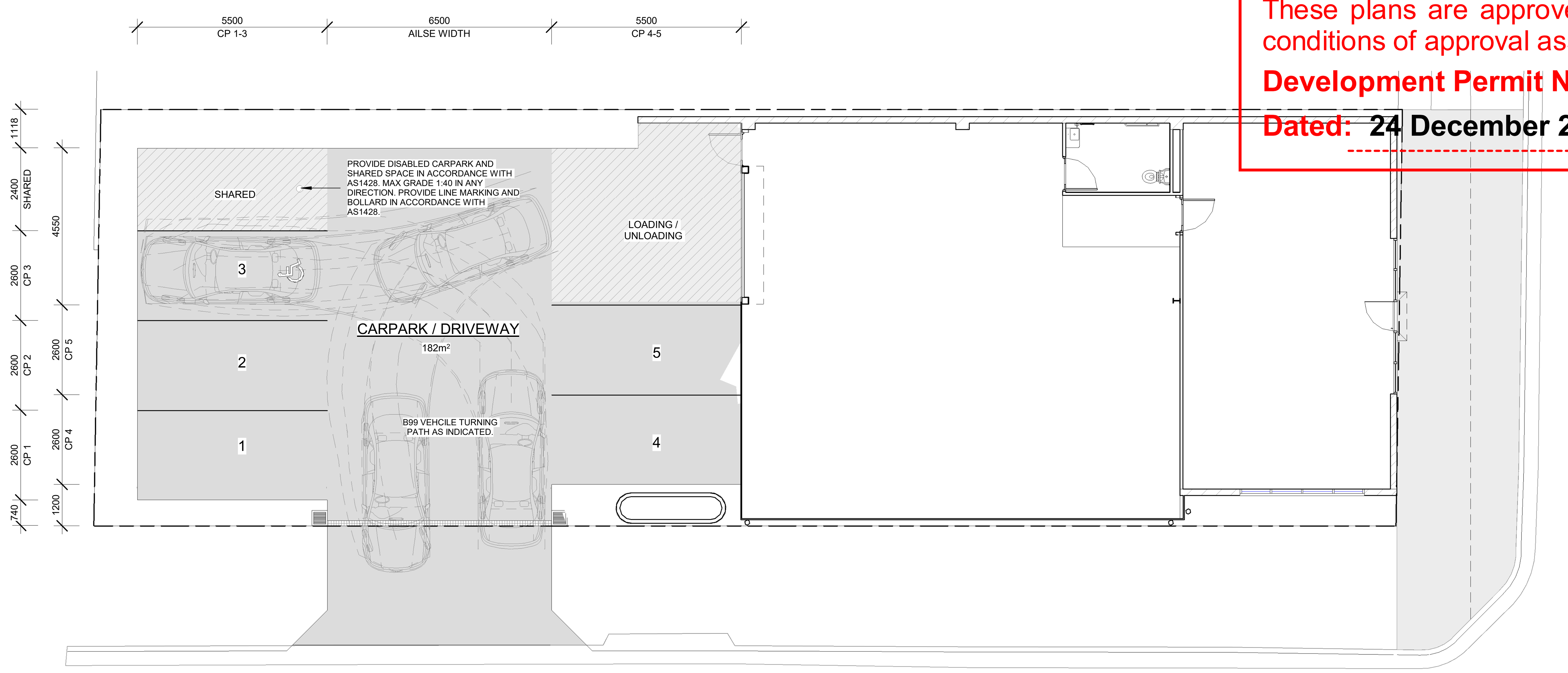
These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/65-2021

Dated: 24 December 2021



3 B99 VEHICLE
1 : 50



	AS2890 REQUIREMENTS USER CLASS 3		PROVIDED IN THIS DESIGN	
	WIDTH	LENGTH	WIDTH	LENGTH
STANDARD CARPARKING SPACE	2.6m	5.4m	2.6m	5.5m
PWD PARKING SPACE	2.4m	5.4m	2.6m	5.5m
CHEVERON / SHARED AREA	2.4m	5.4m	2.4m	5.5m
AISLES	5.8m		6.5m	

SERVICE VEHICLES

SERVICE VEHICLE LIMITED TO B99 SIZE VEHICLE. LOADING / UNLOADING BAY TO ACCOMODATE SERVICE VEHICLE PARKING & LOADING / UNLOADING.TURNING PATH MOVEMENT SIMILAR TO PARKING MANUVERING AS INDICATED. ENTRY AND EXIT IN FORWARD GEAR ONLY.

2 4. SITE PLAN - CARPARKING - TURNING PATH
1 : 100

AMENDMENTS

REV	DATE	DESCRIPTION	DRN	CKD	STAGE
1	08-11-2021	INFORMATION REQUEST RESPONSE.			

NOTES

VERIFY ALL DIMENSIONS AND CHECK LEVELS ON SITE BEFORE COMMENCING WORK. DO NOT SCALE FROM THE DRAWING. THIS DRAWING IS COPYRIGHT AND REMAINS THE PROPERTY OF THE DESIGNTEK PTY LTD AND SHALL NOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE DESIGNTEK PTY LTD

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QBCC MEM. NO #1123040
BDAQ MEM. NO #0000761
www.designtek.com.au

PROJECT:
PROPOSED COMMERICAL RE-DEVELOPMENT, 161 BERSERKER STREET, NTH ROCKHAMPTON

SITE:
161 BERSERKER STREET, NTH R'TON

DISCIPLINE:
BUILDING DESIGN SERVICES

8/11/2021 2:06:34 PM

TITLE:
RELATIVE LEVELS & STORMWATER PLAN - CARPARK TURNING PATH PLAN

DATE: 08-11-2021	SCALE: As indicated ON A1	DESIGNED BY:
PROJECT MANAGER:		DRAWN BY: gt
CAD FILE NAME:		APPROVED BY:
PROJECT NO. 2009-07		SHEET NO: 02 OF 02
DRAWING NO. ENG-02		REVISION: 1

Dalton Family Superannuation Fund
C/- Glenn Thomasson
Shop 5/10 Denham St
Rockhampton QLD 4702

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/65-2021
Dated: 24 December 2021

DAVEY ENGINEERING SOLUTIONS

08 November 2021

DEVELOPMENT APPLICATION D/65-2021 FOR A MATERIAL CHANGE OF USE FOR A SHOWROOM – SITUATED AT 161 BERSERKER STREET, BERSERKER (LOT 15 ON RP600700)
RESPONSE TO COUNCIL INFORMATION REQUEST ITEM 2.2 & 2.3

Glenn & Dale,

In response to Council Information request dated 18 May 2021 for Items 2.2 & 2.3 for the above-mentioned proposed development, we provide the following information:

Item 2.2

2.2 Please demonstrate that the proposed development will not cause or have the potential to cause an *"actionable nuisance" or "worsening"* to surrounding land, infrastructure or to a Lawful Point of Discharge. Ensure the following are addressed, where applicable.

- 2.2.1. The adverse impacts on the Burnett Street due to the stormwater runoff / discharge from the car parking area;
- 2.2.2. The proposed development does not cause a concentration of stormwater flows discharging on the Burnett Street or Berserker Street;
- 2.2.3. Include details of the mitigation measures proposed to address any potential stormwater impacts of the proposed development. The design storm peak discharges should be shown for the mitigated case to demonstrate there is no worsening impact on the Burnett Street or Berserker Street.

The subject is 455m^2 in size and located on the corner of Berserker and Burnett Streets. Based on Council's contour mapping is located generally along the 15m AHD contour interval and appears to be on a regional stormwater crown line, as east of Berserker Street road crown falls to the east while Burnett Street falls to the west. On review on of recent onsite survey it has been confirmed the subject site is generally 15m AHD and falls to the road kerb on each road frontage. The kerb has minimal fall and currently experiences some localised ponding on the corner of the streets (within the kerb extents). The detailed survey also reveals the western side of Berserker kerbs runs around the corner to Burnett therefore confirming that all site runoff from the property is directed down the northern kerb of Burnett Street.

Figure 1 – Stormwater Catchment Boundaries - Source - RRC Mapping Website

The property has been used for various commercial businesses / shops for more than 20 years. Based on review of historical imagery the percentage impervious has changed over the years as the various tenants / owners used the properties for different purposes. An example from 2019 is visible below in Figure 2 showing the property having a high percentage of impervious.

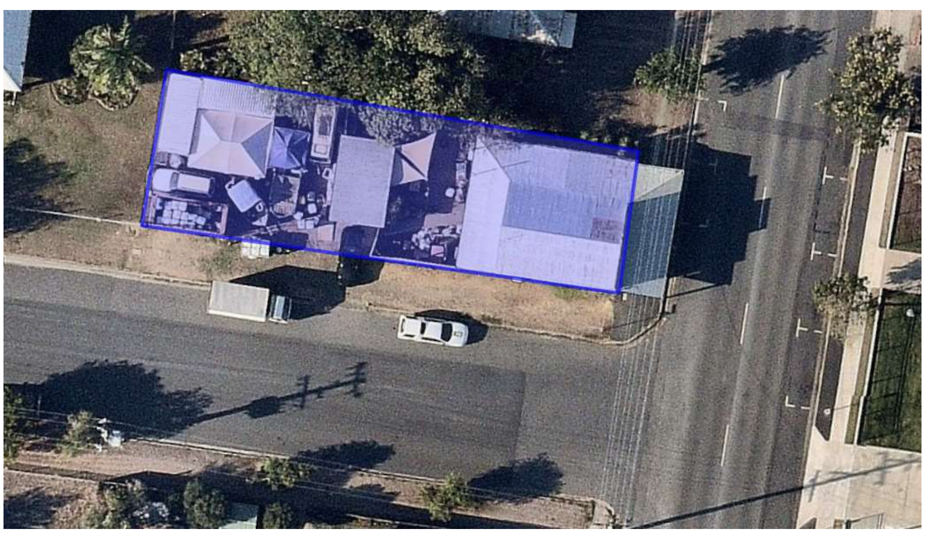

Figure 2 – Subject Site - Source – Nearmap Nov 2019

As mentioned above the site is 455m^2 in size and on review of plans prepared by the building designer and survey, it identifies the subject allotment is currently approximately 40% impervious 181m^2 (comprising of 170m^2 of roof area and ~11m^2 of slab and garden sheds). The percent impervious in Figure 1 would be in the order of 70%, therefore contributing more runoff during rain events.

3.0 STORMWATER MANAGEMENT (QUANTITY)

Two (2) scenarios have been investigated to establish if peak flow mitigation measures are required as a result of this development. The first scenario (1) is the sites pre development situation and the second (2) scenario is the post situations of the development site.

3.1 – SCENARIO 1 EXISTING STORMWATER QUANTITY ASSESSMENT

Existing discharge flows have been prepared in accordance with the Rational Method outlined in the Queensland Urban Drainage Manual (QUDM) and the Capricorn Municipal Development Guidelines (CMDG).

The time of concentration of 5 minutes has been standard inlet time as per QUMD Table 4.06.2.

In accordance with Australian Rainfall and Runoff (AR&R), Bureau of Meteorology stormwater intensity charts, the rainfall intensity for various storm events are as follows:

Stormwater Event	Rainfall Intensity
AEP 63.2% -Q_1	104mm/hr
AEP 50% Q_2	136mm/hr
AEP 20% Q_5	177mm/hr
AEP 10% Q_{10}	203mm/hr
AEP 5% Q_{20}	237mm/hr
AEP 2% Q_{50}	284mm/hr
AEP 1% Q_{100}	321mm/hr

The calculated flow rates discharging from local catchment are as follows:

Stormwater Event	Flow Rate
AEP 63.2% -Q_1	0.007m^3/s
AEP 50% Q_2	0.010m^3/s
AEP 20% Q_5	0.014m^3/s
AEP 10% Q_{10}	0.017m^3/s
AEP 5% Q_{20}	0.021m^3/s
AEP 2% Q_{50}	0.028m^3/s
AEP 1% Q_{100}	0.033m^3/s

Note: Annual Exceedance Probability (AEP)

3.2 – SCENARIO 2 PROPOSED STORMWATER QUANTITY ASSESSMENT

The proposed development will direct all roof water from the development to the kerb and channel in the road frontage and away from adjacent properties. The car park level has been intentionally left low to enable any runoff from the adjacent property to pass through this site without causing any ponding. The post development impervious is calculated to be 84% comprising of 202m^2 of roof area and 182m^2 of concrete car parking. A percentage impervious of 95% has been adopted in the attached calculations to be conservative as to assess any impacts.

Incorporating these changes, the calculated various flow rates discharging from local catchment are as follows:

Stormwater Event	Flow Rate
AEP 63.2% -Q_1	0.009m^3/s
AEP 50% Q_2	0.013m^3/s
AEP 20% Q_5	0.019m^3/s
AEP 10% Q_{10}	0.023m^3/s
AEP 5% Q_{20}	0.028m^3/s
AEP 2% Q_{50}	0.036m^3/s
AEP 1% Q_{100}	0.041m^3/s

Refer to last page for Stormwater Calculations.

Developed stormwater drainage calculations have been completed comparing the post developed scenario against the predeveloped for the local site catchment.

3.3 – PROPOSED STORMWATER CONTROL SYSTEMS

The stormwater concept is usually to maintain the site discharge to the location as per the existing situation as well as to stay within the acceptable percentage impervious limits for that type of development. I.e., Local Centre zone. Developed stormwater control system calculations have been completed comparing the post developed scenario against the pre developed scenario for the site.

The comparison between the largest difference predevelopment flow against the post development flow, has resulted in an increase of 29% in events up to the 5% AEP which is only 7.8 litres per second during a 2% AEP. To overcome this increase, it is proposed to use a detention tank to collect rainwater from the roof areas. Calculations identified that 3,100 litres of detention is required during a 2% AEP and only 3,000 litres during a 1%AEP . A 5,000 litre tank has been included in the design with a 50mm outlet pipe to act as a throttling device. Detailed external catchment modelling has not been undertaken as part of this assessment; however, the roof water will be directed to Council infrastructure to reduce the amount of overland flow going to downstream properties and discharge location is consistent with pre-development situation where it continues to be discharged to Burnett Street.

2.3 Please provide details (including type, dimensions and turn radius) of the largest delivery vehicle expected to deliver to the site and demonstrate via swept vehicle paths on a fully dimensioned and properly scaled plan, how this vehicle is able to enter the site in a forward direction, manoeuvre into the proposed delivery docks/areas/bays and exit the site in a forward direction. In performing these manoeuvres, the delivery vehicle must not interfere with or in any way impede designated vehicle parking spaces. This plan must also accurately show the full extent of the frontage road including details on the road configuration and width (including any median islands or other traffic control), street lighting and trees etc., kerb and channel, stormwater drainage infrastructure and any other physical service infrastructure.

It is understood due to the relatively small available floor area for this shop, goods will be delivered via utes which fall under the category of a B99 vehicle. We understand the shop is expected to be a lighting showroom, party hire, OP Shop, hobby type shop or similar which all deal in small goods.

The carpark spaces and aisles are to be constructed in accordance with Australian Standard (Off-Street Parking Code) with the following dimensions below shown as minimums and what is proposed. For this development the classification of the facilities will be considered to be a combination of User Class 1A (employee) and Class 3 (Short term city).

	AS2890 Requirements		Provided	
	Width	Length	Width	Length
Standard Car Space	2.6m	5.4m	2.6m	5.4m
Wheelchair assessable & Chevron Area	2.4m	5.4m	2.6m wheelchair & 2.4m chevron	5.4m
Aisles	User Class 1A 5.8m User Class 3 5.8m		6.5m	

Vehicle turnpath for a B99 passenger car are shown on drawing 2009-07. These demonstrate compliance with Australian Standard AS2890.

If you have any queries, please do not hesitate to contact myself on details below.

Yours sincerely

Jeff Davey
B.Eng (Hons), RPEQ 8386, JP (Qual)

23 Dune Circle, Lammermoor, QLD 4703

Telephone 0419 872 040

Davey Engineering Solutions Pty Ltd
ABN 66 502 462 702
Email: admin@daveyes.com.au

Flows through local catchment (Pre-development)

	tc	=(107n L^0.333)/S^0.2
	mins	
Total	5	

Rainfall Intensity Table

Return period	1	2	5	10	20	50	100
5	104	136	177	203	237	284	321

Total Catchment Area 455 m2
Area of Impervious 181 m2

Q= F*C*I*A

	F	C	I	A	Q	Fy	Vol. generated
	factor	co eff	mm/hr	ha	m3/sec	factor	storm
63.2% AEP	0.00278	0.544	104.00	0.0455	**0.007**	0.80	2.9
50% AEP	0.00278	0.578	136.00	0.0455	**0.010**	0.85	4.0
20% AEP	0.00278	0.646	177.00	0.0455	**0.014**	0.95	5.8
10% AEP	0.00278	0.680	203.00	0.0455	**0.017**	1.00	7.0
5% AEP	0.00278	0.714	237.00	0.0455	**0.021**	1.05	8.5
2% AEP	0.00278	0.782	284.00	0.0455	**0.028**	1.15	11.2
1% AEP	0.00278	0.816	321.00	0.0455	**0.033**	1.20	13.2

C10 value 0.6800
fi value 0.40

Flow through local catchment (Post development)

	tc	=(107n L^0.333)/S^0.2
	mins	
Total	5	

Use same Time of Concentration as pre development

Total Catchment Area 455 m2
Area of Impervious 432 m2

Rainfall Intensity Table

Return period	1	2	5	10	20	50	100
5	104	136	177	203	237	284	321

Q= F*C*I*A

	F	C	I	A	Q	Fy	Vol. generated
	factor	co eff	mm/hr	ha	m3/sec	factor	storm
63.2% AEP	0.00278	0.704	104.00	0.0455	**0.009**	0.80	3.7
50% AEP	0.00278	0.748	136.00	0.0455	**0.013**	0.85	5.1
20% AEP	0.00278	0.836	177.00	0.0455	**0.019**	0.95	7.5
10% AEP	0.00278	0.880	203.00	0.0455	**0.023**	1.00	9.0
5% AEP	0.00278	0.924	237.00	0.0455	**0.028**	1.05	11.0
2% AEP	0.00278	1.000	284.00	0.0455	**0.036**	1.15	14.3
1% AEP	0.00278	1.000	321.00	0.0455	**0.041**	1.20	16.2

C10 value 0.880
fi value 0.950

Total volume runoff increased during various storm events

tc mins	5	tc mins	5
tc (secs)	300	tc (secs)	300
2.66tc	798	2.66tc	798

Runoff

	Pre Development	Post Development	Increase	flowrate increase m3/s
50% AEP	0.010	0.013	29.41%	0.0029
20% AEP	0.014	0.019	29.41%	0.0043
10% AEP	0.017	0.023	29.41%	0.0051
5% AEP	0.021	0.028	29.41%	0.0063
2% AEP	0.028	0.036	27.88%	0.0078
1% AEP	0.033	0.041	22.55%	0.0075

Detention Cals

Basha Method $\frac{V_{Storage}}{V_{Inflow}} = \frac{r(2+r)}{3}$

$r = \frac{Q_{Post} - Q_{Pre}}{Q_{Post}}$

Boyd Method $\frac{V_{Storage}}{V_{Inflow}} = r$

$r_{ARI\ 100}$ = 0.184
r = 0 - 0.25 use Boyd method

$V_{Inflow} = \frac{4\ tc\ Q_{post}}{3}$ = 16 m3

$V_{Storage\ 100ARI}$ = r x V_{Inflow}
= 3.0 m3

Determine worst event

	r value	$V_{Storage}$
50% AEP	0.2273	1.2 m^3
20% AEP	0.2273	1.7 m^3
10% AEP	0.2273	2.0 m^3
5% AEP	0.2273	2.5 m^3
2% AEP	0.2180	3.1 m^3
1% AEP	0.1840	3.0 m^3

Q100 worst

$V_{Storage}$ **3.1** m^3

Factor 1.5 times = **4.7** m^3