HERRING STORER ACOUSTICS

CELSIUS DEVELOPMENTS

LOT 35 MONTARIO QUARTER
SHENTON PARK

DEVELOPMENT APPLICATION
ACOUSTIC REPORT

SEPTEMBER 2023

OUR REFERENCE: 31650-1-23319

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DA ACOUSTIC REPORT

LOT 35 MONTARIO QUARTER
SHENTON PARK

Job No: 23319

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FOR

CELSIUS DEVELOPMENTS

DOCUMENT INFORMATION			
Author:	George Watts	**Checked:**	Tim Reynolds
Date of Issue:	29 September 2023		

REVISION HISTORY				
Revision	**Description**	**Date**	**Author**	**Checked**

DOCUMENT DISTRIBUTION				
Copy No.	**Version No.**	**Destination**	**Hard Copy**	**Electronic Copy**
1	1	Celsius Developments Attn: Matt Evans Email: matt@celsiusdevelopments.com.au		✓

CONTENTS

APPENDICIES

1.0 INTRODUCTION

Herring Storer Acoustics was commissioned by Celsius Developments to conduct a preliminary review of the proposed development at Lot 35 Montario Quarter, Shenton Park.

This report has been based on the Development Application drawings provided.

2.0 PROPOSED DEVELOPMENT

The proposed development site is located at Lot 35 Montario Quarter, Shenton Park.

The development consists of a 7 floor apartment building.

Car parking is located on the basement level and as a part of the ground and upper ground floors.

An amenity level is located on level 1, including a pool area.

3.0 CRITERIA

3.1 BCA PROVISIONS

For Class 2 or 3 buildings, Part F5 of the National Construction Code (NCC), outlines the minimum acoustic isolation of apartments. The following summarises the acoustic criteria:

3.1.1 Walls

Wet to wet	$R_W + C_{tr}$ not less than 50 dB.
Living to living	$R_W + C_{tr}$ not less than 50 dB.
Wet to living construction.	$R_W + C_{tr}$ not less than 50 dB plus discontinuous
Kitchens to living construction.	$R_W + C_{tr}$ not less than 50 dB plus discontinuous
SOU to Lobby	R_W not less than 50 dB.

Note: Where kitchens are part of an open living area, we consider the kitchen to be part of the living area and in these cases a discontinuous construction is required. This also includes cases where kitchens are back-to-back, however, discontinuous construction is only required on one side.

3.1.2 Floors

Floors	$R_W + C_{tr}$ not less than 50 dB.
Impact Isolation	$L_{n,w}$ not more than 55 dB is recommended.

Note: The impact isolation criteria under the BCA is an $L_{n,w}$ of not more than 62 dB. However, as a member firm of the Association of Australasian Acoustic Consultants, (AAAC) we recommend a criteria of an $L_{n,w}$ of not more than 55 dB be adopted for a development of this type.

3.1.3 Service Risers

to Habitable Rooms $R_W + C_{tr}$ not less than 40 dB.

to Non-Habitable Rooms $R_W + C_{tr}$ not less than 25 dB.

3.1.4 Hydraulics

The above requirements also apply to storm water down pipes.

3.1.5 Doors

Door (Connecting to a lobby) R_W not less than 30 dB.

The development will be designed to comply with the requirements of Part F5 of the BCA.

3.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 3.1 also lists the assigned noise levels for commercial premises.

TABLE 3.1 – ASSIGNED NOISE LEVELS

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax\ Slow}$ is more than 15dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(a) is more than 3dB $L_{A\ Fast}$ or is more than 3dB $L_{A\ Fast}$ in any one-third octave band;
(b) is present for more at least 10% of the representative assessment period; and
(c) is regular, cyclic and audible;

"tonality" means the presence in the noise emission of tonal characteristics where the difference between –

(a) the A-weighted sound pressure level in any one-third octave band; and
(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

From a review of the development, the influencing factor for this development and the surrounding noise sensitive premises has been conservatively estimated at 0 dB.

Hence, the assigned noise levels would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	45	55	65
	0900 - 1900 hours Sunday and Public Holidays	40	50	65
	1900 - 2200 hours all days	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35	45	55

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This primarily consists of mechanical services associated with the development.

4.0 BCA REQUIRMENTS

The proposed development will be constructed to comply with the requirements of Part F5 of the NCC.

It is noted that the construction will exceed the requirements, in particular, the footfall impact isolation requirements.

4.1 GENERAL DESIGN COMMENTS

The location of pool on the first floor is noted.

Structure borne noise transfer associated with the pool plant and pipework, will need to be considered. The location of the pool is such that the structural isolation of the pool itself is not considered necessary – however – it is understood that such isolation often has benefits in the water proofing of the pool.

It is recommended that all pipework and pool plant equipment is structurally isolated from its surrounds. to minimise any structurally transmitted noise through this path.

5.0 NOISE INGRESS

Given the distance from the surrounding major road and rail network, there is no requirement for this development to undertake a specific assessment for noise ingress.

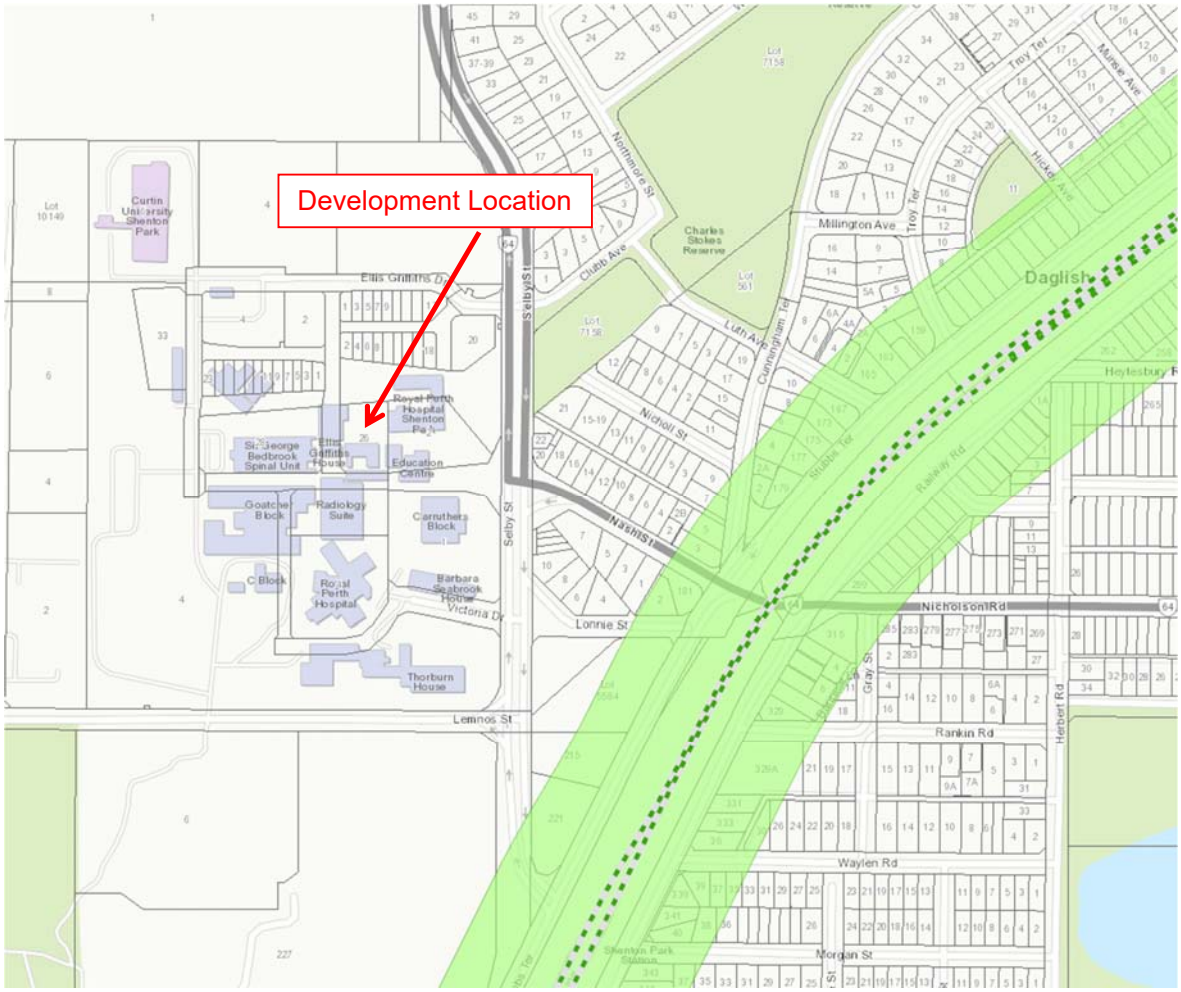

FIGURE 1 – STATE PLANNING POLICY 5.4 ASSESSMENT AREA

It is proposed to adopt an internal noise level design criteria, similar to other areas within Perth. The aim of the criteria is to design the residential building façade to achieve the following internal sound levels :

- L_{eq} 35 dB(A) in sleeping areas (bedrooms); and
- L_{eq} 40 dB(A) in living/work areas and other habitable rooms.

It is noted that these internal design sound levels are congruent with other noise ingress policies such as the WAPC State Planning Policy 5.4 and the Town of Vincent Sound Attenuation Policy, and whilst these policies are not applicable at this location, in the absence of a policy specific to the City of Nedlands, these policies have been utilised as justification for the internal sound levels set for our design considerations.

It is noted that given the location of the development, the glazing requirements are highly unlikely to be dictated by acoustic requirements, with thermal and energy efficiency requirements taking precedent in design considerations. This work will be undertaken during the design development phase of the project.

6.0 NOISE FROM DEVELOPMENT

The main source of noise from the proposed development will be from mechanical services consisting of a car-park ventilation fans and air-conditioning condenser units. Noise received at neighbouring premises from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

6.1 MECHANICAL SERVICES

The main source of noise from the proposed development will be from mechanical services consisting of a car-park ventilation fans and air-conditioning plant and condenser units. Noise received at residence (neighbours and residence within the development) from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned L_{A10} night period noise level of 35 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty for a tonal component could be applied to the resultant noise levels. Therefore, the design level at the neighbouring residential premises would be 30 L_{A10} dB.

6.1.1 Apartments

The air conditioning for the apartments is not yet known, however, an area for AC condensers has been allocated on the roof, in addition to space in the upper ground floor carpark area.

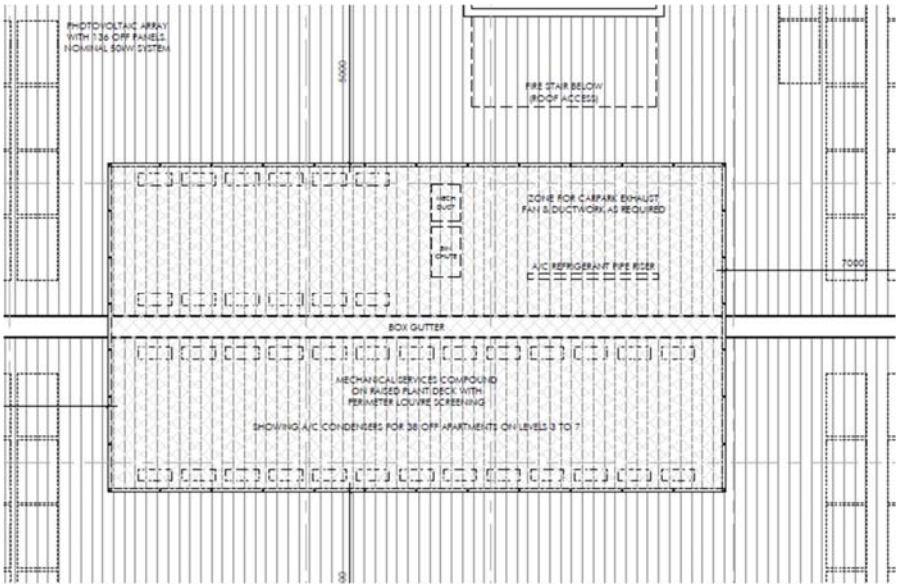

FIGURE 2 – ROOFPLAN EXTRACT SHOWING AC DECK

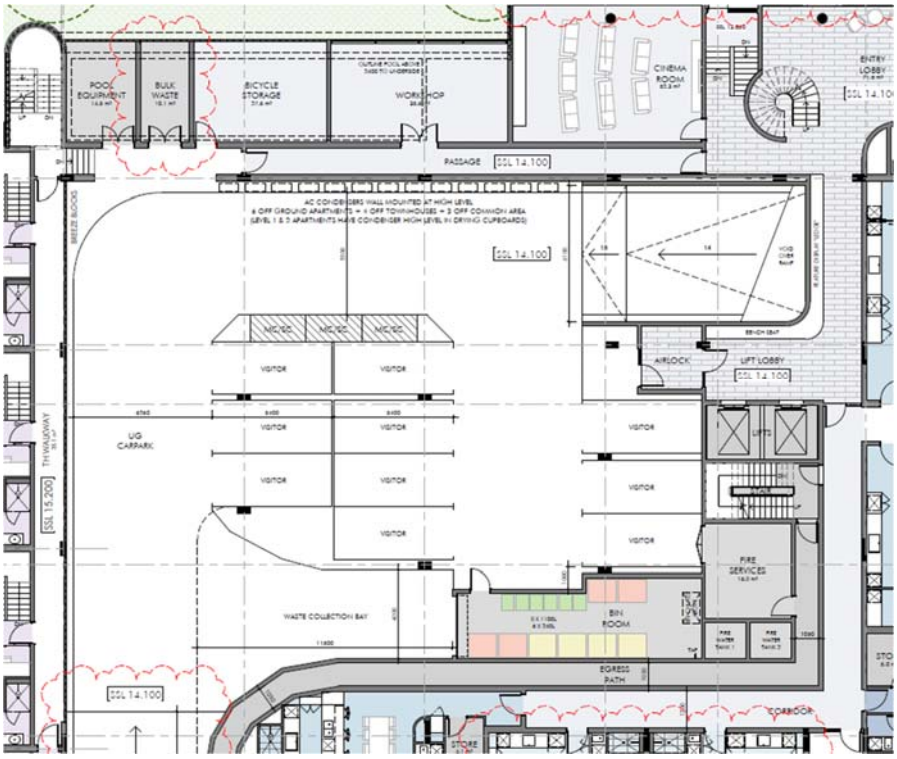

FIGURE 3 – UPPER GROUND FLOOR CARPARK AREA

A selection of the condenser units has been assumed to be included as a preliminary assessment of air-conditioning noise levels. It is noted that this is a preliminary assessment, based on assumptions. This assumption are based on condenser units emitting 53 dB(A) at a distance of 1 metre from the units.

A preliminary assessment of noise levels at the neighbouring premises namely adjacent development and apartments within this development, indicate the following noise levels are expected. It is noted that the proposed design of the development is such that the noise impact is minimised substantially. Table 6.1.1 below summarises the results of the calculations.

It is noted that these calculations are preliminary at this stage of the design process, however, are considered conservative (i.e. over prediction).

TABLE 6.1.1 – CALCULATED NOISE LEVELS

Location	Noise Level, L_{A10} dB
Apartments within development	26
Neighbouring future developments	29

With the inclusion of a + 5 dB adjustment for tonal characteristics, the assessable noise levels are as listed in Table 6.1.2.

TABLE 6.1.2 – ASSESSABLE NOISE LEVELS

Location	Noise Level, L_{A10} dB
Apartments within development	31
Neighbouring future developments	34

As can be seen from the above table, noise levels are calculated to be in compliance with the most stringent Assigned Noise Level, (ie: the night period level of 35 dB L_{A10}) for all locations – being both apartments within the development itself and neighbouring future developments.

It is noted that the above assessment is based on tentative selections and no diversity in equipment operating (i.e. all condensers operating and no accounting for lower running speeds/noise levels during the night period attributable to cooler conditions).

6.1.2 Car Park Exhaust Fans

Noise emissions from the carpark exhaust fans, will also need to comply with the Regulatory requirements. From previous projects, we believe that with careful fan selection and the incorporation of either 1D or 2D unpodded silencers, compliance with the *Environmental Protection (Noise) Regulations 1997* is normally achieved.

6.2 WASTE COLLECTION

Noise emissions from waste collection are exempt from requiring to comply with the *Environmental Protection (Noise) Regulations 1997*, under Regulation 14A.

Regulation 14A exempts waste collection from being required to meet the Assigned Noise Levels stipulated by the *Environmental Protection (Noise) Regulations 1997* provided the works are either carried out during the day period, or under a noise management plan.

It appears that the bin store is design to incorporate commercial style bins, hence, the provision of a noise management plan (if collections are to occur outside the day period) would be the responsibility of the collection agency that is contracted to undertake the work and would be no different to any other typical residential premise in the area.

Given that the waste collection bay, and bins, are located internal to the building on the Upper Ground Floor, any noise impact external to the building and immediate carparking area would be negligible.

7.0 GENERAL DESIGN COMMENTS

Any carpark gates or similar, allowing access to the carpark areas, will require to be constructed such that the system is mounted on structurally isolated mounts – reducing the potential of any structurally transmitted noise impacts from this area affecting the apartments above and within the development.

The noise impact of the gate in the surrounding area is not considered significant, given the low level of noise such gates produce and the setback into the underside of the building where they might be located.

APPENDIX A

DEVELOPMENT APPLICATION PLANS

This survey has been completed to CLASS 2/3 Accuracy
Hard Stand Areas are to Class 2 Accuracy
Horizontal Accuracy ± 20mm
Vertical Accuracy ± 20mm
All other Areas are to Class 3 Accuracy
Horizontal Accuracy ± 30mm
Vertical Accuracy ± 50mm
This note is an integral part of this plan.

The depicted Precalculated boundaries shall be treated as proposed only and may be subject to alterations in dimensions or areas prior to Deposited Plan lodgement at Landgate.
The depicted boundary locations are a graphical representation only, therefore their position is not guaranteed by MNG unless stated otherwise.
Re-establishment of lot boundaries by a Licensed Surveyor is recommended for any works on or about a boundary.
This note is an integral part of this plan

Surface features and levels have been surveyed to meet the requested scope of works accuracy. The surface may be contoured to depict topography or defined only by spot heights. For clarity on hard copy some level information is not shown, refer to 3D digital file. Above ground indicators (markers) of underground services are located where visible.
Third parties utilising this information should confirm the capture accuracies meet requirements prior to use.
This note is an integral part of this plan.

Underground services have been compiled from information obtained from a Dial-Before-You-Dig search. Service locations have not been verified by MNG. Alignments are indicative only. Prior to demolition, excavation or construction, users should satisfy themselves to the currency of services, which may have been altered or new services installed on or near the subject site. Refer to the date and method of acquisition.
This note is an integral part of this plan.

48760 48800 48840 48880
263200 263160 263120

PAVED FOOTPATH
TIMBER DECK FOOTPATH
CONCRETE PANEL RETAINING WALL
CONCRETE FOOTPATH
1m CYCLONE FENCE
1m CYCLONE FENCE
1m CYCLONE FENCE
1m CYCLONE FENCE
CONCRETE FOOTPATH
CONCRETE FOOTPATH
D A W E S V I E W
SEYMOUR AVENUE
SAND

LOT 35
2,993m²
P 417840

LOT 36
5,263m²
P 417841

45.70
53.00
58.26
67.97
71.61
39.53
95.26
8.85
8.5

94°39'27"
85°20'33"
125°12'
135°
135°
90°
84°20'47"
113°47'29"
122°00'17"

T.B.M.
RL: 13.41m
NAIL IN BITUMEN

SCALE 1:400 @ A3
0 5 10 15 20
ALL DISTANCES ARE IN METRES
For a true to scale reproduction of this plan, plot it to A3 with the Paging Scaling set to None.

N

Rev.	Description	Drawn	Date	Checked
A	Initial Issue	KDM	04/04/2022	KS

The contents of this plan are current and correct as of the date stated within the revision panel. All consultants and persons wishing to utilise this data should satisfy themselves of this plans currency by contacting the McMullen Nolan Group.

Surveyor:- KDM
Survey Date:- 31/03/2022
Precal/Cad:- 04/04/2022

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FEATURE & CONTOUR SURVEY
LOT 35 (#26) & LOT 36 (#2) SEYMOUR AVENUE
SHENTON PARK WA 6008

CLIENT:
CELCIUS DEVELOPMENTS

Project Mngr	KEN SELLERS	Datum	PCG94 / AHD

104905 - DE - 001 - A
Job Number | Type | Plan Number | Revision

ROAD FEATURES

- Traffic Junction Box
- Traffic Signals - 1 Aspect
- Traffic Signals - 2 Aspect
- Traffic Signals - 3 Aspect
- Traffic Signals - 4 Aspect
- Pedestrian Signals
- Sign On One Pole
- Sign Multiple Poles
- Overhead Sign
- Traffic Controller Box
- Finger Sign (F SIGN)
- Traffic Earth Pit
- Police Traffic Camera
- Guide Post
- Km Marker (SLKP)
- Traffic Count

ELECTRICAL

- Earth Pit (Earth)
- Electrical Pillar (E)
- Electrical Dome (WP)
- Light Pole - Directional
- Power Pole
- Transformer Single Pole
- Stay Pole
- Steel Wire Anchor
- High Mast Lighting (HL)
- Electrical Cable Marker
- MRWA Cable Marker (M T)
- MRWA Electrical Cable Box (MR)
- Electrical Cable Pit/Box (E)
- MRWA Distribution Board (EDB)
- High Tension Power Pole (PP)
- Electrical Supply Pole (EP)
- Ground Floodlight (GFL)
- MRWA Electrical Manhole
- Meter Box (MB)
- Power Meter Box
- Electrical Transformer
- MRWA Light Pole
- MRWA Multiple Light Pole

COMMUNICATION

- Telstra Pit
- Telstra Pillar
- Telstra Marker
- Telstra Pole
- Telephone Booth
- Emergency Phone (TEL)
- Antenna
- Telstra Elevated Joint (TEJ)
- Cable Marker (Optus)
- Telstra Tower
- Communication Manhole

WATER

- Water Meter (WM)
- Water Stop Valve (WA)
- Hydrant (Ground Level) (G.HYD)
- Hydrant (Pillar) (FH)
- Water Bore (WB)
- Stand Pipe
- Reticulation Sprinkler
- Reticulation Control Valve (WA)
- Well (WELL)
- Water Main Marker
- Water Tap
- Flushing Point (FP)
- Air Valve (AV)
- Peizometer (P)
- Hydrant Booster Box

GAS

- Gas Marker
- Gas Valve (GV)
- Gas Test Valve (GTV)
- LPG Tank (LPG)
- Gas Test Pit (Gas Pit)
- Gas Manhole

DRAINAGE

- Invert Level (IL)
- Overt Level (OL)
- Flood Level (FL)
- Water Line (WL)
- Flood Level Indicator (FL)
- Storm Water Grate
- Drainage Gully
- Drainage Manhole
- Drainage Headwall

SEWER

- Sewer Vent
- Sewer Line Marker
- Sewer Inspection Shaft (IS)
- Sewer Inspection Opening (IO)
- Sewer Manhole

RAIL

- Rail Traffic Signals
- Rail Traffic Control Box (RAIL)
- Rail Telephone Box
- Rail Cable Pit (RAIL)
- Rail Cable Marker
- Rail SLK Post (SLKP)
- Manhole - Rail Cable (RC)

STRUCTURE

- Deck Level (D L)
- Floor Level (FL)
- Column Centre

GENERAL

- Clothes Hoist
- Air Conditioner
- Marker Unk/Undefined
- Undefined Manhole
- Control Of Access Sign
- Count Station
- Advertising Sign (AD)
- Windmill
- Stock Trough (TROUGH)
- Litter Bin (BIN)
- Mail Box (MAIL)
- Parking Meter (PM)
- Bus Stop (BUS)
- Ticket Machine
- Borehole (BORE)
- Flag Pole (FLAG)
- Bollard
- Fuel Bowser
- Underground Filler (U/F)
- Diesel Tank (D)
- Oil Main Marker
- Security Post
- Tank (TANK)

GROUND FEATURES

- Natural Surface (12.34)
- Aerial Survey Marker

VEGETATION

- Tree Details - Canopy & Trunk
- Tree 0.1m-0.3m Trunk Diameter
- Tree 0.3m-0.5m Trunk Diameter
- Tree 0.5m-1.0m Trunk Diameter
- Tree > 1.0m Trunk Diameter
- Bush
- Die Back Area - Marker
- Nesting Tree
- Tree Trunk / Stump
- Grass Tree

SURVEY CONTROL

- Star Iron Picket
- Trig Point
- SSM
- Bench Mark (BM)
- Photo Point
- Cadastral Peg/Post (OP)
- Reference Peg (R.PEG)
- Alignment Control
- Spring Head Nail
- Spike (SP)
- TBM
- Peg Placed / Found

ROAD FEATURES

- Edge Of Bitumen
- Road Shoulder
- Edge Of Unsealed Road
- On Road
- Centre Of Road
- Kerb Top
- Kerb Bottom
- Cattle Grid
- Centre Of Driveway
- Edge Of Driveway
- Pedestrian Ramp
- Pedestrian Crosswalk
- Track
- Parking Bay
- Line Markings 1m Line & 1m Gap
- Line Markings 1m Line & 3m Gap
- Line Markings 3m Line & 9m Gap
- Lane Marking (9m*3m GAP)
- Lane Markings - Audible
- Shared Pathway - Guide Line 900mm*300mm GAP
- Footpath/Shared Path - Give Way 200mm*200mm GAP
- Giveway/Hold/Turn Lines 600mm*600mm GAP
- Double Barrier Line
- Overtaking Lane Left
- Overtaking Lane Right
- Single Solid Line
- Arrow Straight
- Arrow Straight/Left
- Arrow Straight/Right
- Arrow Left
- Arrow Right
- Arrow 3 Ways
- Arrow Right & Left
- Arrow U-Turn
- Arrow Merge
- Painted Lettering On Seal
- Painted Bicycle Traffic Signal Detector
- Guardrail - W Beam
- Guardrail - Thrie
- Barrier Concrete
- Barrier Steel Rope
- Barrier - Single Rail
- Barrier - Double Rail
- Barrier Triple Rail
- Bridge Barrier - (All Types)
- Bridge Expansion Joints
- Bridge - Outside Of Deck
- Soffit String

STRUCTURE

- Bridge
- Abutment
- Columns
- Piers
- Underpass
- Ramp
- Steps/Stairs
- Edge Of Concrete
- Bus Shelter
- Memorial
- Ruin
- Building / Structure
- Awning
- Shed
- Verandah
- Door Opening
- Window
- Roof Gutter Line
- Roof Ridge Line
- Top Of Wall
- Brick Wall
- Concrete Wall
- Livestock Grid

GROUND FEATURE

- Major Contour (10)
- Minor Contour
- Bank Bottom
- Bank Top
- Line Of Levels
- Levee Top
- Levee Bottom
- Rock Outcrop
- Ridge Line
- Borrow Pit
- Earthworks Area
- Ground Subsidence
- Rock Pitching

VEGETATION

- Tree Line/Canopy
- Bush Line
- Hedge
- Garden Bed
- Lawn Area
- Vineyard
- Plantation
- Orchard
- Nursery
- Market Garden
- Recreational Area
- Trunk Circumference Circle
- Tree-line Face Of Trunks

ELECTRICAL

- Varible Message Sign
- Electrical Structure String
- Overhead Powerlines - Null Height
- Overhead Powerlines - True Height
- High Tension Power Lines - Null Height
- High Tension Power Lines - True Height

COMMUNICATION

- Unidentifed Service Pit
- Telstra Cable (T)
- Amcom Cable

WATER

- Water Pipe (W)

GAS

- Gas Line (G)

DRAINAGE

- Drainage Pipe (D)
- Drainage Culvert
- Floodway
- Drain
- Edge Of Drain
- Sump
- Waters Edge
- Swamp
- Dam
- Edge Of Creek/Water
- Centre Of Channel
- Wet Area
- Flood Level Line
- Waterways Cross Section

SEWER

- Sewer Pressure Main (PM)
- Sewer Pipe (S)

RAIL

- Railway Platform
- On Rail
- Rail Boom Gate
- Rail Underground Cable
- Dual Gauge Rail
- Narrow Gauge Rail
- Cross Setion - Rail
- Standard Gauge Rail
- Rail U/G Cable

CADASTRAL

- MNG Precal/Re Established
- (SCDB) - State Cadastral Data Base
- Cadastre By Others

GENERAL

- Swimming Pool
- Tank Perimeter
- Mine Shaft
- Mine Workings
- Koppa Logging Fence
- Fence/Gate
- Wall
- Top Of Barrier / Wall etc
- Retaining Wall
- Boundary Line
- Footpath
- Gas Cylinder/Tank
- Brick Paving
- Bike Rack
- Bench Seating
- Handrail

UNDERGROUND SERVICES

UNDERGROUND SERVICES - inDIRECT MEASUREMENT - CLASS B

(PZA)	Underground Amcom/Vocus Cable
(PZC)	Underground Drainage Pipe
(PZE)	Underground Electrical Cable
(PZF)	Underground Western Power Comms
(PZG)	Underground Gas Line
(PZH)	Underground MRWA Comms
(PZI)	Underground MRWA Power
(PZJ)	Underground NBN Comms
(PZK)	Underground TPG /Pipe Networks
(PZN)	Underground Next Gen Comms
(PZO)	Underground Optus Fibre_Optic
(PZP)	Underground Optus Copper
(PZR)	Underground Rail Services
(PZS)	Underground Sewer Pipe
(PZT)	Underground Telstra Copper
(PZU)	Underground Unknown Service
(PZV)	Underground Telstra Optic_Fibre
(PZW)	Underground Water Pipe
(PZX)	Underground Reticulation Pipe
(PZZ)	Abandoned Service

(MAIN ROADS - SURFACE LOCATION) - CLASS B POINT MEASRUED AT GROUND LEVEL DIRECTLY ABOVE TRACED SERVICE

HA	AMCOM/VOCUS Cable - Surface Location
HC	Drainage Pipe / Stormwater - Surface Location
HE	Electrical Cable - Surface Location
HF	Western Power Communication - Surface Location
HG	Gas Line - Surface Location
HH	MRWA Communication - Surface Location
HI	MRWA Power - Surface Location
HJ	Underground NBN Fibre - Surface Location
HK	Underground TPG/Pipe Networks Surface Location
HN	Next Gen Communication - Surface Location
HO	Optus Optic_Fibre - Surface Location
HP	Optus Copper - Surface Location
HR	Rail Services - Surface Location
HS	Sewer Pipe - Surface Location
HT	Telstra Copper - Surface Location
HU	Unknown Service - Surface Location
HV	Telstra Optic_Fibre - Surface Location
HW	Water Pipe - Surface Location
HX	Reticulation - Surface Location
HZ	Abandoned Service - Surface Location

UNDERGROUND SERVICES DIRECT MEASUREMENT - CLASS A

(PQA)	Underground Amcom/Vocus Cable
(PQC)	Underground Drainage Pipe
(PQE)	Underground Electrical Cable
(PQF)	Underground Western Power Comms
(PQG)	Underground Gas Line
(PQH)	Underground MRWA Comms
(PQI)	Underground MRWA Power
(PQJ)	Underground NBN Comms
(PQK)	Underground TPG /Pipe Networks
(PQN)	Underground Next Gen Comms
(PQO)	Underground Optus Fibre_Optic
(PQP)	Underground Optus Copper
(PQR)	Underground Rail Services
(PQS)	Underground Sewer Pipe
(PQT)	Underground Telstra Copper
(PQU)	Underground Unknown Service
(PQV)	Underground Telstra Optic_Fibre
(PQW)	Underground Water Pipe
(PQX)	Underground Reticulation Pipe
(PQZ)	Abandoned Service

(MAIN ROADS - UNVERIFIED, NO MEASURMENT) DBYD COMPILED - CLASS C AND D

QA	AMCOM/VOCUS Cable - Unverified, No Measurement
QC	Drainage Pipe / Stormwater - Unverified, No Measurement
QE	Electrical Cable - Unverified, No Measurement
QF	Western Power Communication - Unverified, No Measurement
QG	Gas Line - Unverified, No Measurement
QH	MRWA Communication - Unverified, No Measurement
QI	MRWA Power- Unverified, No Measurement
QJ	Underground NBN Comms - Unverified, No Measurement
QK	Underground TPG/Pipe Networks - Unverified, No Measurement
QN	Next Gen Communication - Unverified, No Measurement
QO	Optus Optic_Fibre - Unverified, No Measurement
QP	Optus Copper - Unverified, No Measurement
QT	Telstra Copper - Unverified, No Measurement
QV	Telstra Optic_Fibre - Unverified, No Measurement
QR	Rail Services - Unverified, No Measurement
QS	Sewer Pipe - Unverified, No Measurement
QU	Unknown Service - Unverified, No Measurement
QW	Water Pipe - Unverified, No Measurement
QX	Reticulation - Unverified, No Measurement
QZ	Abandoned Service - Unverified, No Measurement

Rev.	Description	Drawn	Date	Checked
H	U/G Services Amended	SAH	30/10/2020	TKI

SCALE 1:1000 @ A3

0 10 20 30 40 50

ALL DISTANCES ARE IN METRES

For a true to scale reproduction of this plan, plot it to A3 with the Paging Scaling set to None.

The contents of this plan are current and correct as of the date stated within the revision panel. All consultants and persons wishing to utilise this data should satisfy themselves of this plans currency by contacting the McMullen Nolan Group.

Surveyor:- MNG
Survey Date:- 30/06/2020
Precal/Cad:- 30/06/2020

ISO 9001 - AS/NZS 4801 - ISO 14001 Global-Mark.com.au ©

N

The boundaries shown on this plan were not re-established as part of this survey, therefore this plan does not guarantee their accuracy. Existing easements, encumbrance or interest are not depicted and a title search is recommended to obtain this information. Re-establishment of the cadastral boundaries is recommended for any proposed works on or near existing boundaries.

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info@mngsurvey.com.au
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ABN 90 009 363 311

McMULLEN NOLAN GROUP
FEATURE SURVEY - GENERAL LEGEND

CLIENT: N/A

Project Mngr	Datum
MNG Group	LOCAL

95465 - DOC - 012 - H
Job Number | Type | Plan Number | Revision

L35 MONTARIO QUARTER
SHENTON PARK

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PRELIMINARY

SCALE 1 : 200 @A1 (1:200 (A3))

NP

DATE ISSUED 21.09.23

DRAWING NAME SITE PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD1-01

REV G

SITE AREA = 2,993 sqm

OPEN SPACE REQ'D
(20% SITE) = 599 sqm

DEEP SOIL ZONE REQ'D
(25% OPEN SPACE) = 150 sqm

DEEP SOIL ZONE PROVDED
TOTAL = 201 sqm

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L35 MONTARIO QUARTER

SHENTON PARK

PRELIMINARY

SCALE 1 : 100 @A1
1:200 (A3)
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

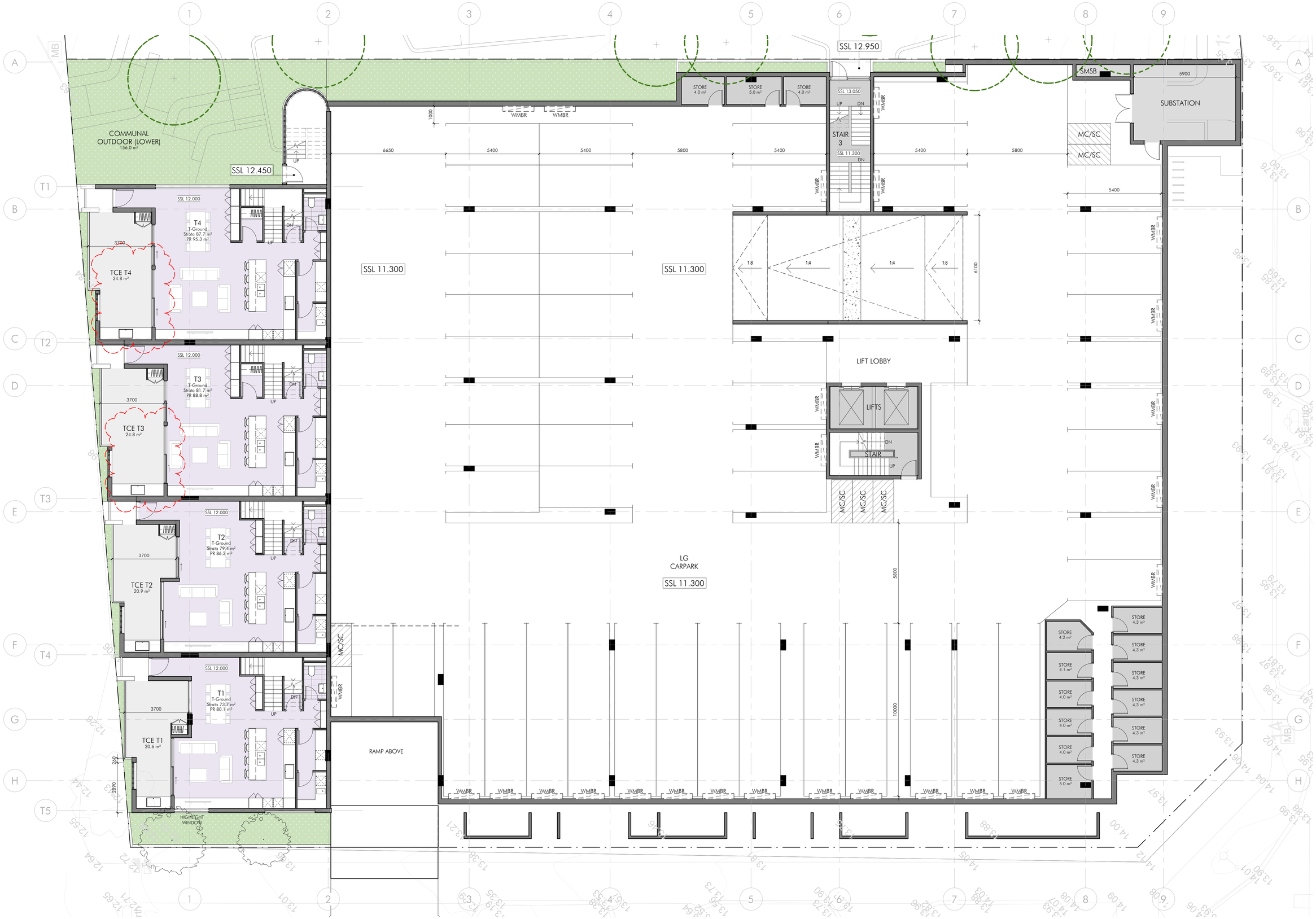
DRAWING NAME BASEMENT PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-01

REV K



L35 MONTARIO QUARTER
SHENTON PARK

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PRELIMINARY

SCALE 1 : 100 @A1
1:200 (A3)
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

DRAWING NAME LOWER GROUND FLOOR PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-02

REV K

COMMUNAL OUTDOOR (LOWER) 156.0 m²
POOL EQUIPMENT 14.5 m²
BULK WASTE 10.1 m²
BICYCLE STORAGE 27.6 m²
OUTLINE POOL ABOVE 2400 TO UNDERSIDE
WORKSHOP 35.6 m²
CINEMA ROOM 52.3 m²
SSL 12.950
SSL 13.050
ENTRY LOBBY 71.6 m²
SSL 14.100
WATER FEATURE
SCULPTURE ARTWORK
VISITOR BICYCLE RACKS (10 spaces)
MAIL & PARCEL ROOM
HI-LITE WINDOW
RL 13.750
RL 13.800
PASSAGE
SSL 14.100
AC CONDENSERS WALL MOUNTED AT HIGH LEVEL
6 OFF GROUND APARTMENTS + 4 OFF TOWNHOUSES + 3 OFF COMMON AREA
(LEVEL 1 & 2 APARTMENTS HAVE CONDENSER HIGH LEVEL IN DRYING CUPBOARDS)
BREEZE BLOCKS
VOID OVER RAMP
FEATURE DISPLAY 'LEDGE'
BENCH SEAT
AIRLOCK
LIFT LOBBY
SSL 14.100
LIFTS
STAIR
STORE 4.1 m²
BAL G06 24.8 m²
G06 Type C1 Strata 111.1 m² PR 120.8 m²
G06 Garden 3.4 m²
RL 13.900
BAL G05 24.8 m²
G05 Type C1 Strata 108.0 m² PR 117.4 m²
G05 Garden 3.4 m²
G05 Garden 5.6 m²
RL 13.900
STORE 5.0 m²
G04 Type D1 Strata 138.9 m² PR 150.9 m²
G04 Garden 5.6 m²
BAL G04 45.7 m²
RL 14.050
2000
BAL T4 8.2 m²
T4 T-Level 1 Strata 82.6 m² PR 89.8 m²
SSL 15.200
BAL T3 7.5 m²
T3 T-Level 1 Strata 77.4 m² PR 84.1 m²
BAL T2 6.7 m²
T2 T-Level 1 Strata 72.1 m² PR 78.4 m²
BAL T1 7.7 m²
T1 T-Level 1 Strata 76.3 m² PR 83.0 m²
TH WALKWAY 35.1 m²
UG CARPARK
MC/SC
VISITOR
WASTE COLLECTION BAY
8 X 1100L 6 X 240L
BIN ROOM
BIN ROOM ABOVE
FIRE SERVICES 16.8 m²
FIRE WATER TANK 1
FIRE WATER TANK 2
TAP
EGRESS PATH
CORRIDOR
SSL 13.300
RL 13.400
RL 12.525
G01 Type C4 Strata 97.6 m² PR 106.1 m²
BAL G01 20.6 m²
G01 Garden 5.1 m²
G02 Type A1 Strata 53.5 m² PR 58.2 m²
BAL G02 12.7 m²
G02 Garden 5.4 m²
RL 13.700
G03 Type A1 Strata 53.9 m² PR 58.6 m²
BAL G03 12.7 m²
G03 Garden 5.2 m²
RL 13.875
G04 Garden 10.6 m²

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L35 MONTARIO QUARTER
SHENTON PARK

PRELIMINARY

SCALE 1 : 100 @A1 (1:200 @A3)

NP

DATE ISSUED 21.09.23

DRAWING NAME UPPER GROUND FLOOR PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-03

REV K

L35 MONTARIO QUARTER
SHENTON PARK

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SCALE	NP	DATE ISSUED	DRAWING NAME	PROJECT No.	DRAWING No.	REV
1 : 100 @A1 1:200 (A3) 0 1 2 3 4 5 m		21.09.23	LEVEL 1 PLAN PROJECT PHASE SCHEMATIC	2215	SD2-04	L

L35 MONTARIO QUARTER
SHENTON PARK

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PRELIMINARY

SCALE 1 : 100 @A1
1:200 (A3)
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

DRAWING NAME LEVEL 2 PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-05

REV L

L35 MONTARIO QUARTER
SHENTON PARK

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PRELIMINARY

SCALE 1 : 100 @A1
1:200 (A3)
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

DRAWING NAME LEVEL 3 PLAN

PROJECT PHASE SCHEMATIC

PROJECT No.	DRAWING No.	REV
2215	SD2-06	L

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L35 MONTARIO QUARTER

SHENTON PARK

PRELIMINARY

SCALE	DATE ISSUED	DRAWING NAME	PROJECT No.	DRAWING No.	REV
1 : 100 @A1 1:200 (A3) 0 1 2 3 4 5 m	21.09.23	LEVEL 4 PLAN PROJECT PHASE SCHEMATIC	2215	SD2-07	L

NP

L35 MONTARIO QUARTER
SHENTON PARK

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PRELIMINARY

SCALE 1 : 100 @A1
1:200 [A3]
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

DRAWING NAME LEVEL 5 PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-08

REV J

Fixed Full Height Screen

Fixed Full Height Screen

BAL 608
36.5 m²

608
Type D3
Strata 123.5 m²
PR 134.2 m²

607
Type D4
Strata 123.6 m²
PR 134.4 m²

BAL 607
38.0 m²

Operable Sliding Full Heigt Screen

Operable Sliding Full Height Screen

Operable Sliding Full Height Screen

Operable Sliding Full Height Screen

SSL 34.400

BAL 601
39.4 m²

601
Type D10
Strata 181.5 m²
PR 197.3 m²

2810

LIFTS

STAIR
DN
UP

EGRESS

STORE
5.4 m²

STORE
5.4 m²

STORE
5.0 m²

MECH

BIN CHUTE

REFRIGERANT PIPE RISER

L6 CORRIDOR

606
Type A3
Strata 60.5 m²
PR 65.7 m²

BAL 606
22.7 m²

8000

Operable Sliding Full Height Screen

1000

1000

3000

5000

STORE
5.0 m²

602
Type D8
Strata 137.9 m²
PR 149.9 m²

BAL 602
35.3 m²

604
Type C5
Strata 83.7 m²
PR 91.0 m²

BAL 604
25.5 m²

605
Type D5
Strata 111.6 m²
PR 121.3 m²

Operable Sliding Full Height Screen

BAL 605
27.8 m²

Operable Sliding Full Height Screen

Operable Sliding Full Height Screen

Operable Sliding Full Height Screen

Operable Sliding Full Height Screen

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L35 MONTARIO QUARTER
SHENTON PARK

PRELIMINARY

SCALE 1 : 100 @A1
1:200 (A3)
0 1 2 3 4 5 m

NP

DATE ISSUED 21.09.23

DRAWING NAME LEVEL 6 PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-09

REV L

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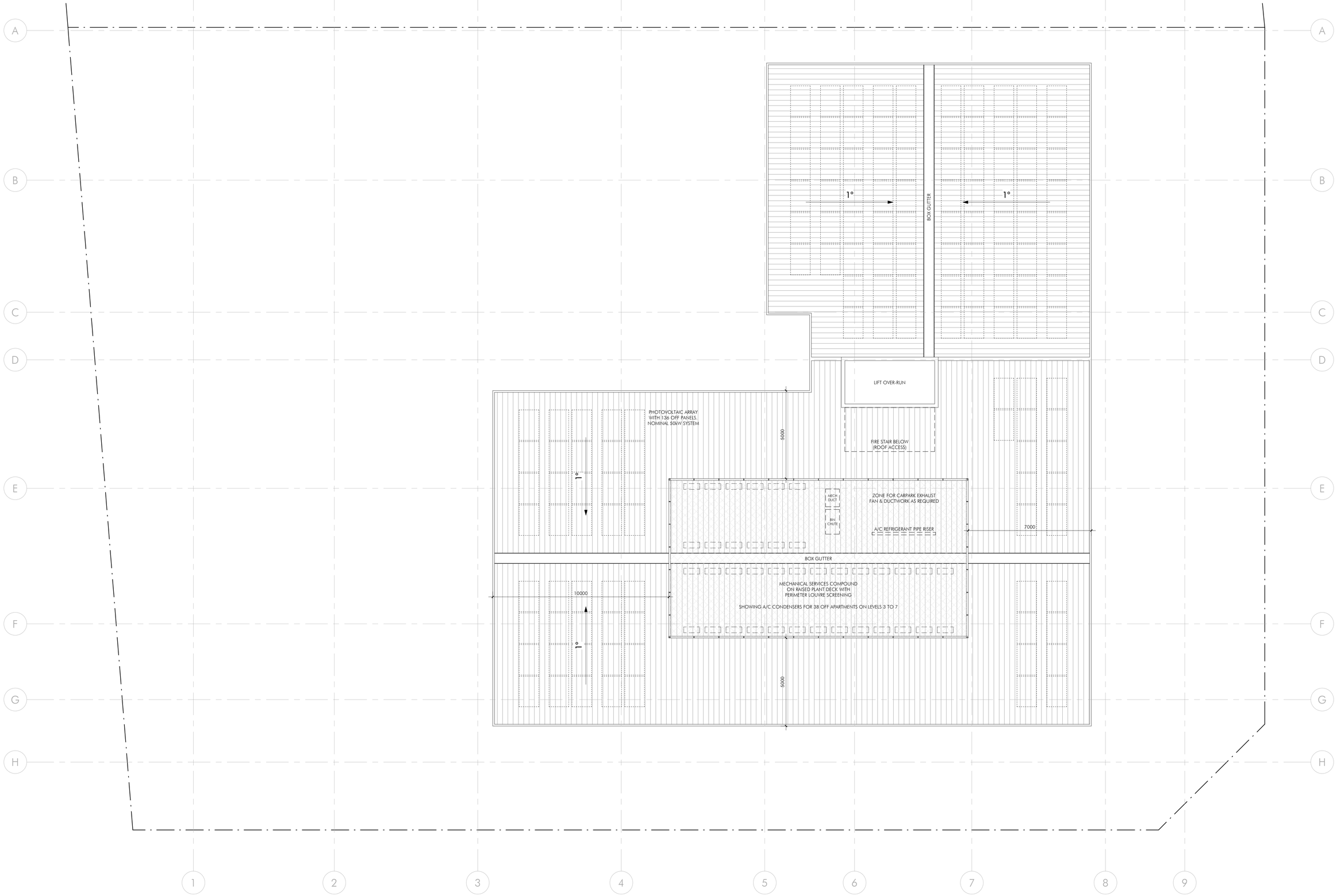
L35 MONTARIO QUARTER

SHENTON PARK

PRELIMINARY

SCALE	DATE ISSUED	DRAWING NAME	PROJECT No.	DRAWING No.	REV
1 : 100 @A1 1:200 (A3) 0 1 2 3 4 5 m	21.09.23	LEVEL 7 PLAN PROJECT PHASE SCHEMATIC	2215	SD2-10	K

NP



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L35 MONTARIO QUARTER

SHENTON PARK

PRELIMINARY

SCALE	NP	DATE ISSUED	DRAWING NAME	PROJECT No.	DRAWING No.	REV
1 : 100 @A1 1:200 (A3) 0 1 2 3 4 5 m		21.09.23	ROOF PLAN PROJECT PHASE SCHEMATIC	2215	SD2-11	I