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Our ref: 72321
Council ref: MCU/23/0025

Mareeba Shire Council
PO Box 154
Mareeba QLD 4880

via email: info@msc.qld.gov.au

Attention: Mr Brian Millard

Response to Information Request – Material Change of Use (Multiple dwelling) – 9-11 Street, Kuranda – Lot 310 on NR7409 and Lot 311 on NR7409

I refer to Council's information request dated 12 January 2024 and provide the following in response to the items raised:

Information request item 1

1. *Engineering Reports (water & waste)*

Engineering reports prepared by suitably qualified RPEQ's are required demonstrating that Council's existing infrastructure will be able to provide the minimum acceptable standard of service for water and sewerage reticulation. The report is required to provide:

- *A water supply reticulation analysis to determine the extent of upgrading required to reticulation mains, trunk mains, pumping facilities and storage capacity to facilitate connection of the proposed development to Council's reticulated water infrastructure. The water supply reticulation analysis must also demonstrate an adequate supply for fire-fighting purposes or identify how on-site fire-fighting storage will be achieved if the reticulated supply is not of a sufficient capacity and/or pressure.*
- *A sewerage supply reticulation analysis to determine the extent of upgrading required to existing mains, pumping facilities and treatment capacity to facilitate connection of the proposed development to Council's reticulated sewerage infrastructure.*

Response

The Engineering & Traffic Impact Assessment Report prepared by Civil Walker provided as **Attachment 1** addresses the information request item.

Information request item 2

2. *Traffic Impact Assessment*

Undertake a Traffic Impact Assessment (TIA), prepared by a suitably qualified RPEQ that assesses the impact of the proposed development on the local area traffic network, and which includes recommendations for required road upgrading and intersection treatments. The TIA should also address how any revised bulk refuse storage will be serviced on-site.

Response

The Engineering & Traffic Impact Assessment Report prepared by Civil Walker provided as **Attachment 1** addresses the information request item.

Information request item 3

3. Electricity Supply

Undertake a electricity supply analysis, carried out by a suitably qualified RPEQ that assess the capacity and ability of the existing reticulated electricity supply network to service the proposed development.

The electricity supply study should identify whether there is any need for back-up generators on-site to maintain critical services (water and waste) during power outages and where these back-up generators will be located.

Response

The proposed development will connect to the reticulated electricity network, with existing overhead powerlines along the road frontage to be placed underground. If necessary, the pad-mount transformer located at the corner of Coondoo and Thongon Streets will be upgraded to ensure sufficient capacity for the development.

In the event that emergency power is required to maintain essential services (such as water and waste management), an assessment will be conducted to determine the most suitable backup system. This assessment will consider options such as an internal combustion engine generator or a battery backup system to ensure reliable and sustainable support for critical infrastructure during outages.

Information request item 4

4. Telecommunications

Undertake a telecommunications analysis, carried out by a suitably qualified RPEQ that assess the capacity and ability of the surrounding telecommunications network to service the proposed development.

The analysis must determine whether the height of proposed development will have any impact on existing telecommunication services to adjoining properties, including television reception, wireless NBN services and any other satellite installations.

Response

Telecommunications services are available to the site, with current Fibre to the Node (FTTN) NBN connectivity. An upgrade to Fibre to the Premises (FTTP) is scheduled for 2025, which will enhance service quality for the development.

The subject site is not affected by volumetric controls such as a volumetric easement that provides adjoining properties with access to wireless telecommunication or other services.

Information request item 5

5. *Stormwater Analysis*

Provide an analysis of the anticipated quantity and quality of stormwater drainage associated with the development and provide a provisional/conceptual Stormwater Management Plan and Stormwater Quality Management Plan (prepared by an RPEQ) for the proposed development that demonstrates compliance with AO10.1 and AO10.2 of the Works, services and infrastructure code. Through the implementation of water sensitive urban design principles, this plan must demonstrate no net increase in the discharge rate of stormwater from the developed site.

All stormwater must be discharged lawfully from the site and where it is proposed to discharge stormwater through neighbouring downstream allotments, easements will have to established to ensure discharge occurs lawfully.

Response

The Engineering & Traffic Impact Assessment Report prepared by Civil Walker provided as **Attachment 1** addresses the information request item.

Information request item 6

6. *Parking and Access*

Provide a full set of dimensioned plans, including detailed swept path diagrams, prepared by a Registered Professional Engineer of Queensland (RPEQ) demonstrating that the on-site car parking, access and circulation areas (including car park dimensions) comply with AS/NZS 2890.1:2004 Parking facilities Part 1: Off-street parking (as amended). The swept path diagrams must be generated using a B99 vehicle and must include car park ramps and approaches to both ramps. A statement of compliance must be provided by the RPEQ.

Where bulk bins are to be used for refuse storage, the plans must also demonstrate how a standard sized commercial garbage collection vehicle is able to enter and exit the site in a forward gear to service the bulk bins.

Response

The Engineering & Traffic Impact Assessment Report prepared by Civil Walker provided as **Attachment 1** addresses the information request item.

Information request item 7

7. *Landscape Plan*

Provide a to-scale Landscape Plan prepared by a suitably qualified landscape architect or landscape designer that satisfies the requirements of the Landscaping Code.

The Landscape Plan must identify plant species to be used and how planter boxes and other landscaped areas will be managed and maintained for the life of the development.

Response

The provision of a landscape plan in support of the application for Material Change of Use is considered to be premature as this can be addressed via reasonable and relevant conditions of approval as provided for by s65 of the *Planning Act 2016*. It is requested that Council include a condition of approval requiring the provision of relevant plans and supporting information prior to works commencing, with such information to include:

- The provision of a landscape plan for both the site and the Thongon Street road frontage detailing the use of appropriate species having regard to the site location and Planning Scheme Policy 6 – Landscaping;
- The provision of a maintenance and management plan that details the maintenance and management regime that is required to ensure the landscaping is retained for the life of the development.

Information request item 8

8. Slope Stability/Geotechnical Investigation

The majority of the subject land is mapped within the Hill and slope area (slope exceeding 15%). Provide a geotechnical report (prepared by a qualified geotechnical engineer) and prepared in accordance with Planning Scheme Policy 5 that addresses the requirements of the Hill and slope overlay code. The report should address the proposed building work as well as the clearing of the site in preparation of building works commencing.

Response

The provision of a geotechnical report in support of the Material Change of Use is considered to be premature, as this level of detail is typically required to inform building work, or filling or excavation of land. To address Council's interest in this matter, reasonable and relevant conditions of approval as provided for by s65 of the *Planning Act 2016* could include the requirement to provide a geotechnical report to Council prior to the commencement of site works. Such a report could addresses:

- The stability of any area of the site requiring engineering controls;
- Any impact on the stability of the Thongon Street road reserve;
- Any required comment on the certification process of structural walls.

Information request item 9

9. Needs Assessment

The proposed development is approximately 4 times greater than the residential density envisaged for the subject site by the Planning Scheme at the time of public consultation and adoption. Provide a detailed assessment of need, demand and potential impacts of the proposed development, prepared by a suitably qualified economic professional.

Response

The proposed multiple-dwelling development will contribute to the housing supply for the Kuranda community and the broader Mareeba Shire. While not a comprehensive solution to the regional housing shortage, this development will positively impact the current housing needs by providing additional units.

The Tablelands region, including Kuranda, has one of the lowest rental vacancy rates in regional Queensland (The Cairns Post, 8 May 2022), indicating a high unmet demand for housing. The proposed development aligns with market needs and supports the Kuranda area.

Information request item 10

10. Visual Impact

Provide a visual impact assessment prepared by a suitably qualified consultant that assesses the potential visual impact of the development on the surrounding Kuranda Township and nearby residential uses. This study should include recommendations about any proposed amelioration measures.

The visual impact assessment should also demonstrate that the development will not be visible from the Kennedy Highway Scenic Route, particularly by higher vehicles such as tourist buses.

Response

The proposed development presents a form of development at the Thongon Street frontage that is consistent with the scale of the surrounding area. The building height within the surrounding streetscape has a height of 366m AHD (corner of Coondoo Street and Thongon Street) and 367m AHD opposite the site. The proposed development has a height of 367.4m AHD consistent with the established pattern of development. Sheet TP13 details the streetscape elevation and site section.

The development provides extensive areas of landscaping at each level, exemplifying the "village in a rainforest" theme through the built form. The perspectives provided within **Attachment 2** demonstrate the sight lines from various units within the development.

The subject site is removed from the Kennedy Highway Scenic Route by more than 350m and is screened from view by the existing vegetation. Sheet TP13 provides a visual representation of the change in elevation from the Kennedy Highway Scenic Route to the site from an elevated sight line from a tourist bus. This demonstrates that the site can not be viewed from the Kennedy Highway Scenic Route due to the substantial areas of vegetation that are located between the Kennedy Highway and the site.

Information request item 11

11. Air Quality/Odour

Provide an air quality and odour assessment for the proposed development, prepared by a suitably qualified RPEQ that addresses the following:

- *The potential impacts of vehicle emissions on Apartments 1- 8 and 26.*
- *The availability of natural breezes and air circulation to all apartments, in particular bedrooms with only hallway window openings.*

- *Potential odour concerns for apartments and adjoining uses in proximity to the proposed refuse storage area or any revised/relocated refuse storage area.*

Response

Air quality and odour will be part of the assessment process for the Building Certifier on this project. This project will need to comply with Part F6 of the NCC Volume 1. The Mechanical Engineer will provide an air handling report and compliance certificate before the Building Approval can be issued and this report will contain information as to how the air handling system will control: the circulation of objectionable odours; the accumulation of harmful contamination by micro-organisms, pathogens and toxins and the availability of natural ventilation to all areas required under the NCC. Additionally, it will explain how contaminated air must be disposed of in a manner which does not unduly create a nuisance or hazard to people in the building or other property. To address Council's interest in this matter, reasonable and relevant conditions of approval as provided for by s65 of the *Planning Act 2016* could be included to require demonstration to a specified standard prior to the issue of a Development Permit for Building Work.

Information request item 12

12. Noise Impact Assessment

Provide a Noise Impact Assessment (NIA), prepared by a suitably qualified Acoustic Engineer (RPEQ) that demonstrate that the proposed development is not likely to have an unacceptable impact on the residential amenity of adjacent residential land uses. The NIA should address potential noise generated by the number of vehicles using the 2-storey parking facility, as well as upper storey outdoor residential activity (keeping in mind that the development represents a residential density approximately 4 times larger than that envisaged for the land under the Planning Scheme).

Response

The provision of a Noise Impact Assessment in support of the Material Change of Use is considered to be premature, as this level of detail is typically required to inform building work. To address Council's interest in this matter, reasonable and relevant conditions of approval as provided for by s65 of the *Planning Act 2016* could be included to require demonstration to a specified standard prior to the issue of a Development Permit for Building Work.

Information request item 13

13. Privacy Assessment

Demonstrate how the proposed development will satisfy PO9 of the Medium Density Residential Zone Code and PO3 of the Accommodation Activities Code and will not have a significant impact on the privacy of neighbouring sensitive land uses to the north and east of the site.

PO9 of the Medium Density Residential Zone Code relates to overall privacy and is not limited to window heights.

The assessment should also demonstrate how privacy will be achieved internally for apartments that contain window openings to common areas and walkways.

Response

The proposed development has been designed to avoid overlooking adjoining premises through the inclusion of fixed screens and extensive areas of landscaping at each level. The perspectives provided within **Attachment 3** demonstrate that the sight lines from various units within the development will not have a significant impact on the privacy of neighbouring land uses, demonstrating compliance with Performance Outcome PO9 of the Medium density residential zone code.

The proposed development complies with Acceptable Outcome AO3 of the Accommodation Activities Code as windows of habitable rooms are either separated from windows of habitable rooms in adjoining dwellings by more than 8 metres or are provided with sill heights greater than 1.5m.

Information request item 14

> *14. External Lighting Assessment*
>
> *Provide an external lighting assessment, prepared by a suitably qualified lighting engineer (RPEQ) that demonstrate that the proposed development will not have an adverse impact on the residential amenity of adjoining landowners as a result of light spillage.*

Response

External lighting within the development will be designed and installed in accordance with *AS/NZS 4282:2019 – Control of the obtrusive effects of outdoor lightin*g. A condition of approval could require that external lighting be certified by a suitably qualified person in accordance with the above Australian Standard. Suggested condition:

> *External lighting within the development site must be installed in accordance with AS/NZS 4282:2019 ‑ Control of the obtrusive effects of outdoor lighting. The installation of external lighting must be certified by a suitably qualified person in accordance with the Australian Standard.*

Information request item 15

> *15. Shadowing/Shading Assessment*
>
> *Provide a shadowing/shading assessment, prepared by a suitably qualified professional, demonstrating that shadowing created as a result of the proposed developments building height and bulk will not adversely impact on the amenity of adjoining sensitive land uses by reducing their access to sunlight.*
>
> *The assessment must also consider any impacts on existing solar power systems in the shadow/shade footprint.*

Response

The plans of development provided as **Attachment 2** include shadow diagrams for the winter and summer solstice at 9am, 12pm and 3pm. These diagrams demonstrate that the proposed development will not adversely impact the amenity of adjoining sensitive uses nor will it impact existing or future rooftop solar power systems of adjoining premises.

Information request item 16

16. Character Assessment

Provide a building character assessment, prepared by a suitably qualified professional, demonstrating how the proposed development's built form complies with the Purpose statements, overall outcomes, and Performance Outcome PO7 of the Kuranda local plan code (Village Heart Precinct) as well as Performance Outcome PO7 of the Medium density residential zone code.

Refer to Planning Scheme Policy 1 - Character Area Design Guidelines for additional guidance in relation to the development outcomes sought.

Response

The proposed development is consistent with the building form character of the Village Heart Precinct that is proximate to the site. Existing development directly opposite the site consists of tilt wall construction fronting the property boundary, with the roof, plant and equipment concealed behind the front wall. This established form of development demonstrates a transition in the architectural style from development fronting Coondoo Street and other areas of the Village Heart Precinct.

The proposed height, scale and mass are consistent with the surrounding development as detailed in the plans of development (Sheet TP13) provided as **Attachment 2**.

The development provides an articulated façade with windows, building recesses and landscaping providing a positive contribution to the village in the rainforest theme of Kuranda.

The roof form proposed reflects that of existing buildings in the streetscape as demonstrated by existing development within Thongon Street.

Figure 1: Existing development within Thongon Street.

Information request item 17

17. Frontage Works

Provide conceptual plans of any upgrades proposed to Thongon Street as part of the development. The plans should demonstrate and be accompanied by statements of compliance against PO8 of the Kuranda local plan code. The plans should provide footpath pavement treatments in accordance with Planning Scheme Policy 9 - Footpath Paving.

Response

Frontage works will be undertaken to the Thongon Street frontage in accordance with Planning Scheme Policy 9 - Footpath Paving. The provision of concept plans for such works in advance of a development approval being issued by Council is considered to be premature. A condition of approval could require external works to be undertaken in accordance with relevant specifications, with plans and supporting information being approved by Council prior to works commencing.

Information request item 18

18. On-site Refuse Storage

The refuse storage area provided is not considered adequate for 56 residential units and therefore the development cannot comply with PO2 of the Accommodation activities code. It is considered reasonable that each unit be provided with 1 x 240 litre wheelie bin, or equivalent communal bulk/skip bin refuse storage.

Please amend the plans to provide adequate refuse storage. Additionally, please demonstrate how the refuse storage will be emptied/serviced.

Response

The Waste Management Plan (WMP) prepared by MRA Environmental, provided as **Attachment 4** addresses the waste storage and collection

Waste Generation – The development will generate approximately 0.75m³ of general waste and 0.47m³ of recycling waste daily. Waste generation estimates are based on standards from other local councils due to the lack of specific guidelines in Mareeba Shire's Planning Scheme.

Waste Storage and Servicing – A combined storage and servicing point will be located on the ground level at the southern boundary, accessible by a 40m path from the lift lobby. It will contain four 1.5m³ bulk bins for general waste. Since Kuranda lacks residential recycling services, residents will use the nearby community recycling depot on Arara Street.

Collection – The development falls under a commercial collection category, necessitating a private waste contractor for weekly general waste services. The collection point, accessible to a front-lift truck from Thongon Street, includes a hardstand and a ramped path to facilitate bin movement on collection days.

This WMP meets Mareeba Shire Council's waste management guidelines, focusing on minimising visual impact, safety, and accessibility.

Information request item 19

19. Open Space

Provide a plan/s clearly identifying the areas of both private open space and communal open space. It is noted that the development lacks standard communal recreational open space inclusions such as a gymnasium, swimming pool, gaming room and usable grassed outdoor areas.

Provide details as to how the landscape buffer at the rear of the building will be accessed and maintained.

Provide details as to how the underfloor area at the rear of the development will be accessed and maintained.

Response

Acceptable Outcome AO4.1 of the Accommodation Activities Code requires communal open space to be provided in accordance with the design parameters specified in Table 9.3.1.3C. An area of the stated area and dimensions is provided on Level 1. Facilities such as a gymnasium, swimming pool or gaming room as stated in the Information request item are not proposed.

The landscape buffer area at the rear of the building is accessed from the basement level on which it is located. This level provides access to the full extent of the landscaped area.

Access to the undercroft area is provided via Stair 02 as detailed on Sheet TP04.

Information request item 20

20. Ownership Structure

Please outline the intended ownership structure of the proposed apartment complex.

Response

The potential ownership structure of the development is considered to be independent of the land use and is not linked to a relevant assessment benchmark. The strata titling of the development would result in the development being divided into individual lots (units), each with its own title. This would provide for the separate ownership of each unit while sharing ownership of common areas such as the internal driveway, parking area and common areas. The Body Corporate and Community Management Act 1997 regulates the rights and responsibilities of unit owners, the establishment of a body corporate to manage common areas and any associated internal infrastructure, and the regulation of body corporate dealings. The strata titling of unit developments is not an uncommon practice. It is not expected that Council would include a condition regarding ownership of the proposed development, nor one that would seek to restrict the development from being strata titled.

Information request item 21

21. Domestic Pets

Please outline any proposed policies in relation to pet ownership.

Response

Council's Local Law No. 2 (Animal Management) 2018 regulates the keeping and control of animals within the local government area. Should the development be strata titled, under the Body Corporate and Community Management Act 1997 (BCCM Act), the body corporate has the authority to create and enforce bylaws that may include rules related to pets, such as whether pets are allowed, any restrictions on pet ownership (such as size or breed), and responsibilities of pet owners regarding pet behaviour, waste disposal, and potential damages caused by pets.

It is not expected that Council would include a condition regarding pet ownership within the development.

Information request item 22

22. Mail Delivery for individual units

Amend the plans to include an internal mail delivery and storage area for the apartment complex. Each apartment should be provided with an exclusive and secure mail storage box.

Response

The plans of development have been amended to provide a mailbox for each dwelling adjacent to the pedestrian entry from Thongon Street, as detailed on Sheet TP06.

Information request item 23

23. Air Conditioning and Plant

Provide details of how air conditioning will be achieved to each individual apartment, and where the associated air conditioning plant will be located and how air conditioning plant will be screened from view.

Response

Air conditioning for each apartment will be supported by mechanical services and plant equipment located on the undercroft level beneath the building. Screening will be provided as needed to ensure the plant is not visible from public view. Access to this area is available via Stair 02, as shown on Sheet TP04.

Information request item 24

24. Secure Storage

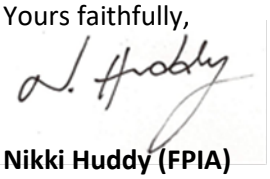
Amend the proposed plans to include secure storage required under A04.4. For this scale of development with this many individual units, Council officers consider it necessary to provide secure storage at basement level.

Response

Each unit is provided with a secure storage facility that has an area of 2.4m^2 and a minimum height of 2.1m. These storage facilities are detailed on the plans of development on the Basement and Lower Ground Level (Sheets TP04 and TP05).

If you require any further information, please call me.

Yours faithfully,



Nikki Huddy (FPIA)
Registered Planner

Att:

1. Engineering & Traffic Impact Assessment Report
2. Updated Plans of Development
3. 3d Perspectives
4. Waste Management Plan

CivilWalker
CONSULTING ENGINEERS

Thongon Street Kuranda Pty Ltd

Proposed Multiple Dwelling Development
9-11 Thongon Street, Kuranda
Engineering & Traffic Impact Assessment Report

262-001-001R

Revision B

October 2024

Prepared by:

GLF Developments Pty Ltd
t/a CivilWalker Consulting Engineers

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Document Control

Revision	Date	Reason	Author
A	30.09.24	Initial Issue	DJW
B	04.10.24	Minor Amendment	DJW

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1. Introduction

CivilWalker Consulting Engineers have been commissioned by Thongon Street Kuranda Pty Ltd to prepare an engineering report in support of a development application for an apartment block development at 9-11 Thongon Street, Kuranda. The development site is more formally described as Lots 310 and 311 on NR7409 and is identified in **Figure 1.1** below.

Specifically, this report responds to items within information requests received from Mareeba Shire Council (MSC) and the State Assessment and Referral Agency (SARA), which are attached as **Appendix A** and **Appendix B**, respectively. It responds to the following:

- MSC Information Request Item 1 – Water Supply Analysis.
- MSC Information Request Item 1 – Sewerage Analysis.
- MSC Information Request Item 2 – Traffic Impact Assessment.
- MSC Information Request Item 5 – Stormwater Analysis.
- SARA Information Request Item 1 – Stormwater and Overland Flow.
- MSC Information Request Item 6 – Parking and Access.

Figure 1.1 – Site Location (courtesy of Qld Globe)

2. Existing Conditions

The proposed development site consists of two land titles totalling approximately 2,024m² in size, being 1,012m² each. The site is currently vacant and bound by Thongon Street to the west, low density residential development to the north / east and commercial / retail development to the south. Additional commercial / retail development is located to the west on the opposite side of Thongon Street.

A site survey has been undertaken by Cross Solutions (refer **Appendix C**) which identifies that the front of the site is quite flat and then falls to the rear as follows:

- Approximately 352.40m AHD to 351.50m AHD, then falling to approximately 341.50m AHD at the rear along the northern boundary.
- Approximately 352.50m AHD to 351.50m AHD, then falling to approximately 348.00m AHD at the rear along the southern boundary.

As identified above, the site generally falls from west to east. The flatter portion of the site is cleared of vegetation and the steeper portion of the site at the rear is vegetated. A swale forms on the site at its rear on the batter, which drains north-east through adjacent freehold allotments towards the Kuranda Scenic Railway line and ultimate to the Barron River.

Existing services at the site frontage were identified through the abovementioned site survey, Council's on-line mapping portal and site inspection. Details of existing infrastructure within the area are as follows:

- Water reticulation main, including a fire hydrant and valve.
- Sewer gravity main, including manhole.
- Telecommunications pits / pipes.
- Overhead electrical poles and cables.
- Kerb and channel.
- Vehicular driveway crossover.
- Formalised on-street car parking.
- Road side signage.

Photographs of the site and surrounding area are provided below.

Photograph 2.1 – Development Site Road Frontage Looking South Along Thongon Street

Photograph 2.2 – Development Site Frontage Looking South-East From Thongon Street

Photograph 2.3 – Development Site Looking East From Thongon Street

Photograph 2.4 – Development Site Looking North-East From Thongon Street

Photograph 2.5 – Development Site Road Frontage Looking North Along Thongon Street

3. Proposed Development

The proposed development is described on Nevele drawings 11-1701 TP01 to TP14 (refer **Appendix D**) and involves the following:

- 6 storey residential apartment building.
- Vehicular access via Thongon Street.
- 56 residences (26 one-bedroom, 22 two-bedroom, 8 three-bedroom).
- 70 x off-street car parks (including 3 PWD spaces)
- Vehicle wash-down bay.
- 56 storage units (cages).
- Pedestrian access via Thongon Street.
- Off-street waste storage on street level.
- Landscaping and Signage.

4. MSC Information Request Item 1 – Water Analysis

4.1 Existing Network

A copy of Council's water supply infrastructure in the site vicinity was obtained from Council's online mapping service and site verification. The findings as follows:

- Water main in eastern verge of Thongon Street (travels passed site frontage).
- Water main in southern verge of Thooree Street (crosses road to Thongon Street eastern verge).

A series of hydrants and valves are also located on Thongon Street near the site.

4.2 Proposed Connection

It is proposed to connect the development to Council's network via the existing water main located within the eastern verge of Thongon Street, being the site road frontage.

4.3 Development Demand

Demand for the new development was calculated in accordance with Table 6.1 "Equivalent Demands" within the FNQROC Regional Development Manual. Table 6.1 identifies that the equivalent persons (EP) per connection for one, two and three bedroom apartments (units) are 1.0 EP, 1.6 EP and 2.2 EP respectively.

Demand from proposed development is therefore calculated as follows:

- One Bedroom (26 of) = 26 x 1.0 = 26.0 EP
- Two Bedroom (22 of) = 22 x 1.6 = 35.2 EP
- Three Bedroom (8 of) = 8 x 2.2 = 17.6 EP
- Total = 78.8 EP

In accordance with Council's requirements, a rate of 500 litres/EP/day was adopted. The following peaking factors were adopted to obtain flow parameters for the Mean Day Maximum Month, Peak Day and Peak Hour, as required by the FNQROC Regional Development Manual:

- Mean Day Max Month (MDMM) = 1.50 x Average Daily Consumption
- Peak Day (PD) = 2.25 x Average Daily Consumption
- Peak Hour (PH) = 1/12 x Peak Day (in hours)

Calculations to determine flow demand for the development were undertaken as detailed below:

- Average Day = 500 litres/EP/day x 78.8EP = 39,400 litres/day
- MDMM = 1.5 x 39,400 = 59,100 litres/day
- PD = 2.25 x 39,400 = 88,650 litres/day
- PH = 2.05 litres/sec

Whilst the proposed development is estimated to result in a peak hour demand of 2.05 litres/sec, to determine the additional demand compared to the previous site use, that previous site must be considered. Previous development included detached residential dwelling on each of the 1,012m² properties as shown in **Figure 4.1**.

Figure 4.1 – Previous Development (Residential Dwellings) on Site

Demand for the previous development was also calculated in accordance with Table 6.1 "Equivalent Demands" within the FNQROC Regional Development Manual, which identifies an equivalent persons (EP) per connection for single family dwellings on a lot size of between 901m² and 1,100m² as 3.1 EP, the total for both allotments therefore being 6.2 EP. Demand calculations for the previous site use are therefore calculated as follows:

- AD = 500 litres/EP/day x 6.2 EP = 3,100 litres/day
- MDMM = 1.5 x 3,100 = 4,650 litres/day
- PD = 2.25 x 3,100 = 6,975 litres/day
- PH = 0.16 litres/sec

Therefore, the additional demand due to development is estimated to be 2.05 litres/sec – 0.16 litres/sec = 1.89 litres/second.

4.4 Existing Network Pressure

Hydrant testing was undertaken by Gilboy Hydraulic Solutions on the existing water main hydrant at the property frontage on 16 April 2024 at 8:52am. Results are provided in **Appendix E**. Static pressure was recorded at 52.5m head with the logger identifying pressures over a range of flow rates up to 19 litres/sec as follows:

- 0 litres/second = 52.5m head
- 5 litres/second = 45.0m head
- 10 litres/second = 29.0m head
- 15 litres/second = 9.0m head
- 19 litres/second = 0.0m head

4.5 Assessment

For analysis, the following parameters were adopted for the peak hour demand:

- Design Flow = 1.89 litres/second
- Minimum Allowable Pressure at Floor Level = 22m head

As noted in the existing network pressure section above, static pressure (ie 0 litres/sec flow) was recorded in the main as 52.5m head. The pressure at 5 litres/second was recorded at 45.0m

head. The existing main pressure at the design flow of 1.89litres/second can be calculated by interpolation as 49.7m head.

Review of the architectural drawings identifies that floor level on the highest floor within the development will be 9.6m above the ground floor. Based on the above available head pressure (without allowing for losses through the internal water system) the floor level on the highest level is estimated to be 49.7m – 9.6m = 40.1m. The minimum allowable pressure for residential potable water is 22m head and therefore it is considered that appropriate pressure is available for the development.

Notwithstanding, during detailed design of the building the building hydraulics designer will confirm losses through the proposed internal water system and if necessary, boost pumps will be provided on site to provide appropriate pressure to the higher floors.

4.6 Fire Fighting

Section D6.07 Part 3b(ii) identifies that Council's water supply network is not intended to cater for individual property fire-fighting flow requirements and that provision for on-lot fire-fighting requirements is the responsibility of the building owner. An appropriate fire fire-fighting system shall be designed by an appropriately qualified building hydraulics consultant during the building approval phase of the project.

5. MSC Information Request Item 2 – Sewer Analysis

5.1 Existing Network

A copy of Council's sewerage infrastructure in the site vicinity was obtained from their website. A 150mm diameter gravity main along the eastern verge of Thongon Street with a manhole located at the site frontage.

5.2 Proposed Connection

It is proposed to connect the development to Council's network via the existing sewer manhole described above.

5.3 Development Loading

Demand for the new development was calculated in accordance with Table 7.1 "Equivalent Demands" within the FNQROC Regional Development Manual. Table 7.1 identifies that the equivalent persons (EP) per connection for one, two and three bedroom apartments (units) are 1.0 EP, 1.6 EP and 2.2 EP respectively.

Demand from proposed development is therefore calculated as follows:

- One Bedroom (26 of) = 26 x 1.0 = 26.0 EP
- Two Bedroom (22 of) = 22 x 1.6 = 35.2 EP
- Three Bedroom (8 of) = 8 x 2.2 = 17.6 EP
- Total = 78.8 EP

An average dry weather flow (ADWF) of 270 litres/EP/day has also been adopted in accordance with Table 7.2 "Sewerage Loading" of the FNQROC. The sewer load calculation is as follows

- ADWF = 78.8 EP x 270 litres/EP/day = 21,276 litres/day

Based on the above calculation, the ADWF sewer load from proposed development is estimated to be 21,276 litres/day. FNQROC identifies that the Peak Wet Weather Flow (PWWF) is calculated as follows:

PWWF = 5 x ADWF or C1 x ADWF, whichever is greater

The C1 factor equation is:

$C1 = 15 \times EP^{-0.1587}$ with a minimum value of 3.5

Section 5.2.2 "Sewerage" of the Queensland Government "Planning Guidelines for Water Supply and Sewerage confirms the above FNQROC formula and further clarifies that the EP to be applied in calculating the C1 factor is, "the total equivalent population in the catchment gravitating to a pump station". An extract from the guideline is provided as **Figure 8.1** below.

PWWF = (5 x ADWF) or (C_1 x ADWF), whichever is the larger

$C_1 = 15 \times (EP)^{-0.1587}$ (note: the minimum value for C_1 = 3.5)

In the above formulae, EP is the total equivalent population in the catchment gravitating to a pump station

Figure 5.1 – Extract from Queensland Government "Planning Guidelines for Water Supply and Sewerage"

The nearest sewer pump station is located a considerable distance from the site with a large catchment. As a catchment's loading increases, the corresponding C1 factor decreases and for large catchments, the figure is typically below 5.0. The PWWF flow has therefore been calculated based on multiplying the ADWF by a factor of 5.0:

PWWF = 5.0 x 21,276 litres/day
= 106,380 litres/day
= 1.23 litres/second

Similarly for water supply demand, whilst the proposed development is estimated to result in a peak hour loading of 1.23 litres/sec, to determine the additional loading compared to the previous site use, that existing use must be considered. Again, similarly for water demand, sewer loading for previous development (referencing Table 7.1 within FNQROC) = 6.2 EP (3.1 EP for each allotment). The previous site use loading is therefore calculated as follows:

- ADWF = 270 litres/EP/day x 6.2 EP = 1,674 litres/day
- PWWF = 5.0 x 1,674 litres/day = 8,370 litres/day
- PWWF = 0.10 litres/second

Therefore, the additional loading due to development is estimated to be 1.23 litres/sec – 0.10 litres/sec = 1.13 litres/second.

Council have requested a sewer network analysis to be undertaken for the proposed development, however Council have not provided details of the existing sewer network as part of the Dial Before You Dig request that was submitted. We note that it is typical for Council to provide a standard assessment manager condition requiring that existing sewers and pump stations downstream of the site are to be augmented to the extent necessary such that the development loading can be accommodated. Given that an analysis has not been able to be undertaken, we propose the following methodology to resolve:

- Council provided with the above proposed site loading for sewer.
- Council compares the proposed site loading against their planning estimates for the site.
- If the proposed demands are less than the planning estimates, no further work is needed other than an exchange of letters confirming no augmentation works are required.
- If the proposed loading is greater than planning demands, then Council either:
    - Run the existing Council sewer model with the provided sewer loading data to determine if augmentation is required; or
    - Provide a "snip" of the Council sewer model for the applicant's consultant to run the analysis to determine if augmentation is required.

6. MSC Information Request Item 2 – Traffic Impact Assessment

The scope of the traffic impact assessment is to:

- Undertake a site inspection of the subject site and external road system.
- Undertake relevant existing traffic counts.
- Calculate traffic generation resulting from development.
- Undertake an assessment of the proposed development traffic generation impact on the existing road network.
- Undertake a vehicular site access analysis to determine if appropriate design vehicles can adequately manoeuvre into and out of the site, including queue analysis.
- Undertake a turn warrant assessment to determine if changes are required to the lane configurations on Thongon Street resulting from development.
- Undertake a vehicular analysis on waste collection movements.
- Assess impact on pedestrian and cyclist connectivity.
- Assessment of impact on public transport.
- Assessment of impact on Council's future transport / road network.
- Suggest measures to mitigate any adverse impacts as a result of development.

6.1 Council's Road Network

An inspection was undertaken of the subject site and external road system within the site's vicinity on 2 September 2024. The busiest intersection in the site vicinity was clearly the Thongon Street intersection with Coondoo Street. This intersection has been assessed to determine impact on Council's existing road system.

6.2 Existing Traffic Volume

Traffic counts were undertaken at the Thongon Street / Coondoo Street intersection on Wednesday 17th April 2024 between 7am – 9am and 4pm – 5:39pm (the count was scheduled to be completed at 6:00pm, however a street brawl broke out making it un-safe for the traffic counter to remain). Raw count data and a summary of the peak hour numbers is provided in **Appendix F**. The counts identified that the AM and PM peak hours were as follows:

- AM Peak 8:00am – 9:00am (168 vehicles total)
- PM Peak 4:00pm – 5:00pm (248 vehicles total)

6.3 Development Traffic Generated Volume

Traffic generation for the proposed development has been calculated considering traffic generation data sources as nominated below.

- Guide to Traffic Engineering Developments, RTA (2002)
- The Victorian Department of Planning, Transport and Infrastructure Report "Trip Generation Rates for Assessment of Development Proposals" (2014)
- The Department of Main Roads Road Planning and Design Manual Chapter 3 (2005)

In assessing the above documents, reference is made to medium and high density development and therefore the development density must first be determined. The RTA document defines medium density development as smaller units and flats (up to two bedrooms) and high density development as “CBD centres”. The Victorian publication defines medium density development as small residential developments with dwellings over three levels and is silent on high density development. The Main Roads document defines medium density development as smaller units (up to two bedrooms) and high density development as “in the CBD”.

All documents identify smaller traffic generation rates for high density development. This is because it is considered that residents will tend to walk more, rather than utilise a vehicle, given the closer proximity of services in a CBD area.

A mixture of one to three bedroom apartments is proposed and the development is removed from a significant “CBD” area. It is therefore considered that adoption of the higher generation rate for medium density is considered appropriate; this is because it is considered that residents will tend to utilise a vehicle more often than if they were located near a typical CBD area.

6.3.1 Guide to Traffic Engineering Developments, RTA (2002)

This document suggests peak hour traffic generation rates for medium density residential development of up to 0.65 trips / dwelling the peak hour.

It is noted that the above generation rates include visitors, service / delivery and on-street movements such as taxis, uber vehicles and pick-up / set-down activities.

6.3.2 Trip Generation Rates for Assessment of Development Proposals, DPTI (2014)

This document provides weighted average peak hour vehicle trips for medium density residential development of 0.53 trips / dwelling in the peak hour.

6.3.3 Road Planning Design Manual, Chapter 3, Main Roads (2005)

This document does not provide peak hour vehicle trip rates for medium density development, but rather provides a daily rate of up to 6.0 trips / day per dwelling.

6.3.4 Adopted Rate and Calculated Traffic Generation

Based on review of the above traffic generation sources, the adopted rate for the purpose of this report is the RTA (2002) document suggested value of 0.65 trips / dwelling, which includes visitors, service / delivery / waste collection vehicles and on-street movements such as taxis, uber vehicles and pick-up / set-down activities.

Table 6.1 – Proposed Development Traffic Generation

Land Use	Yield	Peak Traffic Generation Rate	Peak Traffic Generation (trips / hour)
Medium Density Residential	56 dwellings	0.65 trips / dwelling	36.4

Based on the above calculation, the additional traffic generated by the proposed development is estimated be 36.4 vehicle trips in the peak hour. This has been rounded to:

Estimated Peak Hour Generated Traffic due to Development = **37 vehicle trips**

It is noted that a trip is defined as a one-way vehicular movement from one point to another and excludes any return trip. Therefore, the return movement to / from a land use is counted as a separate trip.

It is common to misinterpret that generated traffic calculations are required to be doubled to allow for return trips. This is not correct. Generated traffic calculations allow for the total number of trips associated with a land use. As noted by the definition, a single trip is either a vehicle arriving or a vehicle leaving a site. The calculated number of trips for the development is 37, which can be represented by 18 vehicles arriving and 17 vehicles leaving or any combination of arriving / leaving vehicles to obtain the total of 37 trips calculated.

6.4 Traffic Distribution

For the purpose of considering traffic impact, it has been conservatively assumed that all development traffic in the peak hours access the site via the Coondoo Street / Thongon Street intersection. This is considered conservative because a small volume of traffic is likely to access other streets / head in different directions with negligible impact on those other routes.

Traffic distribution has been adopted as shown on drawings 262-001-T01 and T02 within **Appendix F**.

6.5 Impact Assessment

All new developments may potentially affect an existing road due to:

- Increase in traffic volume.
- Increase in the number of conflict points between vehicles, pedestrians, and cyclists.
- The presence of new infrastructure, such as access roads and driveways.
- Changes to existing infrastructure.

The desired outcome of a new development is that existing road safety is not significantly worsened resulting from development. It is noted that safety is not readily quantifiable, and the condition of a road cannot be defined as being “absolutely” safe or “absolutely” unsafe. Rather, road safety is a relative measure bench marked against an existing condition or an acceptable risk threshold. For impacts of development on road safety, risk is considered in terms of changes in the likelihood (how often an event or situation is expected to take place) and consequence (the effect, result, or outcome of something occurring).

An assessment is necessary for new developments to determine if there is likely to be any significant change to the level of road safety risk on the road resulting from development. This has been undertaken by:

- identifying the likely new risks or modification to existing risks resulting from the development; and
- recommending mitigation works to allow for a no significant worsening of safety risks resulting from development, if required.

The following sections describe the assessment undertaken.

6.5.1 Increase in Traffic Volume / Intersection Capacity

As identified in **Section 6.3.4** of this report, the additional peak hour traffic generated by development is estimated to be 37 vehicles trips. Attached drawing 262-001-T1 identifies the

existing traffic distribution based on the site count undertaken, the adopted generated traffic generation and the post-development traffic generation.

A SIDRA analysis of the Thongon Street / Coondoo Street intersection was undertaken to determine the proposed development's impact. Modelling was undertaken using SIDRA Intersection 9.1 Plus. The modelled intersection is shown in **Figure 6.1**.

Figure 6.1 – Thongon Street / Coondoo Street Modelled Intersection

The core performance elements used to assess intersection capacity are "Degree of Saturation" and "Level of Service" based on delay. Degree of Saturation is a pass/fail performance indicator and therefore if the reported value is greater than the acceptable value for any lane or leg, then the intersection is deemed not acceptable. The following are considered acceptable performance criteria for the Degree of Saturation for different intersection types:

- Signals 0.90
- Roundabouts 0.85
- Sign Controlled 0.80
- Continuous Lanes 0.98

The Thongon / Coondoo Street intersection is a give-way "sign controlled" arrangement (priority to Thongon Street) and therefore an acceptable degree of saturation is 0.80.

Level of Service of each individual lane and leg has been assessed and compared to the allowable minimum values adopted based on road hierarchy. The following are acceptable performance criteria for Level of Service:

- Sub-Arterial Road D
- Collector Road D
- Access Road D

All road types require the same level of service and therefore "D" has been adopted.

Movement summary results from the existing intersection analysis are contained within **Appendix F**. **Tables 6.2** and **6.3** summarise the level of service, average delay, degree of saturation, queue length and queue capacity (adopted as approach distance for full length lanes, being the mid-block distance) in the AM and PM peak hours.

Table 6.2 – Existing Intersection Performance AM Peak

Movement	Level of Service	Average Delay (seconds)	Degree of Saturation (%)	95% Queue Length (m)	Queue Capacity (m)
Thongon Street (South Leg)					
Left Turn	A	4.6	0.035	0.1	0.8
Through	A	0.1	0.035	0.1	0.8
Right Turn	A	4.6	0.035	0.1	0.8
Coondoo Street (East Leg)					
Left Turn	A	4.6	0.023	0.1	0.7
Through	A	3.7	0.023	0.1	0.7
Right Turn	A	5.2	0.023	0.1	0.7
Thongon Street (North Leg)					
Left Turn	A	4.5	0.039	0.2	1.1
Through	A	0.1	0.039	0.2	1.1
Right Turn	A	4.5	0.039	0.2	1.1
Coondoo Street (West Leg)					
Left Turn	A	5.7	0.020	0.1	0.5
Through	A	4.7	0.020	0.1	0.5
Right Turn	A	6.2	0.020	0.1	0.5

In the AM peak, the degree of saturation is 0.039, which is considerably below the maximum performance criteria value of 0.80 being 5% of the allowable capacity. Level of Service for each lane is considerably less than the maximum “D” requirement, with all movements performing at a Level of Service “A”. All vehicle queues are well below capacity, with a maximum average queue length of 1.1m.

Table 6.3 – Existing Intersection Performance PM Peak

Movement	Level of Service	Average Delay (seconds)	Degree of Saturation (%)	95% Queue Length (m)	Queue Capacity (m)
Thongon Street (South Leg)					
Left Turn	A	4.6	0.039	0.1	0.6
Through	A	0.1	0.039	0.1	0.6
Right Turn	A	4.6	0.039	0.1	0.6
Coondoo Street (East Leg)					
Left Turn	A	4.7	0.057	0.2	1.5
Through	A	3.8	0.057	0.2	1.5
Right Turn	A	5.3	0.057	0.2	1.5

Thongon Street (North Leg)					
Left Turn	A	4.6	0.058	0.2	1.7
Through	A	0.1	0.058	0.2	1.7
Right Turn	A	4.5	0.058	0.2	1.7
Coondoo Street (West Leg)					
Left Turn	A	5.7	0.030	0.1	0.8
Through	A	4.9	0.030	0.1	0.8
Right Turn	A	6.5	0.030	0.1	0.8

In the PM peak, the degree of saturation is 0.058, which is considerably below the maximum performance criteria value of 0.80 being 7% of the allowable capacity. Level of Service for each lane is considerably less than the maximum “D” requirement, with all movements performing at a Level of Service “A”. All vehicle queues are well below capacity, with a maximum average queue length of 1.7m.

It is considered that the existing intersection is performing well within the allowable capacity which is consistent with site observations during the traffic count.

Assessment was then undertaken for the intersection with proposed development generated traffic included and the existing traffic volumes grown at 2.5% for a period of 10 years. Movement summary results for this scenario are also contained within **Appendix G**. **Tables 6.4** and **6.3** summarise the level of service, average delay, degree of saturation, queue length and queue capacity.

Table 6.4 – Post Development (Plus 10 Year Growth) Intersection Performance AM Peak

Movement	Level of Service	Average Delay (seconds)	Degree of Saturation (%)	95% Queue Length (m)	Queue Capacity (m)
Thongon Street (South Leg)					
Left Turn	A	4.6	0.044	0.1	1.0
Through	A	0.1	0.044	0.1	1.0
Right Turn	A	4.6	0.044	0.1	1.0
Coondoo Street (East Leg)					
Left Turn	A	4.6	0.025	0.1	0.7
Through	A	3.9	0.025	0.1	0.7
Right Turn	A	5.6	0.025	0.1	0.7
Thongon Street (North Leg)					
Left Turn	A	4.6	0.066	0.3	2.1
Through	A	0.2	0.066	0.3	2.1
Right Turn	A	4.5	0.066	0.3	2.1

Coondoo Street (West Leg)					
Left Turn	A	5.7	0.029	0.1	0.8
Through	A	4.9	0.029	0.1	0.8
Right Turn	A	6.5	0.029	0.1	0.8

In the post development AM peak, the degree of saturation is 0.066, which is considerably below the maximum performance criteria value of 0.80 being 8% of the allowable capacity. Level of Service for each lane is considerably less than the maximum "D" requirement, with all movements performing at a Level of Service "A". All vehicle queues are well below capacity, with a maximum average queue length of 2.1m.

Table 6.5 – Post Development (Plus 10 Year Growth) Intersection Performance PM Peak

Movement	Level of Service	Average Delay (seconds)	Degree of Saturation (%)	95% Queue Length (m)	Queue Capacity (m)
Thongon Street (South Leg)					
Left Turn	A	4.6	0.051	0.1	0.8
Through	A	0.1	0.051	0.1	0.8
Right Turn	A	4.7	0.051	0.1	0.8
Coondoo Street (East Leg)					
Left Turn	A	4.7	0.079	0.3	2.1
Through	A	4.1	0.079	0.3	2.1
Right Turn	A	5.8	0.079	0.3	2.1
Thongon Street (North Leg)					
Left Turn	A	4.6	0.079	0.3	2.4
Through	A	0.2	0.079	0.3	2.4
Right Turn	A	4.6	0.079	0.3	2.4
Coondoo Street (West Leg)					
Left Turn	A	5.7	0.054	0.2	1.5
Through	A	5.2	0.054	0.2	1.5
Right Turn	A	6.9	0.054	0.2	1.5

In the PM peak, the degree of saturation is 0.079, which is considerably below the maximum performance criteria value of 0.80 being 10% of the allowable capacity. Level of Service for each lane is considerably less than the maximum "D" requirement, with all movements performing at a Level of Service "A". All vehicle queues are well below capacity, with a maximum average queue length of 2.4m.

It is considered that the existing intersection will continue to perform well within the required capacity after development and in the 10 year horizon and therefore proposed development is not considered to have an adverse impact.

6.5.2 Conflict Points

The existing site contains a vehicular access crossover that was utilised for previous development (now demolished). The existing access allows for all movement access to the site (i.e. left-in, left-out, right-in and right-out). Proposed development seeks to replace the existing access crossover with an updated crossover which allows for the same all movement access. Therefore, there is no increase in conflict points between vehicles, pedestrians and cyclists. It is therefore considered reasonable to conclude that proposed development will not result in an increase in the number conflict points at the site frontage.

6.5.3 Presence of New Infrastructure / Site Access Turn Warrant Assessment

A turn warrant assessment at the proposed site access location has been undertaken in accordance with the Austroads Guide to Road Design Part 4: Intersections and Crossings to determine if any new road infrastructure in the form of turning lanes at the site frontage is required. Figure A10(b) within the Austroads Guide (reproduced as **Figure 6.2** below) provides the analysis tool to determine appropriate turn treatments based on vehicle volumes.

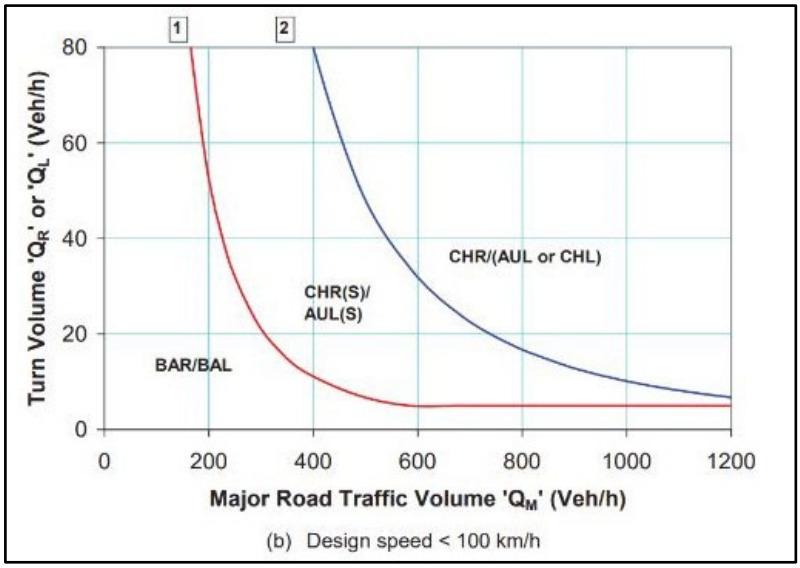


Figure 6.2 – Austroads Turn Warrants

In the post-development (plus 10 year horizon) scenario, the turn warrant parameters are as follows (refer traffic distribution on drawings 262-001-T01 and T02 for details):

AM Peak

- Q_L = 25 vehicles
- Q_R = 10 vehicles
- Q_{T1} = 41 vehicles
- Q_{T2} = 83 vehicles
- Q_m (left-hand turn) = 83 vehicles
- Q_m (right-hand turn) = 41 + 83 + 25 = 149 vehicles

PM Peak

- Q_L = 10 vehicles
- Q_R = 25 vehicles

- Q_{T1} = 81 vehicles
- Q_{T2} = 121 vehicles
- Q_m (left-hand turn) = 121 vehicles
- Q_m (right-hand turn) = 81 + 121 + 10 = 212 vehicles

Figures 6.3 and **6.4** below identify that for both left-hand (green line work) and right-hand (red line work) turn movements, standard BAL / BAR turn treatments are appropriate and therefore separate turn lanes are not warranted at the development access driveway.

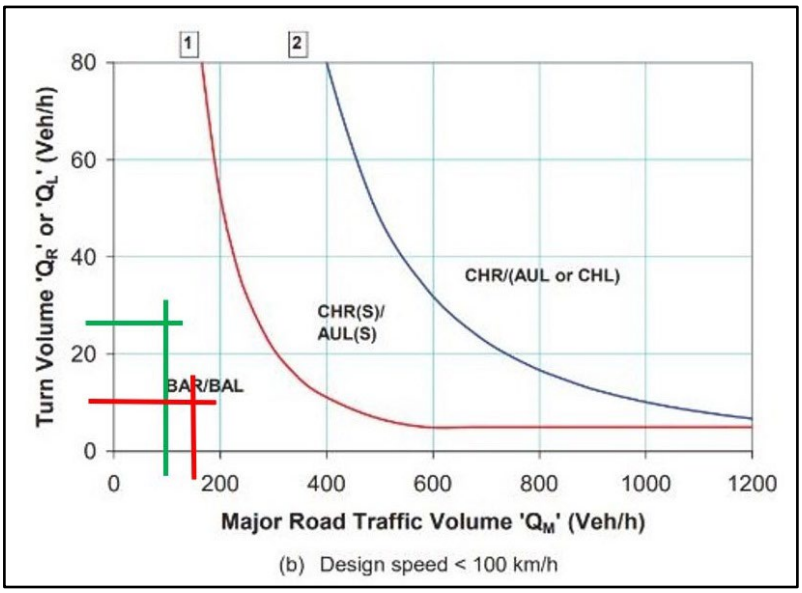


Figure 6.3 – AM Peak Hour Turn Warrant Assessment

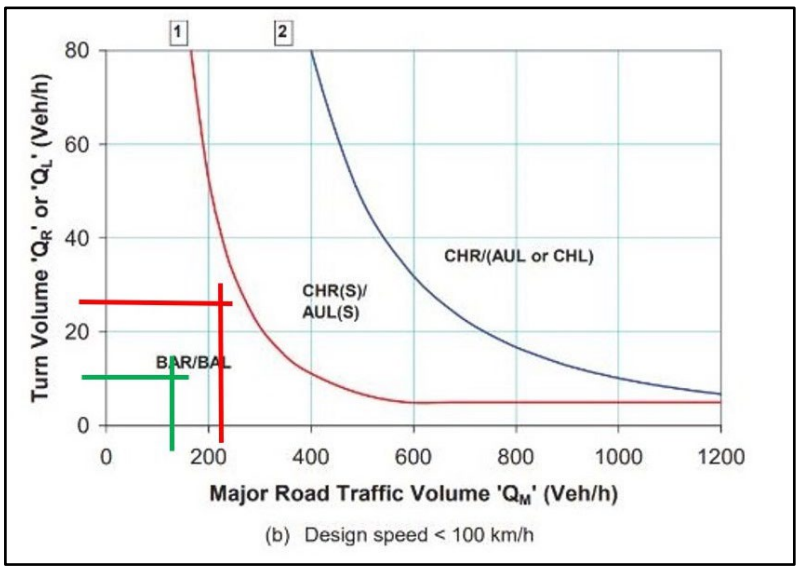


Figure 6.4 – PM Peak Hour Turn Warrant Assessment

As noted in **Section 2** of this report, existing site frontage infrastructure includes kerb / channel and a vehicular access driveway. Proposed development does not seek to introduce new infrastructure other than a new pathway for pedestrian access. The existing kerb / channel will remain and the existing vehicular access driveway will be demolished and replaced with a new FNQROC standard arrangement to suit the proposed layout.

It is therefore considered that no new infrastructure will have an adverse impact on the road network.

6.5.4 Vehicle Queuing

Clause 3.4 within AS/NZS 2890.1 notes that queuing areas are to be provided at entry points to a development to allow free influx of traffic which will not adversely affect vehicular traffic or pedestrian flows at the frontage road. Table 3.3 within the Standard identifies minimum queue lengths based on car park capacity, which in this scenario is 70 car parks.

Table 3.3 within AS/NZS 2890.1 nominates that, for a facility with no more than 100 parking spaces, a minimum queueing length shall be provided, being two cars or 3% of the car park capacity, whichever is greater. The calculated queue length capacity is therefore:

Calculated Queue Capacity = 3% x 70 = 2.1 cars or 2 cars, whichever is greater.

It is considered reasonable to adopt a required vehicle queue length of 2 cars. AS/NZS 2890.1 requires that a length of 6m be allocated for each vehicle and therefore a queue length of 12m is required.

Survey data identifies that the existing verge at the property frontage is 10.3m wide. The Nevele building drawings identify that the site access garage door will be offset from the frontage boundary by 3.0m. This provides a queueing distance at the site access of 13.3m to the kerb / channel which meets the minimum 12m requirement. It is therefore considered reasonable to conclude that vehicle queueing will not create an adverse impact on the road network.

6.5.5 Pedestrian Connectivity

Existing pedestrian facilities at the site frontage on Thongon Street are provided via grassed verges within the road reserve. Development does not impact on those existing arrangements, and it is therefore considered reasonable to conclude that the proposal will not adversely impact on existing pedestrian connectivity.

6.5.6 Cyclist Connectivity

There are no existing dedicated bicycle lanes at the site frontage on Thongon Street. Notwithstanding this, development does not propose to adjustments on the existing road carriageway and therefore cyclist movements would remain unaffected. It is therefore considered reasonable to conclude that the proposal will not adversely impact on existing cyclist connectivity.

6.5.7 Council's Future Transport / Road Network

The proposal does not seek to make adjustments to Council's existing road network and therefore it is considered reasonable to conclude that development will impact on Council's future transport or road network plans.

6.5.8 Public Transport

There are no designated bus routes or bus stops within the site vicinity and therefore it is considered reasonable to conclude that development will impact on the public transport network.

6.5.9 Waste Collection Vehicle Movement

Council's information request asked for commentary to be provided on how waste collection vehicles will access the proposed refuse areas. Reference is made to Section 8 "MSC Information Request Item 6 – Access and Parking" within this report which includes commentary on that item.

6.5.10 Proposed Mitigation Measures

Based on the above impact analysis, the following is noted:

- Additional traffic generated by proposed development does result in adverse impacts at the Thongon Street / Coondoo Street intersection with the intersection continuing to perform well within acceptable limits.
- A vehicle turn warrant assessment has identified that no left-in or right-in turn lanes are required for the development.
- No adjustments to Council's existing road network are proposed.
- Analysis has identified that appropriate queuing is available for vehicles entering the proposed development.
- Pedestrian connectivity is not adversely impacted by the proposal.
- Cyclist connectivity is not adversely impacted by the proposal.
- There is no adverse impact on the public transport network.

It is therefore considered that no traffic mitigation measures are required resulting from development.

7. MSC Information Request Item 5 and SARA Information Request Item 1 - Stormwater Drainage

7.1 Existing Drainage Regime

The existing site is vacant and falls to the rear. Overland sheet flow runs across the site and is collected by an existing swale drain located at the rear of the property, which drains north-east through adjacent freehold allotments towards the Kuranda scenic railway line and ultimate to the Barron River. The existing drainage regime is further described on drawing 262-001-SK05 (**Appendix G**).

7.2 Proposed Drainage Regime (The Stormwater Management Plan)

Under proposed development, the following drainage regime is proposed:

- The general fall of the land (i.e. concept earthwork arrangement) will remain as per the existing scenario with fall to the rear.
- Site run-off will be directed to grated stormwater pits on site.
- Inlet pits will capture the flow and direct it into a shallow underground drainage network.
- Roof water drainage will also be directed to the above shallow underground drainage network via a system of roof water down pipes.
- The underground drainage network will direct flow into a proposed detention system (refer **Section 7.3**).
- Controlled attenuated flow from the detention system will then outlet to the existing swale drain located at the rear of the site.

Stormwater design will be undertaken using the Rational Method in accordance with FNQROC and QUDM. A concept stormwater drainage management arrangement is shown on drawing 262-001-SK06 (**Appendix G**).

The proposed regime will result in no increase in stormwater discharge from the site and therefore no adverse impact on the adjacent freehold allotments or the Kuranda scenic railway.

7.3 Stormwater Quantity

Stormwater quantity management has been calculated based on the site as it currently exists and therefore is conservative because it does not consider the impervious areas from previous development (refer **Figure 7.1** below that shows previous dwellings located on the site) that would have generated higher flows and velocities.

Figure 7.1 – Previous Development (Residential Dwellings) on Site

The proposed development will result in an increase in impervious area for the site and therefore increased stormwater run-off. Council's planning scheme requires that there is no impact on adjacent properties or actionable nuisance resulting from increase in stormwater run-off from development (i.e. requirements from the Queensland Urban Drainage Manual, QUDM). The increase in impervious area will result in additional flow from the site into the existing swale that runs generally northward through other freehold allotments prior to outleting to the Barron River via the Kuranda scenic railway line. It is critical that proposed development does not adversely impact on those freehold allotments and the railway line.

It is therefore considered necessary that the increase in stormwater run-off from the site be appropriately attenuated so that flows and velocities leaving site are no greater than pre-development flows / velocities. This is proposed to be undertaken by introducing detention within the development.

Preliminary sizing of the volume required to limit peak discharge from the development to pre-development levels has been undertaken in accordance with the fourth edition of QUDM (2016) by calculating the effective reduction in the site's "initial loss" capabilities. The initial sizing method has been adopted and assumes that the detention structure storage volume effectively compensates for the decrease in initial loss component, while the structure low-flow discharge system compensates for the decrease in the "continuing loss rate". QUDM notes that such an assumption is considered appropriate for the initial sizing of detention basins.

QUDM notes that in the absence of a local government policy, it is recommended that the "pre-development condition" is taken as the site condition that existed 15 years prior to the proposed development. The reason for this is that if the land has existed in a specific condition for at least 15 years, then downstream lands and waterways have probably adjusted their function / use to the catchment condition. Whilst the pre-development condition is therefore considered to be that as characterised by the previous residential dwellings and other ancillary structures that were previously on site, the pre-development condition has been conservatively adopted as vacant.

QUDM recommends values of initial loss to be used in the preliminary sizing of detention basins. Pre- and post-development initial loss potentials were determined from assessment of Table 5.6.1 of QUDM. To appropriately assess these figures, the existing soil conditions needs to be understood. Geotechnical data was not available for the site at the time of writing this report; however, a site visit indicated that the existing material could be characterised as "loamy clay" (rather than "sand", "sandy loam" or "clay". The pre-development open space site has therefore been assumed "loamy clay" (i.e., Group C within Table 5.6.1 of QUDM) for surface run-off

assessment purposes. It is recommended that the material type be confirmed prior to detailed design of the detention system during the building approval phase.

To calculate he intial loss potential for the pre-development condition, the “site condition” has to be assessed. Table 5.6.1 within QUDM identifies differing conditions ranging from “bushland” to “long grass” to “bare soil”. The flatter portion of the site is grassed, however the rear batter on the site is vegetated and therefore considered more appropriately categorised as bushland. Meausing from site survey, the flatter grassed section (categorised as “long grass (meadows)” (considered more appropriate than “short grass (healthy lawns)” was calculated to be 268m² and the vegetated batter (catergorised as “bushland (healty, unburnt)” was calculated to be 1,756m². Therefore, an initial loss potential for the pre-development condition has been calculated from QUDM as follows:

$$\text{Initial Loss (Pre)} = \frac{268\text{m}^2 \times 35\text{mm} + 1{,}756\text{m}^2 \times 30\text{mm}}{2{,}024\text{m}^2} = 31\text{mm}$$

The developed site will be characterised by a mixture of impervious services and landscaped areas. Landscaped areas are identified on Nevele’s drawings (**Appendix C**) and measure at 406m² (refer Nevele cover drawing sheet for landscape schedule). The balance of the site (1,618m²) will be impervious. Landscaped areas have been categorised as “healthy lawns” (being conservative from an initial loss perspective) and therefore, in accordance with Table 5.6.1 of QUDM:

$$\text{Initial Loss (Post)} = \frac{406\text{m}^2 \times 30\text{mm} + 1{,}618\text{m}^2 \times 2\text{mm}}{2{,}024\text{m}^2} = 8\text{mm}$$

The preliminary calculated storage volume for development is therefore:

Preliminary Detention Volume = 2,024m² x (31mm – 8mm) = 46.6m³ (or 46,600 litres).

It is proposed that an detention tanks be adopted to provide the 46.6m³ volume and that these be located under the lower basement level. The system will operate such that low flow outlet pipes discharge stormwater into the existing rear of site swale drain so that pre-development flows and velocities are not exceeded.

Detailed design of the detention system shall be undertaken during the building approval phase of the project using an appropriate run-off routing methodology. The final detention system shall designed under the direct supervision (and certified) by a Registered Professional Engineer of Queensland.

7.4 Stormwater Quality

FNQROC references the State Planning Policy (SPP) within the Queensland Government’s Legislative framework for water quality requirements. Water Quality is covered within the SPP “State Interests Policies and Assessment Benchmarks”, Part E “Environment and Heritage”, which further references Table B within its Appendix 2. Table B identifies that application of water quality objectives to achieve 80% reduction in mean annual load of total suspended solids, 60% in total phosphorous, 40% in total nitrogen and 90% in gross pollutants (>5mm) is required when a development involves:

1. A material change of use for an urban purpose that involves premises 2,500m² or greater and:
    a. will result in six or more dwellings; or
    b. an impervious area greater than 25% of the net developable area.

2. Reconfiguring a lot for urban purposes that involves premises 2,500m² or greater and will result in six or more lots.

The proposed development site is 2,024m² and therefore does not meet the above criteria. It is therefore not subject to water quality requirements for treatment. Therefore, no water quality treatment devices are proposed.

7.5 Lawful Point of Discharge

We reference Council's comment within Item 5 of the information request that notes:

> *"All stormwater must be discharged lawfully from the site and where it is proposed to discharge stormwater through neighbouring downstream allotments, easements will have to be established to ensure discharge occurs lawfully."*

Reference is made to Section 3.9 "Lawful Discharge of Stormwater" within the Queensland Urban Drainage Manual (QUDM) which provides a lawful point of discharge test. Specifically, Section 3.9.1 identifies the criteria for determining if a discharge point represents a "lawful point of discharge". It notes:

> *Will the proposed development alter the site's stormwater characteristics in a manner that may substantially damage a third party property?*
>
> - *If not, then no further steps are required to obtain tenure for a lawful point of discharge.*
> - *If there is a reasonable risk of such damage, then consider issue (ii) or (iii).*

Items (ii) and (iii) then provide further guidance on how to proceed.

It is noted that the proposed development will not alter the site's stormwater characteristics in a manner that may substantially damage a third party property. The proposal is to provide detention such that post-development flows and velocities outlet to the existing swale drain which are no greater than pre-development flows and velocities (from the existing cleared site). It is noted that proposed development will provide an improved scenario over previous development on the site (now demolished) which included impervious areas that were not attenuated.

Therefore, in accordance with QUDM (which forms part of Council's planning scheme), the proposal represents a lawful point of discharge.

Whilst easements on downstream properties may pursued, freehold allotment owners are under no obligation to provide easements and therefore it is considered unreasonable for Council to require such easements to be obtained when a lawful point of discharge in accordance with QUDM is available.

7.6 SARA Items

It is noted that SARA requested details on the site and detailed contours, a concept earthworks plan, a catchment analysis, a conceptual drainage plan, confirmation that the pre-development flow scenario will be maintained, and a capacity analysis (in the event that on-site detention is not to be provided).

- A detailed site contour drawing is provided within **Appendix C**.
- The proposed concept earthworks arrangement involves excavation / filling as required to provide the required platform for the proposed building. The concept arrangement will maintain the existing regime of the site falling to the rear so as not to impact on the existing road network or adjacent properties.

- Catchment analysis for the site has been undertaken as detailed within **Section 7.3**. No external catchment analysis has been undertaken because there are no changes proposed.
- We confirm that the existing flow scenario will be maintained for the post-development condition. Bulk earthwork will maintain existing flow outlet locations and the proposed new drainage infrastructure (at all ground levels, including roof systems) will also outlet to the existing drainage swale at the rear of site via a site detention system which will be designed to attenuate post-development flows to pre-development flows in the 1%, 2%, 5%, 10%, 20%, 50% and 63.2% design events. Sizing has been undertaken in accordance with QUDM methodologies (refer **Section 7.3**) to determine the preliminary volume of detention required. Detailed design during the building approval phase will be undertaken by undertaking routing calculations in accordance with QUDM requirements.
- The concept drainage arrangement is described in **Section 7.2**.
- Capacity analysis of the existing drainage swale and the downstream railway culverts are not required because the development proposes to attenuate post-development flows to the pre-development flow volumes.

8. MSC Information Request Item 6 – Parking and Access

8.1 Site Access

The proposed new access arrangement for the site is detailed on drawing 262-001-SK01 (refer **Appendix G**). It is proposed to provide an all movement vehicular access from Thongon Street via an FNQROC standard residential concrete vehicular crossover and driveway.

8.1.1 Proposed Site Access Width

Section 3.2 within Australian Standard AS/NZS 2890.1 "Parking Facilities, Part 1: Off-Street Car Parking" provides requirements for the width of access driveways. Table 3.1 within this section describes the access facility category in relation to user class and road hierarchy.

To determine the access facility category, the car parking user class and road frontage types must first be determined. A User Class of "1A" (residential, domestic and employee parking) is considered appropriate for the proposed development, whilst a road frontage type of "local" for Thongon Street is also considered appropriate (it is not an arterial road).

For the adopted user class, adopted road frontage type and for a development with 25 – 100 car parks (there are 70 on-site car parks), an access facility category (referencing AS/NZS 2890.1) of "1" was determined.

Table 3.2 describes the access driveway width requirements for different access facility categories. Based on access facility category, a driveway width of 3.0m to 5.5m is nominated for entry with an exit width not identified. A total width of 5.6m is proposed, complying with FNQROC standard drawing S1015 (note that whilst the development is residential, the driveway arrangement is required to be of a commercial standard because there are more than two residences in the development, therefore a width of up to 6.0m is allowable).

8.1.2 Site Access Location

Section 3.2.3 describes requirements for the location of access driveways to keep conflicts between frontage road traffic and car park traffic to an acceptable minimum. At un-signalised access locations with a driveway category of "1", driveways shall not be in sections of kerb as identified by Figure 3.1 within the standard. This figure identifies that site accesses are not permitted to be located within 6m of kerb line tangent points at intersections. The proposed new driveway location is located approximately 9.8m (to the outside edge of 1.2m wide apron) from the Thooree Street intersection kerb return and approximately 86.4m from the Coondoo Street intersection kerb return. The provided site access location therefore complies with this requirement of AS/NZS 2890.1.

8.1.3 Horizontal Sight Distance Evaluation

Clause 3.2.4 within Australian Standard AS/NZS 2890.1 nominates requirements for sight distance at access driveway exits. It notes that driveways are to be located such that there is adequate entering sight distance to on-coming traffic so that sight distance is available as required by Figure 3.2 of the Standard.

The proposed access arrangement is a combined entry / exit arrangement for domestic use. The speed limit on Thongon Street is 50km/h. Figure 3.2 within the AS/NZS 2890.1 identifies a 40m

sight distance requirement for domestic access for 50km/h. Reference is made to drawing 262-001-SK02 which provides a sight distance analysis, demonstrating compliance with the AS/NZS2890.1 requirements.

8.1.4 Vehicle Manoeuvring at Site Frontage

Large Passenger / Utility / Van Type Vehicle

A swept path analysis has been undertaken for access to the car park by an Austroads B99 vehicle whilst another B99 vehicle is exiting. This type of vehicle represents a large passenger car, utility or van. Reference is made to drawing 262-001-SK03 which demonstrates compliant manoeuvring.

Waste Collection

Bulk bins will be located on the site, however it is not proposed that the waste collection vehicle will enter the site to access the bins. The bins (being 4 x 1.5m³ general waste bulk bins, refer MRA Environmental report) will be located within the site adjacent to a proposed on-street loading zone parking space. The waste collection vehicle driver will park within the loading zone and wheel the bins to the vehicle for emptying. Reference is made to drawing 262-001-SK04 which provides further details.

8.2 Off-Street Car Parking

Proposed development will provide 90-degree parking within the ground floor car parking area. Figure 2.2 within AS/NZS 2890.1 identifies the requirements for length and width of car parking spaces for varying parking angle configurations. The required width for user class 1A (residential / domestic use) 90-degree parking is 2.4m with a length of 5.4m and a circulating aisle width of 5.8m. Reference is made to drawings 262-001-SK05 and SK06 which provided detaileds confirming compliance with those requirements.

Provision as also been provided for PWD parking spaces. AS/NZS 2890.6 provides requirements for PWD and the required adjacent shared spaces, being 2.4m wide and 5.4m long. Drawings 262-001-SK05 and SK06 also provide detailed dimensions confirming compliance with these requirements.

The proposed car park arrangement also provides for blind aisles where required, which have been designed to meet the requirements of Clause 2.4.2(c) within AS/NZS2890.1 by providing a minimum length of 1.0m. Drawings 262-001-SK05 and SK06 also confirm compliance with this item.

The proposal involves two levels of car parking (the lower ground level and basement level). This includes ramps from the at ground (Thongon Street) level providing connectivity to the lower ground level (a straight ramps) and the basement level (a curved ramp). Section 2.5 within AS/NZS 2890.1 provides details on the requirements for such ramps including required width (based on radius for curved ramps) and clearance requirements to obstructions on the edge of ramps. Drawings 262-001-SK05 and SK06 provide details on how compliance is achieved. Drawings 262-001-SK07 to SK10 provide swept path analysis of the ramping areas. It is noted that because the car parking module and aisle dimensions meet the requirements of AS/NZS 2890.1, no swept path analysis is required for vehicles entering / existing the car parking spaces.

8.3 Changes to On-Street Parking

There are currently several on-street car parks formally marked at the site frontage on Thongon Street. These are proposed to be reconfigured to allow for the adjusted site access driveway and the proposed new loading zone parking space. These will be provided in accordance with the requirements of Australian Standard AS 2890.5 "Parking Facilities, Part 5: On-Street Parking".

Appendix A

Mareeba Shire Council Information Request

Mareeba
SHIRE COUNCIL

65 Rankin Street
PO Box 154 MAREEBA QLD 4880

P: 1300 308 461
F: 07 4092 3323

W: www.msc.qld.gov.au
E: info@msc.qld.gov.au

12 January 2024

Planning Officer: Brian Millard
Direct Phone: (07) 4086 4657
Our Ref: MCU/23/0025
Your Ref: 72321

9-11 Thongon Street Kuranda Pty Ltd
C/- Planz Town Planning Pty Ltd
PO Box 181
EDGE HILL QLD 4870

Dear Applicants,

Confirmation Notice
Planning Act 2016

Council acknowledges receipt of your application, which was properly made on 2 January 2024. This Confirmation Notice has been prepared in accordance with the Development Assessment Rules and contains information relevant to the processing and assessment of the application. The following details are confirmed:

APPLICATION DETAILS

Application No:	MCU/23/0025
Proposal:	Application for a Development Permit for Material Change of Use – Multiple Dwelling (56 Residential Units)
Street Address:	9 – 11 Thongon Street, Kuranda
Real Property Description:	Lot 310 & 311 on NR7409
Planning Scheme:	Mareeba Shire Council Planning Scheme 2016

TYPE OF DEVELOPMENT

The application seeks development approval for:

- Development Permit for Material Change of Use – Multiple Dwelling (56 Residential Units)

SUPERSEDED PLANNING SCHEME

Is the application for development under the Superseded Planning Scheme? **No**

CODE ASSESSMENT

Will Code Assessment be required? **Yes**

The application will be assessed against the following development codes:

- Medium density residential zone code
- Kuranda local plan code
- Airport environs overlay code
- Scenic amenity overlay code
- Accommodation activities code
- Landscaping code
- Parking and access code
- Works, services and infrastructure code

IMPACT ASSESSMENT

Will Impact Assessment be required? **No**

PUBLIC NOTIFICATION DETAILS

Is Public Notification Required? **No**

REFERRAL AGENCIES

Based on the information accompanying the lodged application, referral is required to the following referral agencies -

- Schedule 10, Part 9, Division 4, Table 1 – Aspect of development stated in schedule 20 (Purpose 1(c) – a multiple dwelling containing 50 Dwellings or more)

In accordance with section 54(1) of the Planning Act, the applicant is required to give a copy of the application to all referral agencies within 10 days, or a further period as agreed between the applicant and the assessment manager, starting the day after the confirmation notice is issued.

INFORMATION REQUEST

Has the applicant advised on the approved form that the applicant does not agree to accept an Information Request? **No**

A further Information Request **is made** by the assessment manager, as detailed below:

1. **Engineering Reports (water & waste)**

   Engineering reports prepared by suitably qualified RPEQ's are required demonstrating that Council's existing infrastructure will be able to provide the minimum acceptable standard of service for water and sewerage reticulation. The report is required to provide:

   - A water supply reticulation analysis to determine the extent of upgrading required to reticulation mains, trunk mains, pumping facilities and storage capacity to facilitate connection of the proposed development to Council's reticulated water infrastructure. The water supply reticulation analysis must also demonstrate an adequate supply for fire-fighting purposes or identify how on-site fire-fighting storage will be achieved if the reticulated supply is not of a sufficient capacity and/or pressure.

- A sewerage supply reticulation analysis to determine the extent of upgrading required to existing mains, pumping facilities and treatment capacity to facilitate connection of the proposed development to Council's reticulated sewerage infrastructure.

2. Traffic Impact Assessment

Undertake a Traffic Impact Assessment (TIA), prepared by a suitably qualified RPEQ that assesses the impact of the proposed development on the local area traffic network, and which includes recommendations for required road upgrading and intersection treatments. The TIA should also address how any revised bulk refuse storage will be serviced on-site.

3. Electricity Supply

Undertake a electricity supply analysis, carried out by a suitably qualified RPEQ that assess the capacity and ability of the existing reticulated electricity supply network to service the proposed development.

The electricity supply study should identify whether there is any need for back-up generators on-site to maintain critical services (water and waste) during power outages and where these back-up generators will be located.

4. Telecommunications

Undertake a telecommunications analysis, carried out by a suitably qualified RPEQ that assess the capacity and ability of the surrounding telecommunications network to service the proposed development.

The analysis must determine whether the height of proposed development will have any impact on existing telecommunication services to adjoining properties, including television reception, wireless NBN services and any other satellite installations.

5. Stormwater Analysis

Provide an analysis of the anticipated quantity and quality of stormwater drainage associated with the development and provide a provisional/conceptual Stormwater Management Plan and Stormwater Quality Management Plan (prepared by an RPEQ) for the proposed development that demonstrates compliance with AO10.1 and AO10.2 of the Works, services and infrastructure code. Through the implementation of water sensitive urban design principles, this plan must demonstrate no net increase in the discharge rate of stormwater from the developed site.

All stormwater must be discharged lawfully from the site and where it is proposed to discharge stormwater through neighbouring downstream allotments, easements will have to established to ensure discharge occurs lawfully.

6. Parking and Access

Provide a full set of dimensioned plans, including detailed swept path diagrams, prepared by a Registered Professional Engineer of Queensland (RPEQ) demonstrating that the on-site car parking, access and circulation areas (including car park dimensions) comply with *AS/NZS 2890.1:2004 Parking facilities Part 1: Off-street parking* (as amended). The swept path diagrams must be generated using a **B99 vehicle** and must include car park ramps and approaches to both ramps. A statement of compliance must be provided by the RPEQ.

Where bulk bins are to be used for refuse storage, the plans must also demonstrate how a standard sized commercial garbage collection vehicle is able to enter and exit the site in a forward gear to service the bulk bins.

7. Landscape Plan

Provide a to-scale Landscape Plan prepared by a suitably qualified landscape architect or landscape designer that satisfies the requirements of the Landscaping Code.

The Landscape Plan must identify plant species to be used and how planter boxes and other landscaped areas will be managed and maintained for the life of the development.

8. Slope Stability/Geotechnical Investigation

The majority of the subject land is mapped within he Hill and slope area (slope exceeding 15%). Provide a geotechnical report (prepared by a qualified geotechnical engineer) and prepared in accordance with Planning Scheme Policy 5 that addresses the requirements of the Hill and slope overlay code. The report should address the proposed building work as well as the clearing of the site in preparation of building works commencing.

9. Needs Assessment

The proposed development is approximately 4 times greater than the residential density envisaged for the subject site by the Planning Scheme at the time of public consultation and adoption. Provide a detailed assessment of need, demand and potential impacts of the proposed development, prepared by a suitably qualified economic professional.

10. Visual Impact

Provide a visual impact assessment prepared by a suitably qualified consultant that assesses the potential visual impact of the development on the surrounding Kuranda Township and nearby residential uses. This study should include recommendations about any proposed amelioration measures.

The visual impact assessment should also demonstrate that the development will not be visible from the Kennedy Highway Scenic Route, particularly by higher vehicles such as tourist buses.

11. Air Quality/Odour

Provide an air quality and odour assessment for the proposed development, prepared by a suitably qualified RPEQ that addresses the following:

- The potential impacts of vehicle emissions on Apartments 1 – 8 and 26.
- The availability of natural breezes and air circulation to all apartments, in particular bedrooms with only hallway window openings.
- Potential odour concerns for apartments and adjoining uses in proximity to the proposed refuse storage area or any revised/relocated refuse storage area.

12. Noise Impact Assessment

Provide a Noise Impact Assessment (NIA), prepared by a suitably qualified Acoustic Engineer (RPEQ) that demonstrate that the proposed development is not likely to have an unacceptable impact on the residential amenity of adjacent residential land uses. The NIA should address potential noise generated by the number of vehicles using the 2-storey parking facility, as well as upper storey outdoor residential activity (keeping in mind that the development represents a residential density approximately 4 times larger than that envisaged for the land under the Planning Scheme).

13. Privacy Assessment

Demonstrate how the proposed development will satisfy PO9 of the Medium Density Residential Zone Code and PO3 of the Accommodation Activities Code and will not have a significant impact on the privacy of neighbouring sensitive land uses to the north and east of the site.

PO9 of the Medium Density Residential Zone Code relates to overall privacy and is not limited to window heights.

The assessment should also demonstrate how privacy will be achieved internally for apartments that contain window openings to common areas and walkways.

14. External Lighting Assessment

Provide an external lighting assessment, prepared by a suitably qualified lighting engineer (RPEQ) that demonstrate that the proposed development will not have an adverse impact on the residential amenity of adjoining landowners as a result of light spillage.

15. Shadowing/Shading Assessment

Provide a shadowing/shading assessment, prepared by a suitably qualified professional, demonstrating that shadowing created as a result of the proposed developments building height and bulk will not adversely impact on the amenity of adjoining sensitive land uses by reducing their access to sunlight.

The assessment must also consider any impacts on existing solar power systems in the shadow/shade footprint.

16. Character Assessment

Provide a building character assessment, prepared by a suitably qualified professional, demonstrating how the proposed development's built form complies with the Purpose statements, overall outcomes, and Performance Outcome PO7 of the Kuranda local plan code (Village Heart Precinct) as well as Performance Outcome PO7 of the Medium density residential zone code.

Refer to Planning Scheme Policy 1 – Character Area Design Guidelines for additional guidance in relation to the development outcomes sought.

17. Frontage Works

Provide conceptual plans of any upgrades proposed to Thongon Street as part of the development. The plans should demonstrate and be accompanied by statements of compliance against PO8 of the Kuranda local plan code. The plans should provide footpath pavement treatments in accordance with Planning Scheme Policy 9 – Footpath Paving.

18. On-site Refuse Storage

The refuse storage area provided is not considered adequate for 56 residential units and therefore the development cannot comply with PO2 of the Accommodation activities code. It is considered reasonable that each unit be provided with 1 x 240 litre wheelie bin, or equivalent communal bulk/skip bin refuse storage.

Please amend the plans to provide adequate refuse storage. Additionally, please demonstrate how the refuse storage will be emptied/serviced.

19. Open Space

Provide a plan/s clearly identifying the areas of both private open space and communal open space. It is noted that the development lacks standard communal recreational open space inclusions such as a gymnasium, swimming pool, gaming room and usable grassed outdoor areas.

Provide details as to how the landscape buffer at the rear of the building will be accessed and maintained.

Provide details as to how the underfloor area at the rear of the development will be accessed and maintained.

20. Ownership Structure

Please outline the intended ownership structure of the proposed apartment complex.

21. Domestic Pets

Please outline any proposed policies in relation to pet ownership.

22. Mail Delivery for individual units

Amend the plans to include an internal mail delivery and storage area for the apartment complex. Each apartment should be provided with an exclusive and secure mail storage box.

23. Air Conditioning and Plant

Provide details of how air conditioning will be achieved to each individual apartment, and where the associated air conditioning plant will be located and how air conditioning plant will be screened from view.

24. Secure Storage

Amend the proposed plans to include secure storage required under AO4.4. For this scale of development with this many individual units, Council officers consider it necessary to provide secure storage at basement level.

End of Information Request

In responding to the Information Request, *Development Assessment Rule 13* states: -

"13. Applicants Response

13.1 The period for the applicant to respond to an information request is 3 months from the date the information request was made or a further period agreed between the applicant and the assessing authority that made the information request.

13.2 The applicant may respond by giving the assessing authority that made the information request, within the period stated under section 13.1 -
(a) all of the information requested; or
(b) part of the information requested; or
(c) a notice that none of the information will be provided.

13.3 For any response given in accordance with sections 13.2(b) or (c), the applicant may also advise the assessing authority that it must proceed with its assessment of the application.

13.4 An applicant must provide a copy of any response to an information request made by a referral agency to the assessment manager."

PROJECT TEAM

The contact details of the project team for your application are provided below. Your primary point of contact for any general enquires regarding this application is the project manager.

Project Manager	**Brian Millard, Coordinator Planning Services**	**(07) 4086 4657**

OTHER DETAILS

You can follow the progress of this application online at www.msc.qld.gov.au.

Should you have any further queries in relation to the above, please do not hesitate to contact the undersigned on the above number.

Yours faithfully

BRIAN MILLARD
COORDINATOR PLANNING SERVICES

Appendix B

State Assessment and Referral Agency Information Request

Queensland Government

SARA reference: 2401-38814 SRA
Applicant reference: P72321
Council reference: MCU/23/0025

15 February 2024

9-11 Thongon St Kuranda Pty Ltd
C/- Planz Town Planning
PO Box 181
EDGE HILL QLD 4870
info@planztp.com

Attention: Nikki Huddy

Dear Sir/Madam

SARA information request - Multiple Dwelling (56 Residential Units) at 9-11 Thongon St, Kuranda

(Given under section 12 of the Development Assessment Rules)

This notice has been issued because the State Assessment and Referral Agency (SARA) has identified that information necessary to assess your application against the relevant provisions of the State Development Assessment Provisions (SDAP) has not been provided.

SDAP State code 6: Protection of State transport networks	
1.	**Issue:** The application material has not demonstrated compliance with 'PO14 - PO16 Stormwater and overland flow' and 'PO19 Drainage infrastructure of State code 6: Protection of State transport networks. The proposal involves the construction of a multi-storey unit development that will increase the impervious area of the site and therefore also stormwater discharge. The site slopes steeply to the rear and north, towards the railway corridor. There is an existing drain within the railway corridor that likely accepts stormwater discharges from this catchment, however it is not clear whether the drain has capacity to accept increased flows. The referral material has not detailed an assessment of the stormwater impacts of the proposed development or how they will be managed. Stormwater runoff from the site may result in adverse impacts to the railway corridor. **Action:**

Far North Queensland regional office
Ground Floor, Cnr Grafton and Hartley Street, Cairns
PO Box 2358, Cairns QLD 4870

Provide a Stormwater Management Plan that demonstrates compliance with 'PO14 - PO16 Stormwater and overland flow' and 'PO19 Drainage infrastructure of State code 6: Protection of State transport networks.

The Stormwater Management Plan should demonstrate that the management of stormwater post development can achieve a no worsening impact (on the pre-development condition) for all flood and stormwater events that exist prior to development and up to a 1% Annual Exceedance Probability (AEP). This should include at least the following flood and stormwater events: 63.2%, 50%, 20%, 10%, 5%, 2% and 1% AEP. Stormwater management for the proposed development must ensure no worsening to the railway corridor, including rail transport infrastructure, caused by peak discharges, flow velocities, water quality, sedimentation, and scour effects.

In particular, the following should be addressed:

(i) *Site Detail and Contour Survey.* Provide a site detail and contour survey, prepared by a registered surveyor, to verify the existing drainage characteristics of the site, particularly in relation to the railway corridor. All legal points of discharge for the development site should be identified and any drainage infrastructure within or adjacent to the railway corridor that the development relies upon should be identified. See capacity analysis requirement below.

(ii) *Concept Earthworks Plan.* Provide a concept earthworks plan, including cross sections/elevations, and any required supporting technical details clearly showing the location and extent of proposed excavation and filling (earthworks). The difference between existing site levels and finished/design levels should be clearly shown.

(iii) *Catchment Analysis.* Provide pre-development and post-development catchment plans that clearly identify all internal catchments on the site, external catchments draining into the site, the flow paths (direction of flow) within each catchment, the size of each catchment and the legal point of discharge for each catchment.

(iv) *Maintain the pre-development condition.* The pre-development flow scenario will need to be replicated in the post development condition. The site is above the level of the railway corridor and potentially runoff from the site and any upstream external catchments may flow into the railway corridor as sheet flow. This external flow will need to be accommodated by the development and not impeded. The development design will need to address any changes in stormwater discharge to the railway corridor, any concentration of flows, the capacity of existing drainage infrastructure and potential for scour/erosion which may undermine the railway corridor.

(v) *Conceptual drainage layout.* Provide a conceptual stormwater drainage layout plan showing the proposed internal stormwater network on the site, including roof-water connections, pit and pipe network, field inlets and any detention basins/tanks and demonstrating how all roof and surface water flows will be collected and conveyed to the legal points of discharge.

(vi) *Capacity analysis:* In the event that the development is not proposing to mitigate peak discharge, a capacity analysis will be required. Undertake hydraulic/hydrological modelling to determine if the existing drainage infrastructure in the railway corridor has the capacity to accept unmitigated peak discharge from the development site for all design events up to a 1% AEP. The capacity analysis should be based on a fully developed catchment as per the planning scheme.

As-constructed drawings of the drainage infrastructure in the railway corridor or alternatively a survey of the drainage infrastructure in the railway corridor are likely

		to be required for this analysis. Please contact the railway manager (Queensland Rail) at QRPropertyWayleaves@qr.com.au in relation to the potential availability of as-constructed drawings for the railway corridor or alternatively for approval requirements to undertake a survey in the railway corridor

How to respond

You have three months to respond to this request and the due date to SARA is **15 May 2024.**
You may respond by providing either: (a) all of the information requested; (b) part of the information requested; or (c) a notice that none of the information will be provided. Further guidance on responding to an information request is provided in section 13 of the Development Assessment Rules (DA Rules).

It is recommended that you provide all the information requested above. If you decide not to provide all the information requested, your application will be assessed and decided based on the information provided to date.

You are requested to upload your response and complete the relevant tasks in MyDAS2.

As SARA is a referral agency for this application, a copy of this information request will be provided to the assessment manager in accordance with section 12.4 of the DA Rules.

If you require further information or have any questions about the above, please contact Anthony Westbury, Planning Officer, on 40373215 or via email CairnsSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely

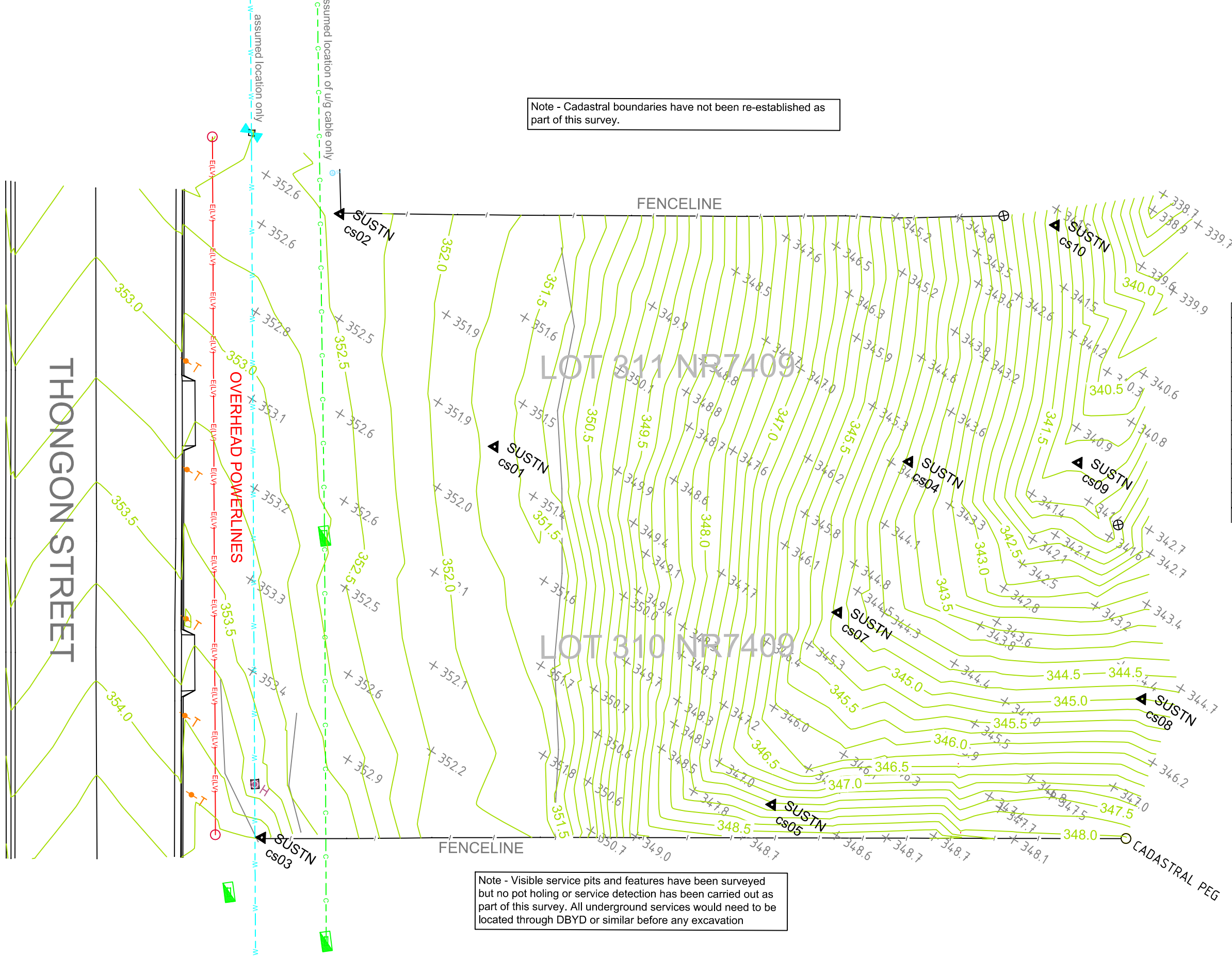
Brett Nancarrow
Manager (Planning)

cc Mareeba Shire Council, planning@msc.qld.gov.au

Development details	
Description:	Development permit Material Change of Use for Multiple Dwelling (56 Residential Units)
SARA role:	Referral agency
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 (Planning Regulation 2017) - Development impacting on state transport infrastructure and thresholds (more than 50 dwellings)
SARA reference:	2401-38814 SRA
Assessment criteria:	State code 6 – Protection of State transport networks

Appendix C

Site Survey Drawings



SURVEY CONTROL				
NAME	EASTING	NORTHING	ELEVATION-AHD	Type
114548	354594.162	8140051.132	352.013	PSM
114539	354716.89	8139832.116	341.557	PSM
95830	354353.489	8140107.167	340.312	PSM
CS01	354631.373	8140029.279	351.673	SUSTN
CS02	354615.042	8140036.573	352.468	SUSTN
CS03	354632.191	8140000.146	354.207	SUSTN
CS04	354654.338	8140042.698	344.165	SUSTN
CS05	354658.678	8140019.446	347.559	SUSTN
CS07	354655.662	8140032.108	344.896	SUSTN
CS08	354675.095	8140037.872	345.007	SUSTN
CS09	354663.534	8140048.46	341.21	SUSTN
CS10	354654.154	8140060.518	341.506	SUSTN

*MGA55

SURVEYORS & SPATIAL CONSULTANTS
CROSS SOLUTIONS
SCI QUAL INTERNATIONAL
PO Box 36990, Winnellie NT 0820
PHONE: 1300 427 677
EMAIL: quotes@cross-solutions.com.au
WEB: www.cross-solutions.com.au

SURVEYOR:	M.DEAKIN	SCALE:	1:250
SURVEY DATE:	21/05/2019	COORD. SYSTEM:	MGA55
DRAWN BY:	M.DEAKIN	LEVEL DATUM:	AHD
CHECKED BY:	G. CROSS	CONTOUR INTERVAL:	0.25 m
JOB No:	2019-0136	5 0 5 10 metres	
APPROVED	R.CROSS		

TOPOGRAPHICAL
2019 - 0136
9-11 Thongon St, Kuranda,Qld
DETAIL SURVEY

A3

CLIENT: TIM BODY | DRAWING No: T-2019-0136-01 | REV:A | SHEET No: 1 of 1

FILE PATH: C:\Users\Graeme\Downloads\T-2019-0136-01 3D.dwg

Appendix D

Nevele Drawings

GENERAL NOTES

ALL PLANS ARE TO BE READ IN CONJUNCTION WITH THE CONSTRUCTION NOTES.

ABBREVIATIONS:

A.F.L.	ABOVE FLOOR LEVEL
A.F.F.L.	ABOVE FINISHED FLOOR LEVEL
APPROX.	APPROXIMATE
B	BENCH
BH	BULKHEAD
BR	BROOM CUPBOARD
BTH	BATH TUB
C.O.S.	CONFIRM ON SITE
CPD	CUPBOARD
CT	COOKTOP
CL	CLOTHESLINE
DFW	DRY FLOOR WASTE
DIA.	DIAMETER
DN	DOWN
DP	DOWNPIPE
DWR	DRAWERS
DW	DISHWASHER
FF	FROG FLAP
FW	FLOOR WASTE
HC	HOSE COCK
LN	LINEN
MSB	MAIN SWITCH BOARD
N.S.L.	NATURAL SURFACE LEVEL
OA	OVERALL
O/H	OVERHANG
O/HC	OVERHEAD CUPBOARD
ORG	OVERFLOW RELIEF GULLY
OV	OVEN
PAD	BUILDING PAD
PIT	STORMWATER PIT
PTY	PANTRY
RA	RODDING ACCESS
REF	REFRIGERATOR SPACE
ROBE	WARDROBE
RV	ROOF VENT
SA	SMOKE ALARM
SB	SPLASH BACK
S/B	SETBACK
SH	SHELF FIXED
SHR	SHOWER
S-HWU	SOLAR HOT WATER UNIT
SJ	SAW JOINT
SK	SINK
SVP	SOIL SOIL VENT PIPE
TUB	LAUNDRY TUB
VB	VANITY BASIN
WC	TOILET
WCJ	WALL CONTROL JOINT
WM	WASHING MACHINE
U.N.O.	UNLESS NOTED OTHERWISE

GENERAL NOTES:

1. SCOPE EXTENT TO BE CONFIRMED/ VERIFIED PRIOR TO COMMENCING ANY WORK ON SITE. ALL MEASUREMENTS TO BE CONFIRMED/ VERIFIED ON SITE BY THE MANAGING CONTRACTOR.
2. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE DESIGNER. THE MANUFACTURER SHALL NOT COMMENCE ANY WORKS PRIOR TO THE RETURN OF REVIEWED SHOP DRAWINGS SIGNED BY THE RELEVANT CONSULTANT.
3. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
4. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SPECIFICATION (WHERE SUPPLIED) AND ALL CONSULTANT DRAWINGS AND SPECIFICATIONS.
5. ALL BUILDING WORK SHALL COMPLY WITH ALL THE LOCAL AUTHORITY REGULATIONS AND ALL RELEVANT STANDARDS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE WATERTIGHTNESS OF THE BUILDING AND MUST PROVIDE FLASHINGS, TANKING AND DPC REQUIRED TO PREVENT THE ENTRY OF MOISTURE INTO THE BUILDING.
7. PRIOR TO COMMENCEMENT OF WORK ON SITE ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE LOCATION OF ALL POSSIBLE UNDERGROUND SERVICES.
8. PRIOR TO SETOUT & CONSTRUCTION OF ALL CONCRETE WALLS, CONFIRM ALL DIMENSIONS OF WALL THICKNESSES ON THESE DRAWINGS AGAINST THE LATEST STRUCTURAL ENGINEERS DRAWINGS & ALL SUBCONTRACTOR DRAWINGS.
9. CROSS REFERENCE ALL DOOR OPENINGS AS DIMENSIONED WITH DOOR SCHEDULE PRIOR TO CONSTRUCTION.

DRAWING LIST

NUMBER	DESCRIPTION	ISSUE DATE	REVISION No.
TP01	COVER SHEET	07/05/2024	C
TP02	PERSPECTIVE VIEWS	07/05/2024	C
TP03	SITE PLAN	07/05/2024	C
TP04	BASEMENT	07/05/2024	C
TP05	LOWER GROUND LEVEL	07/05/2024	C
TP06	GROUND LEVEL	07/05/2024	C
TP07	LEVEL 01	07/05/2024	C
TP08	LEVEL 02	07/05/2024	C
TP09	LEVEL 03	07/05/2024	C
TP10	ROOF PLAN	07/05/2024	C
TP11	ELEVATIONS	07/05/2024	C
TP12	ELEVATIONS	07/05/2024	C
TP13	STREET ELEVATION AND SITE SECTION	07/05/2024	C
TP14	SHADOW STUDY	07/05/2024	C

MULTI - RESIDENTIAL UNIT DEVELOPMENT
9 - 11 THONGON STREET, KURANDA

PLANNING OVERVIEW

LOTS 310 & 311
PLAN No: NR7409
LOCAL GOVERNMENT: **MAREEBA SHIRE COUNCIL**

ZONE: **MEDIUM DENSITY RESIDENTIAL**
LOCAL PLAN: **KURANDA – PRECINCT A VILLAGE HEART**
OVERLAY: **SLOPE OVERLAY**
DEFINED USE: **MULTIPLE DWELLING**

	ALLOWABLE/ REQUIRED:	PROVIDED
HEIGHT:	8.5m	**13.0m** (EXCLUDES LIFT OVERRUN)
SETBACK		
STREET:	6.0m	**3.0m AT GR & L1** **5.0m AT L2** **6.0m AT L3**
SIDE AND REAR:	2.0m	**ZERO M** AT BASMENT **3.0m** TO L. GR, GR, L1 & L2 **6.0m** TO L3
SITE AREA:	800m2	**2024m2**
FRONTAGE:	20m	**40.2m**

PERCENTAGE OF SITE SLOPE

SOUTH-EAST BOUNDARY	(353 - 347) / 50M = **12%**
NORTH-WEST BOUNDARY	(352.5 - 340) / 50M = **25%**

LANDSCAPE AREA:

BASEMENT	152.88m2
LOWER GR.	14.93m2
GROUND	65.00m2
FIRST FL.	29.28m2
SECOND FL.	80.60m2
THIRD FL.	63.84m2
TOTAL	**406.53m2**

DENSITY BASED ON 1/75m2 (1 BED) AND 1/150m2 (2 BED+)

LOWER GR.	7 x 1 BED
GROUND	19 x 1 BED
1950m2	**26 x 1 BED**
FIRST FL.	12 x 2 BED
SECOND FL.	10 x 2 BED
THIRD FL.	8 x 3 BED
4500m2	**30 x 2/3 BED**
TOTAL AREA: 6450m2	**56 UNITS**

COMMUNAL OPEN SPACE AREA:

50m2	**50m2**

PRIVATE OPEN SPACE:

15m2 / UNIT	**15m2 / UNIT**

VEHICLE PARKING 1.25 / UNIT + 1 WASHDOWN BAY (WB)

70 + 1 WB	**70 + 1 WB**

STORAGE SPACE:

1 / UNIT @ 2.5m2	**56 SPACES**

PLEASE NOTE: SUBSTITUTION OF ANY STRUCTURAL MEMBERS, & OR VARIATIONS TO ANY PART OF THE DESIGN, **WILL VOID** ANY RESPONSIBILITIES OF THE BUILDER DESIGNER FOR THE STRUCTURAL INTEGRITY AND PERFORMANCE OF THE BUILDING

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m 0410 633 159 | p 07 42 453 588 | w nevele.com.au
a shop 5, 114-118 Reed Road, Trinity Park, Q 4879

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4. CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION OF ANY SHOP DRAWINGS.

PROJECT REVISIONS

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

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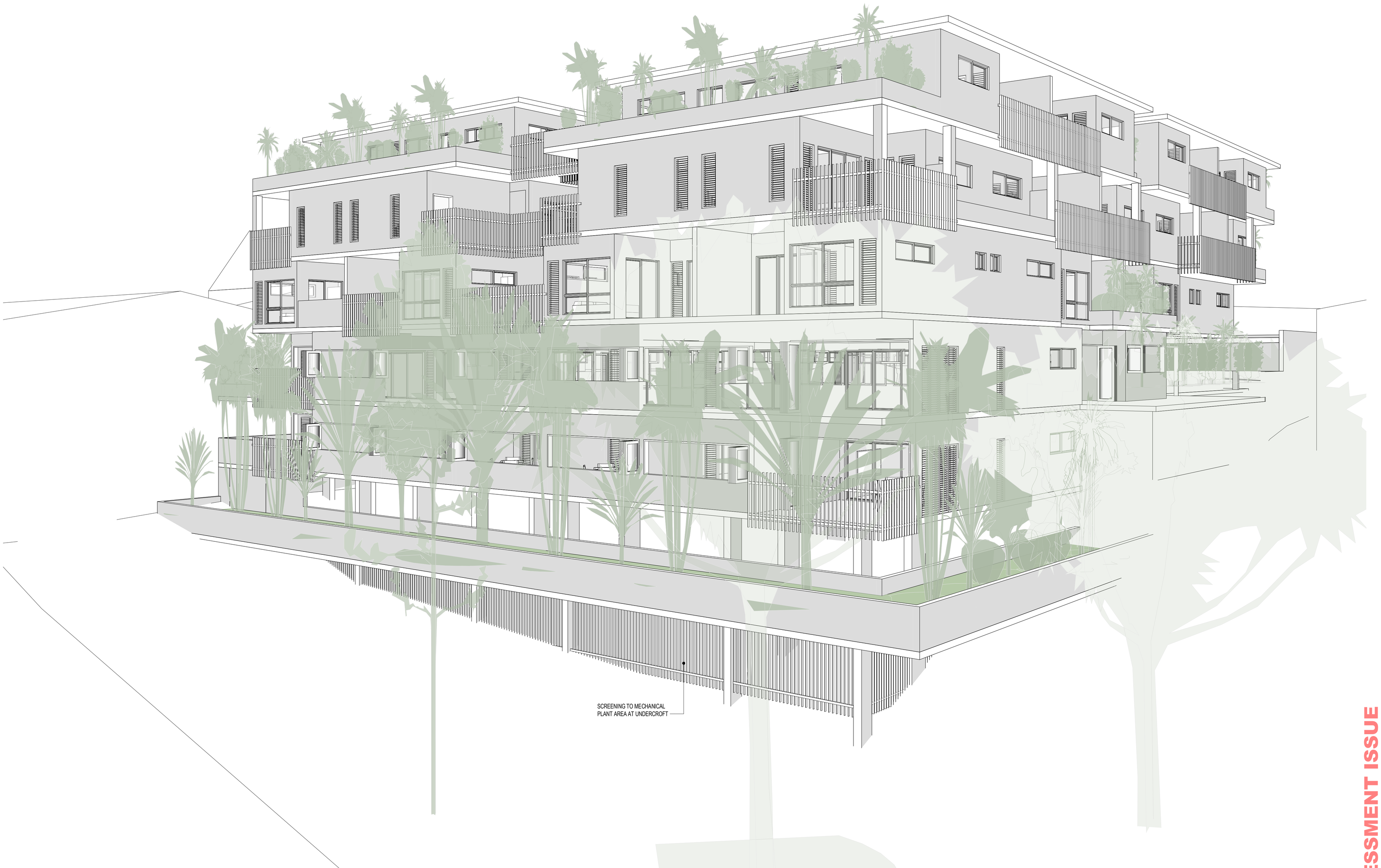

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PROPERTY INFORMATION

LOT NUMBER	**LOT 310 & 311**
PLAN NUMBER	**NR7469**
SITE AREA	**2024 m2**
LOCAL GOVERNMENT	**MAREEBA SHIRE COUNCIL**

FLOOD INUNDATION

ALL CONSTRUCTED IS TO BE ABOVE Q-100 FLOOD LEVEL ACCORDING TO LOCAL AUTHORITY REQUIREMENTS.

SITE NOTES:

1. BOUNDARIES BASED UPON SURVEY DRAWING. CONTRACTOR TO CONFIRM ON SITE PRIOR TO ANY CONSTRUCTION.
2. EXISTING SERVICES LOCATIONS ARE INDICATIVE ONLY. CONTRACTOR TO VERIFY ON SITE.
3. REFER TO SLAB PLAN FOR SETOUT.
4. REFER TO SERVICES CONSULTANT DRAWINGS FOR WORKS TO NEW & EXISTING SERVICES.
5. VERIFY ALL BEARING AND DIMENSIONS ON SITE PRIOR TO ANY CONSTRUCTION. ALL MISSING PEGS TO BE REINSTATED PRIOR TO ANY CONSTRUCTION. NOTIFY THIS OFFICE IMMEDIATELY OF ANY DISCREPANCIES IN SETOUT DIMENSIONS.
6. DISCLOSURE PLAN ONLY. DO NOT START CONSTRUCTION UNTIL BOUNDARIES ARE CONFIRMED.
7. APPROXIMATE POSITION OF SEWER JUMP UP. VERIFY POSITION ON SITE PRIOR TO CONSTRUCTION. CONNECT 100Dia LINE TO COUNCIL REQUIREMENTS.
8. THE FILL USED ON THIS SITE WILL HAVE CONTROLLED PLACEMENT.

SITE PLAN
SCALE 1 : 100

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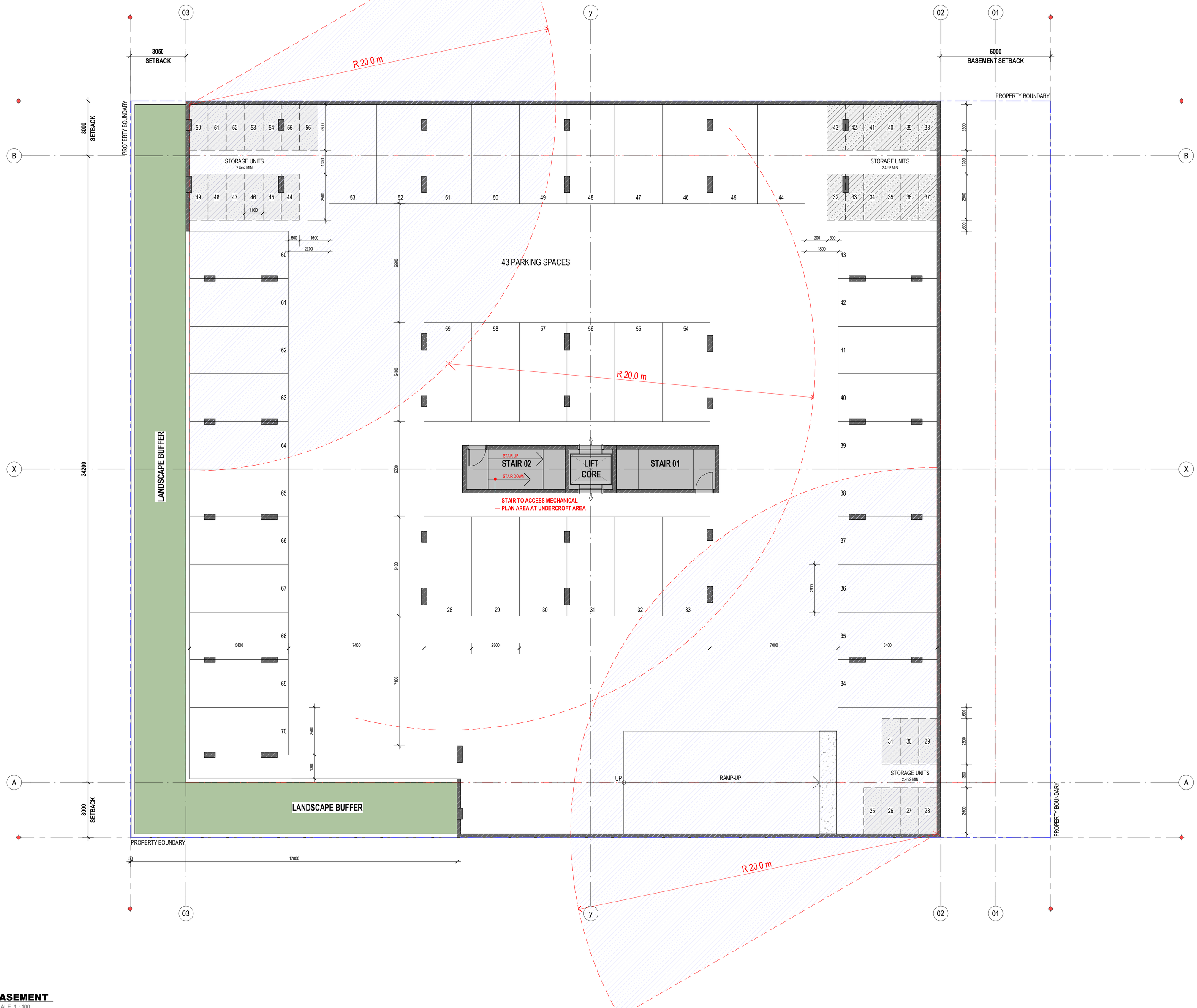

BASEMENT
SCALE 1 : 100

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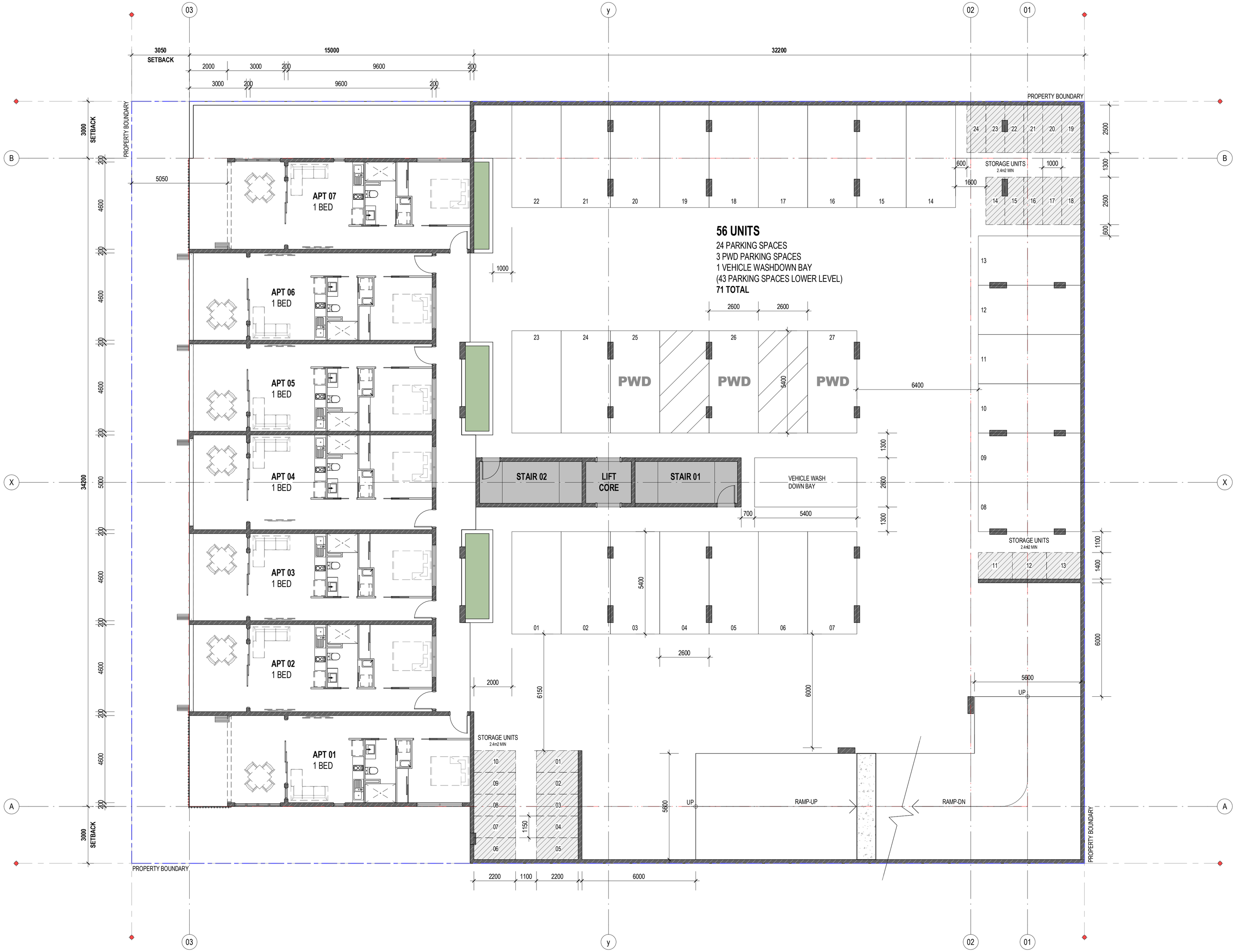

LOWER GROUND LEVEL
SCALE 1 : 100

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EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

HC AND WASTE CONNECTION FOR BIN CLEANING

PROPERTY BOUNDARY

REFUSE REFUSE REFUSE REFUSE

SEALED PATHWAY / RAMPED ACCESS TO ROADSIDE

ACCESS TO REFUSE

APT 17 1 BED
APT 18 1 BED
APT 19 1 BED
APT 20 1 BED
APT 21 1 BED
APT 22 1 BED
APT 23 1 BED
APT 16 1 BED
APT 15 1 BED
APT 14 1 BED
APT 24 1 BED
APT 25 1 BED
APT 26 1 BED
APT 13 1 BED
APT 12 1 BED
APT 11 1 BED
APT 10 1 BED
APT 09 1 BED
APT 08 1 BED

STAIR 02 LIFT CORE STAIR 01

RAMP-DN UP

LANDSCAPE BUFFER

EXISTING ADJOINING RESIDENCE

THONGON STREET

GROUND LEVEL
SCALE 1 : 100

ELEVATION KEY

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9-11 THONGON STREET, KURANDA

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LEVEL 01
SCALE 1 : 100

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NEVELE architects

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SHEET No:	TP07
REV No:	C

EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

03 y 02 01

3050 SETBACK | 42200 | 5000 SETBACK

4400 | 8200 | 8600 | 8200 | 8600 | 4200 | 2000 | 3000 SETBACK

PROPERTY BOUNDARY

3000 SETBACK | 4000 SETBACK | PROPERTY BOUNDARY | 4000

B

APT 44 2 BED | APT 45 2 BED | APT 46 2 BED | APT 47 2 BED | APT 48 2 BED

LANDSCAPE BUFFER

VOID TO LEVEL BELOW

VOID TO LEVEL BELOW

STAIR 02 | LIFT CORE | STAIR 01

5950 | 1500 | 8600 | 2100

X

APT 43 2 BED | APT 42 2 BED | APT 41 2 BED | APT 40 2 BED | APT 39 2 BED

LANDSCAPE BUFFER

A

4000 SETBACK | PROPERTY BOUNDARY

PROPERTY BOUNDARY

200 | 8200 | 200 | 8200 | 200 | 8200 | 200 | 8200 | 200 | 8200 | 200 | 2000 | 3000

3050 SETBACK | 42200 | 5000 SETBACK

03 y 01

EXISTING ADJOINING RESIDENCE

LEVEL 02
SCALE 1 : 100

THONGON STREET

PLEASE NOTE: SUBSTITUTION OF ANY STRUCTURAL MEMBERS, & OR VARIATIONS TO ANY PART OF THE DESIGN, **WILL VOID** ANY RESPONSIBILITIES OF THE BUILDER DESIGNER FOR THE STRUCTURAL INTEGRITY AND PERFORMANCE OF THE BUILDING

NEVELE ARCHITECTS
ABN 31 639 940 704 | Reg No. 5977
m 0410 633 159 | p 07 42 453 588 | w nevele.com.au
a shop 5, 114-118 Reed Road, Trinity Park, Q 4879

1. ALL DESIGN, CONSTRUCTION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS AND CODES.
2. NOTIFY DESIGNER OF ANY DISCREPANCIES ON THE PLANS, OTHERWISE WE ACCEPT NO LIABILITY.
3. DO NOT SCALE FROM DRAWINGS.
4. CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION OF ANY SHOP DRAWINGS.

PROJECT REVISIONS

No	DATE	DETAILS
1	01/09/2023	PRELIMINARY ISSUE A
2	18/09/2023	PRELIMINARY ISSUE B
3	03/11/2023	PRELIMINARY ISSUE C
4	09/11/2023	PRELIMINARY ISSUE D
5	12/11/2023	PRELIMINARY ISSUE E
A	04/12/2023	ASSESSMENT ISSUE A
B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP08
REV No:	C

G:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schemes\c1701SKDZA - 9-11 Thongon Street, Kuranda - Kunze and Munnich.rvt

THONGON STREET

LEVEL 03
SCALE 1 : 100

PLEASE NOTE: SUBSTITUTION OF ANY STRUCTURAL MEMBERS, & OR VARIATIONS TO ANY PART OF THE DESIGN, **WILL VOID** ANY RESPONSIBILITIES OF THE BUILDER DESIGNER FOR THE STRUCTURAL INTEGRITY AND PERFORMANCE OF THE BUILDING

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ABN 31 639 940 704 | Reg No. 5977
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a shop 5, 114-118 Reed Road, Trinity Park, Q 4879

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PROJECT REVISIONS

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3	03/11/2023	PRELIMINARY ISSUE C
4	09/11/2023	PRELIMINARY ISSUE D
5	12/11/2023	PRELIMINARY ISSUE E
A	04/12/2023	ASSESSMENT ISSUE A
B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP09
REV No:	C

G:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schemes\c1701SKDZA - 9-11 Thongon Street, Kuranda - Kunze and Munnich.vrt

EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

03 y 02 01

6050 SETBACK | 18200 | 1800 | 18200 | 6000 SETBACK

PROPERTY BOUNDARY

2400 OMP

15500

4400

B X A

VOID TO LEVEL BELOW

LIFT OVER RUN

VOID TO LEVEL BELOW

EXISTING ADJOINING RESIDENCE

THONGON STREET

ROOF PLAN
SCALE 1 : 100

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ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

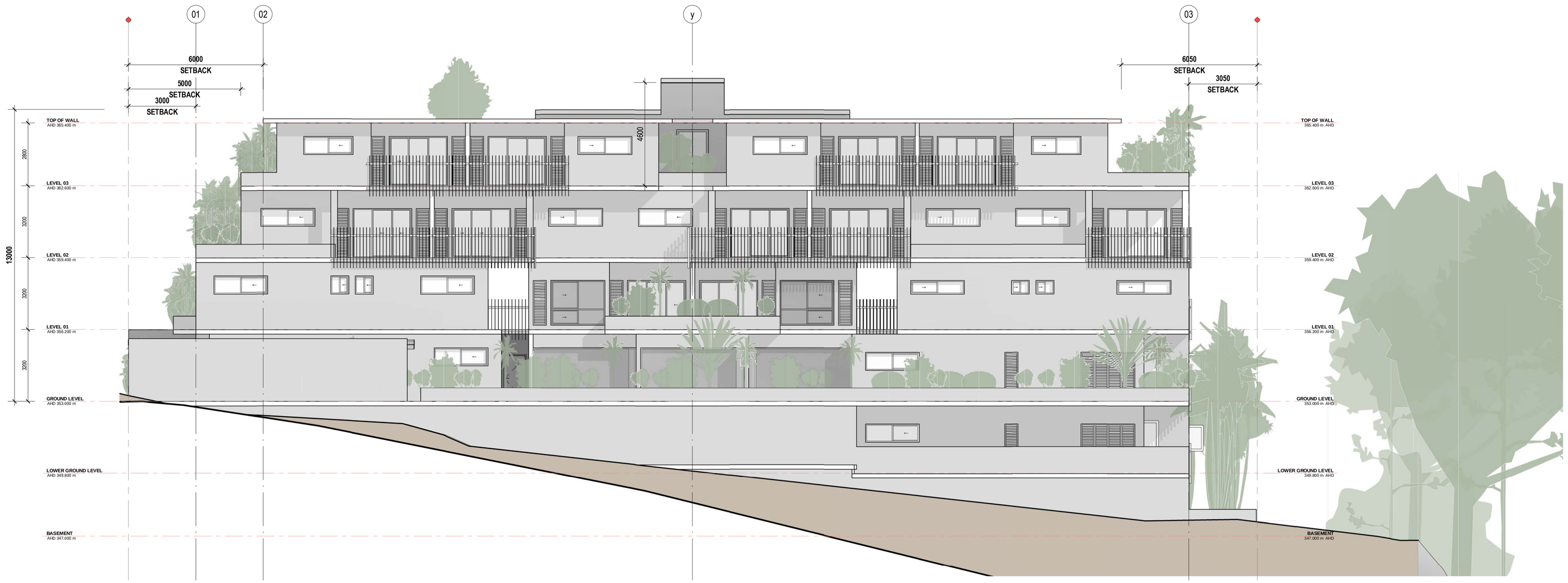
9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP10
REV No:	C

G:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schemes\c1701SK02A - 9-11 Thongon Street, Kuranda - Kunze and Munnich.rvt

ELEVATION 1

SCALE 1 : 100



ELEVATION 2

SCALE 1 : 100

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4	09/11/2023	PRELIMINARY ISSUE D
5	12/11/2023	PRELIMINARY ISSUE E
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ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

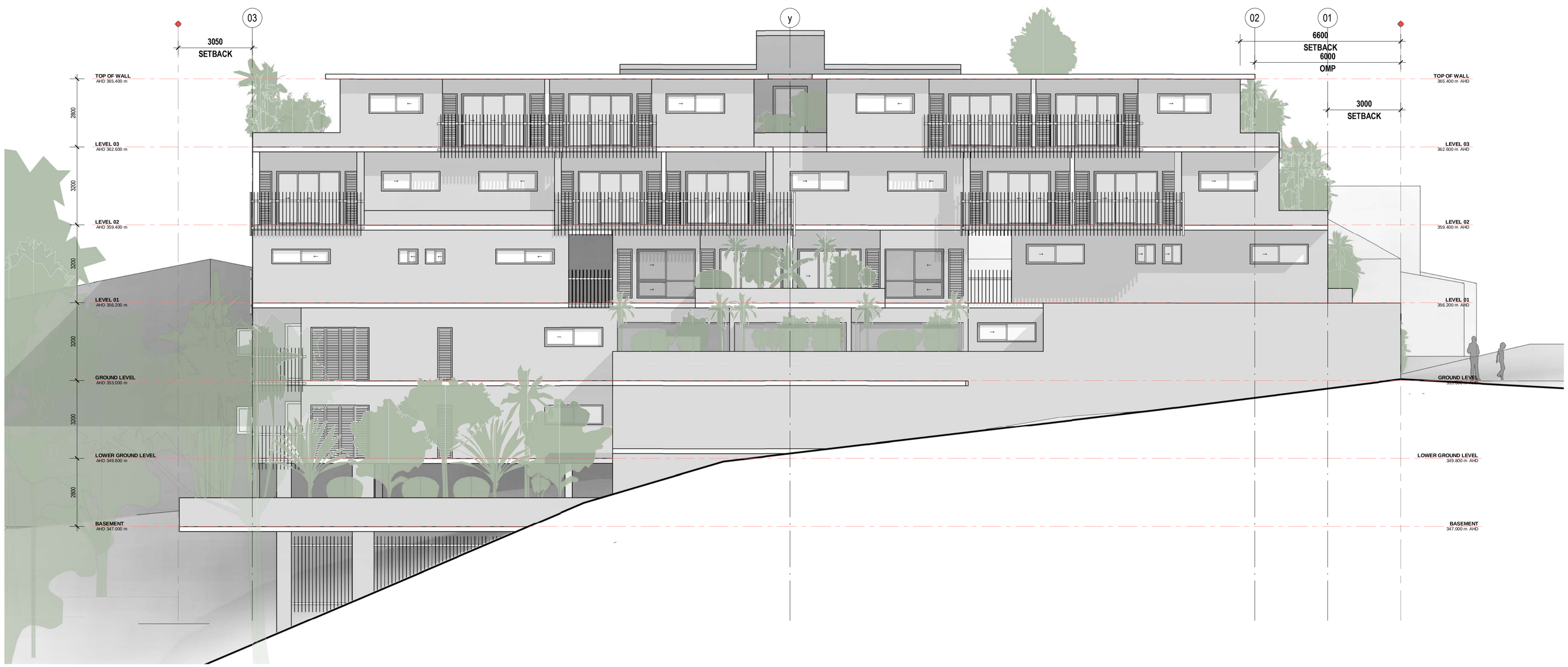
9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP11
REV No:	C

G:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schemes\c11701SK02A - 9-11 Thongon Street, Kuranda - Kunze and Munnich.vwt

ELEVATION 3

SCALE 1 : 100



ELEVATION 4

SCALE 1 : 100

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B	24/03/2024	GENERAL AMENDMENTS
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MULTI - RESIDENTIAL UNIT DEVELOPMENT

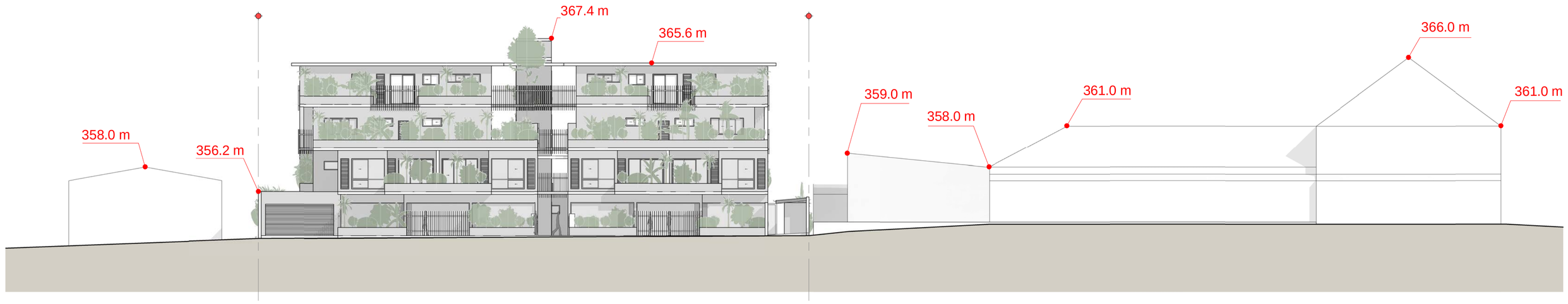
9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

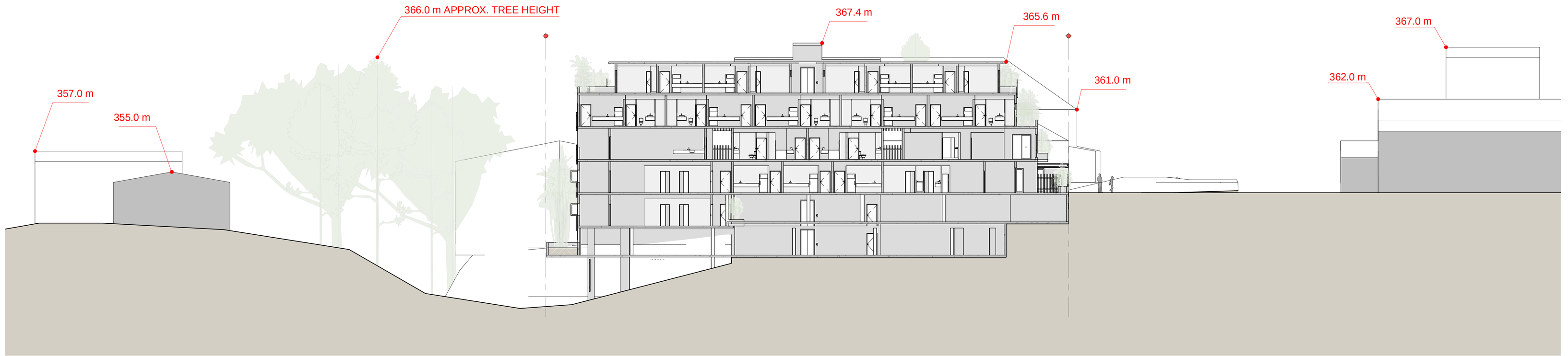
DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP12
REV No:	C

C:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schemtic\11701SHEDA - 9-11 Thongon Street, Kuranda - Kunze and Munnich.rvt



STREETSCAPE ELEVATION

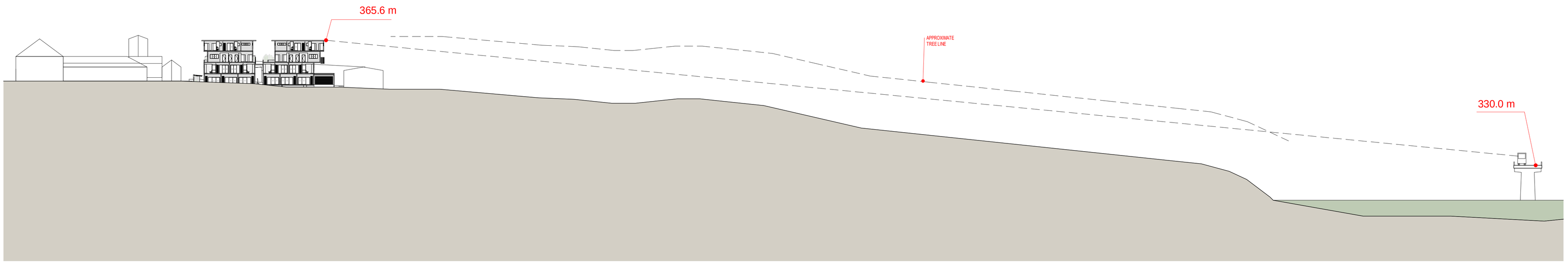
SCALE 1 : 200



SITE SECTION

SCALE 1 : 200

VISUAL IMPACT



SITE TO BRIDGE

NOT TO SCALE

VISUAL IMPACT

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

DRAWN BY:	CD
SCALE:	AS SHOWN
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP13
REV No:	C

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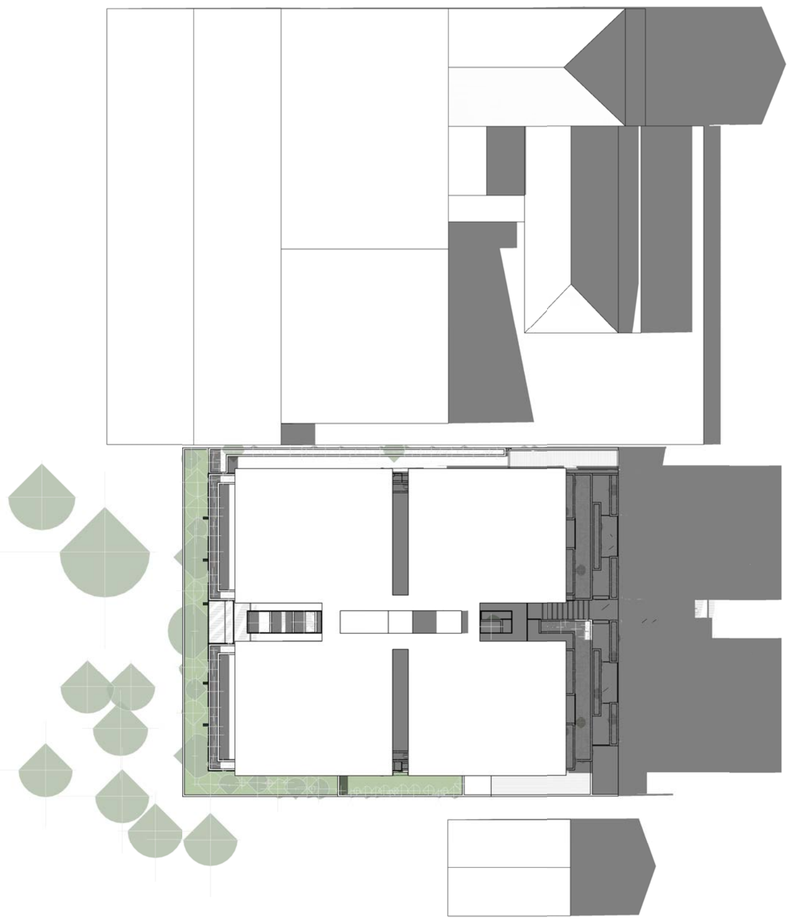
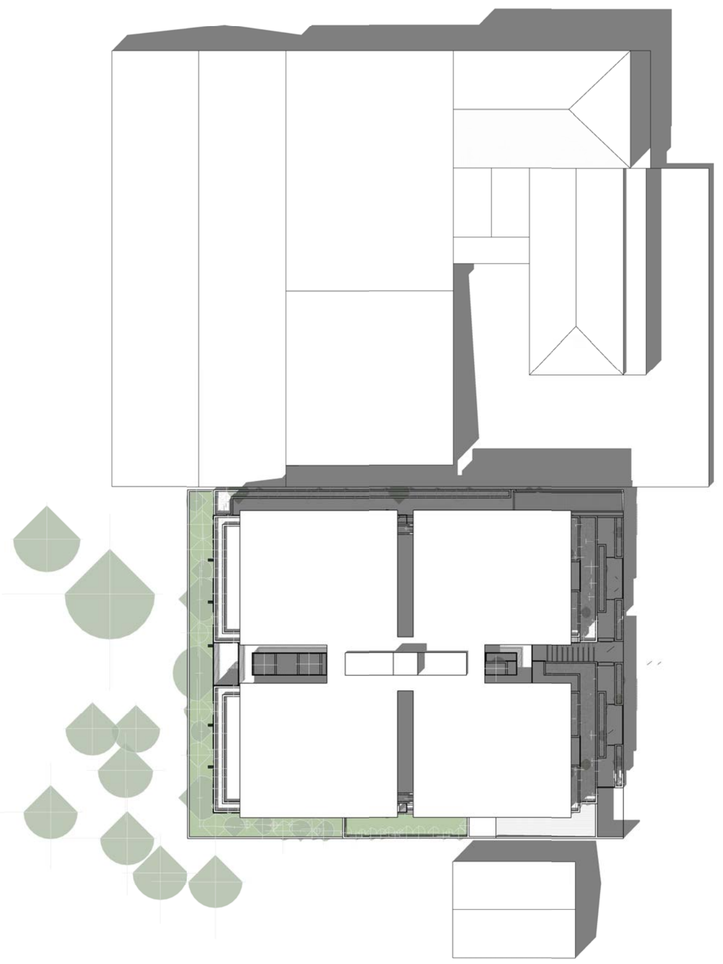
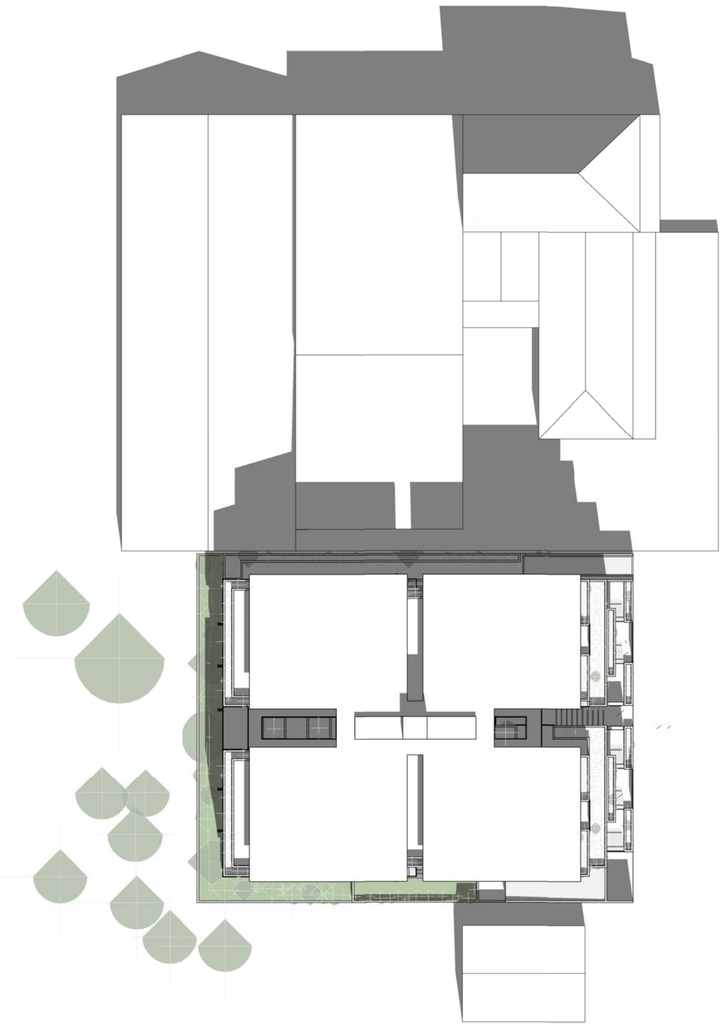


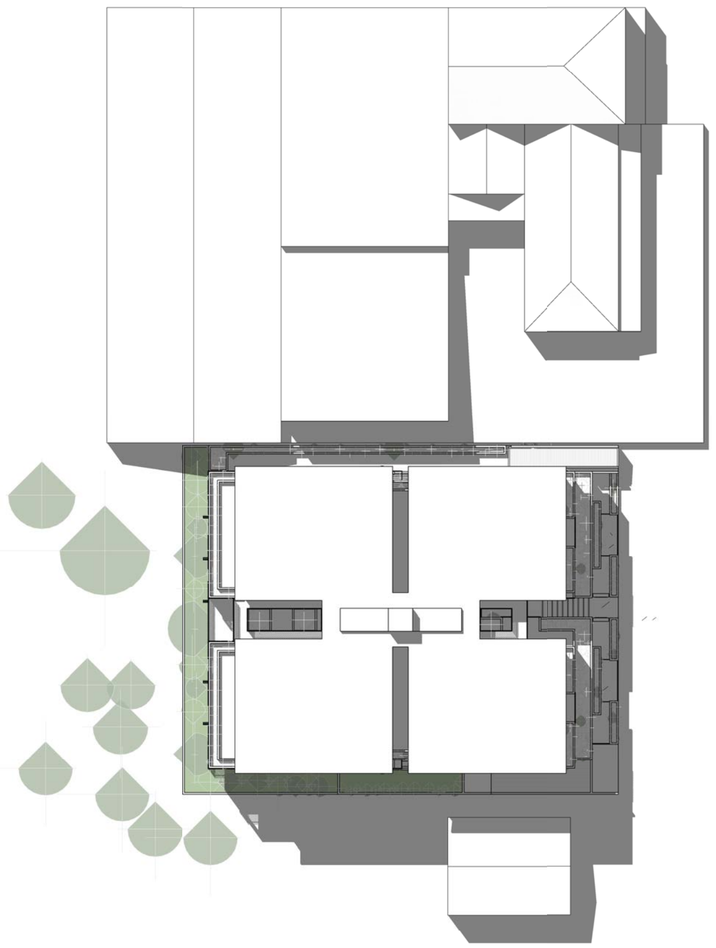
WINTER SOLSTICE 9AM
NOT TO SCALE



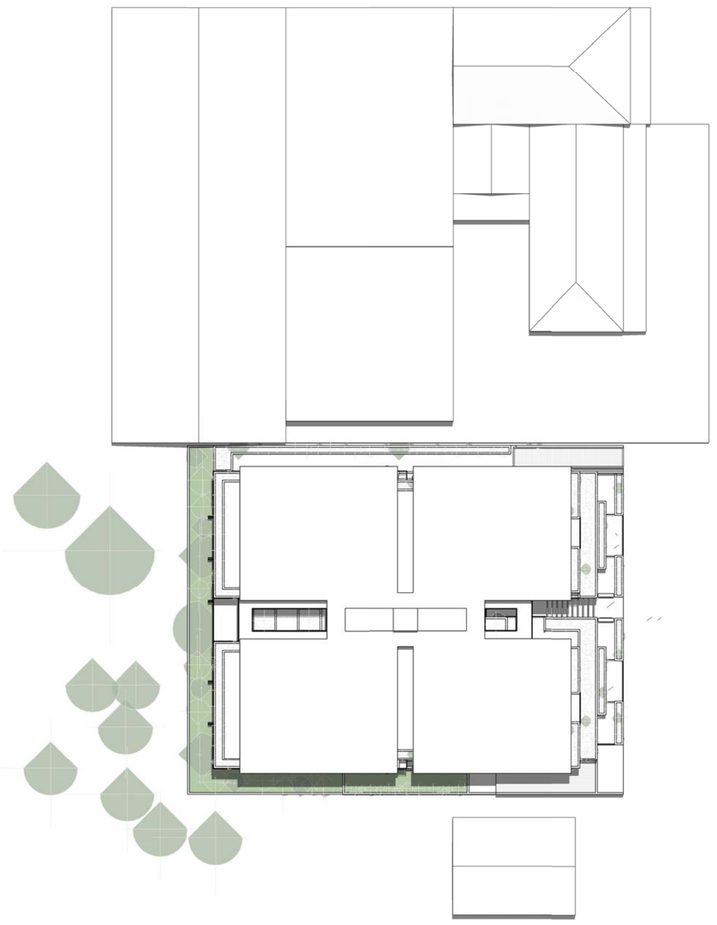
WINTER SOLSTICE 12PM
NOT TO SCALE



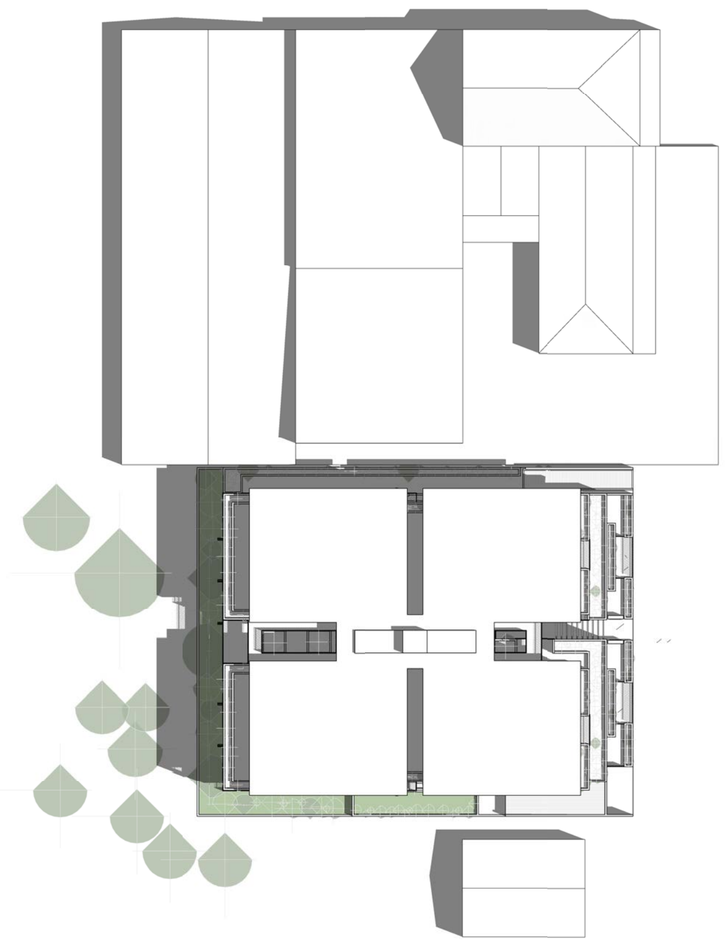
WINTER SOLSTICE 3PM
NOT TO SCALE



SUMMER SOLSTICE 9AM
NOT TO SCALE



SUMMER SOLSTICE 12PM
NOT TO SCALE



SUMMER SOLSTICE 3PM
NOT TO SCALE

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ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	N/A
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP14
REV No:	C

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Appendix E

Water Hydrant Test

From: Declan Atkins <Declan@gilboy.com.au>
Sent: Tuesday, April 16, 2024 11:19 AM
To: Greg Gilboy <greg@gilboy.com.au>
Subject: RE: 9-11 Thongon Street, Kuranda - Hydrant Test

Hi Greg,

Hydrant Test results outside 9-11 Thongon Street, Kuranda:

16/04/24 – 8:52am

Static @ 525kPa

5l/s @ 450kPa

10l/s @ 290kPa

15l/s @ 90kPa

19l/s @ 0kPa

10.5l/s @ 350 kPa

14l/s @ 200kPa

(200 & 350kPa were recorded on the back to no flow)

Regards,

Declan Atkins

Hydraulic Services Design Cadet

GILBOY HYDRAULIC SOLUTIONS
Building Hydraulic Services Design

CELEBRATING OVER 20 YEARS ESTABLISHED 2001

Unit 4/131 Scott Street, Bungalow.

PO Box 857N, North Cairns. 4870

Phone: (07) 40515116

Email: declan@gilboy.com.au

We look forward to continuing our work association with you and thank you for your support and custom.

Appendix F

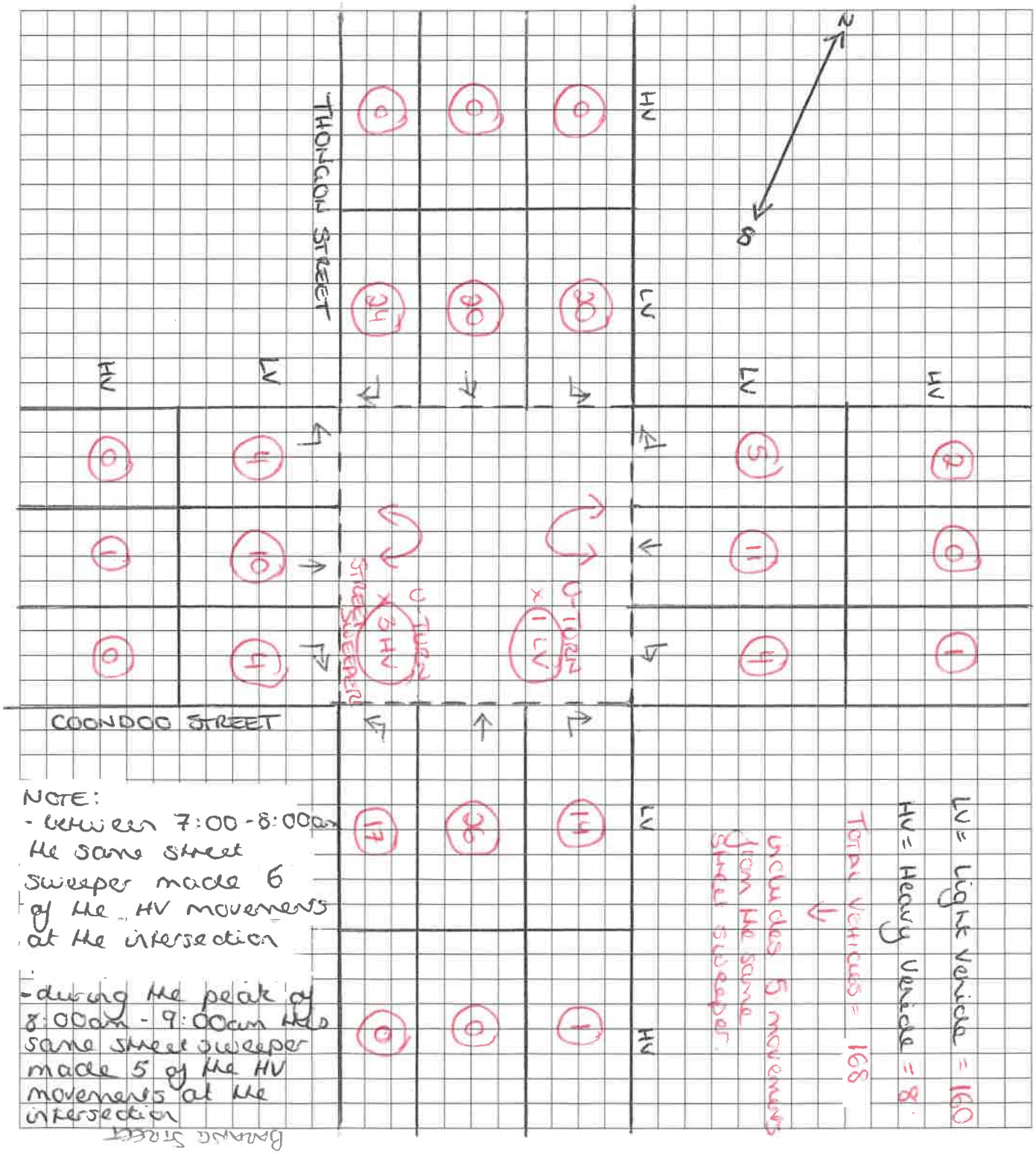
Traffic Count Data

CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client AM PEAK 8:00 - 9:00 am Date 17.04.24

Subject TRAFFIC COUNT Sheet 1 of 9



NOTE:
- between 7:00 - 8:00am the same street sweeper made 6 of the HV movements at the intersection

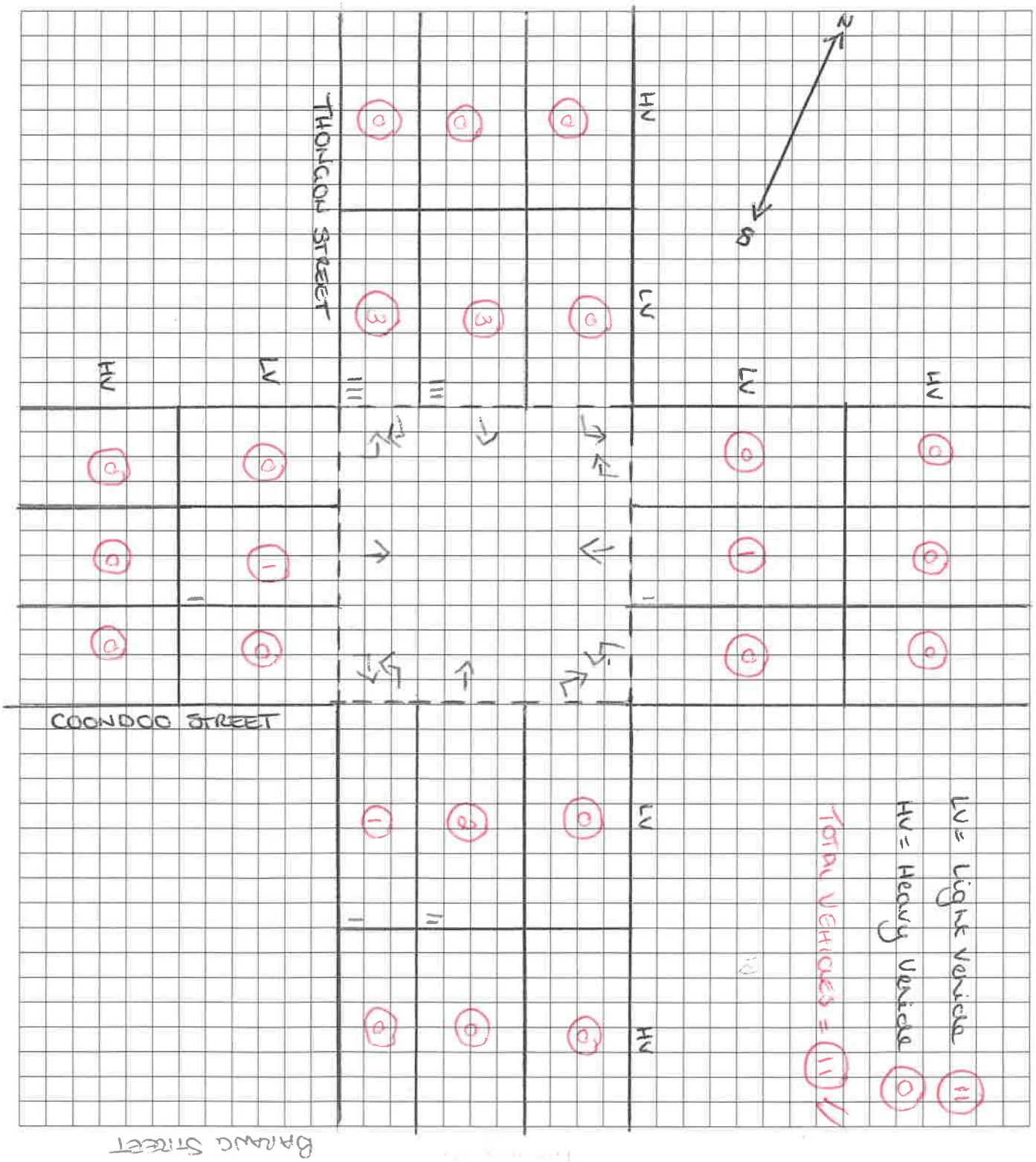
- during the peak of 8:00am - 9:00am the same street sweeper made 5 of the HV movements at the intersection

CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA | Ref 262-001

Client | Date 17.04.24

Subject TRAFFIC COUNT 7:00 - 7:15 am | Sheet 2 of 9

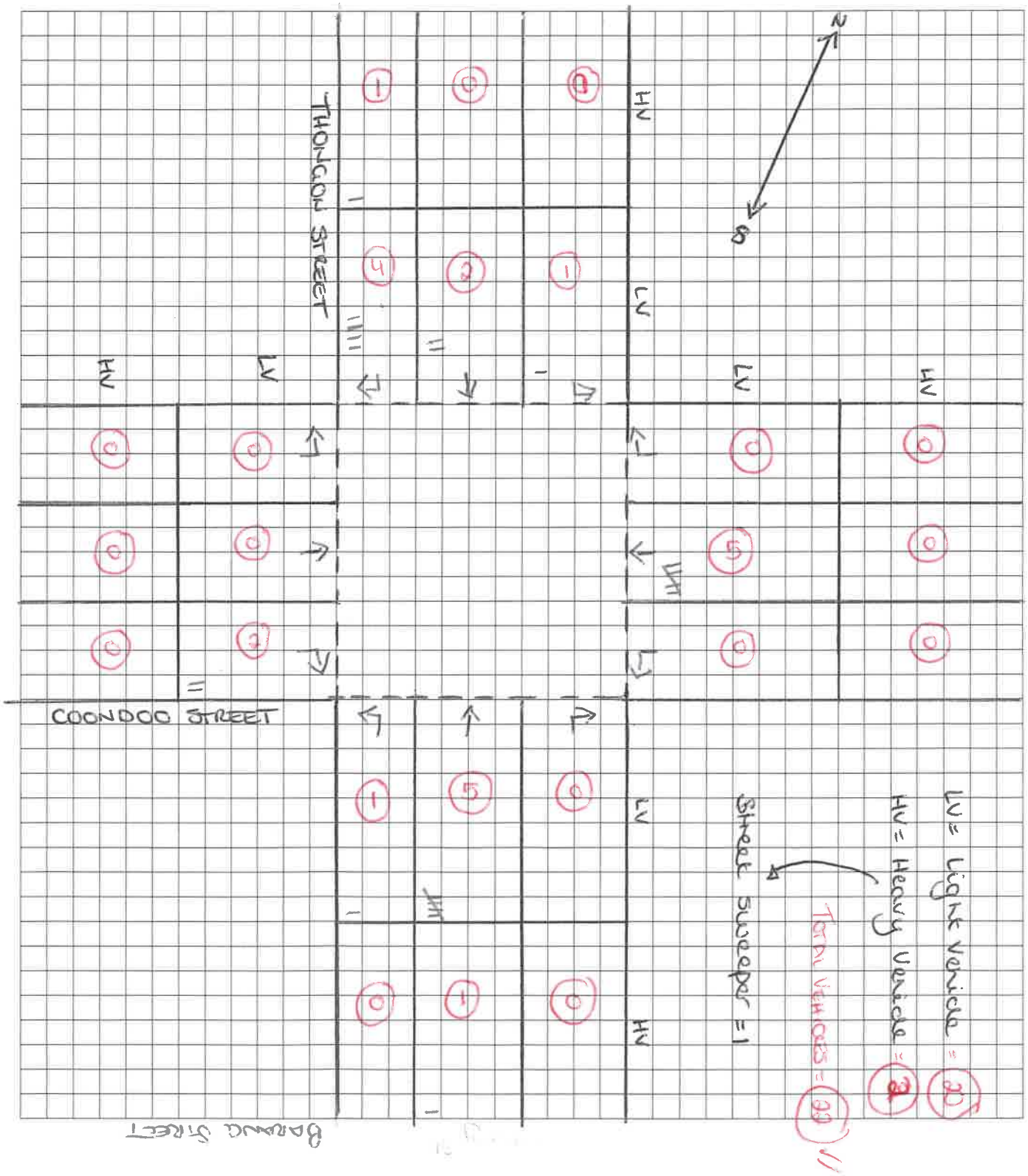


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 7:15 - 7:30 am Sheet 3 of 9

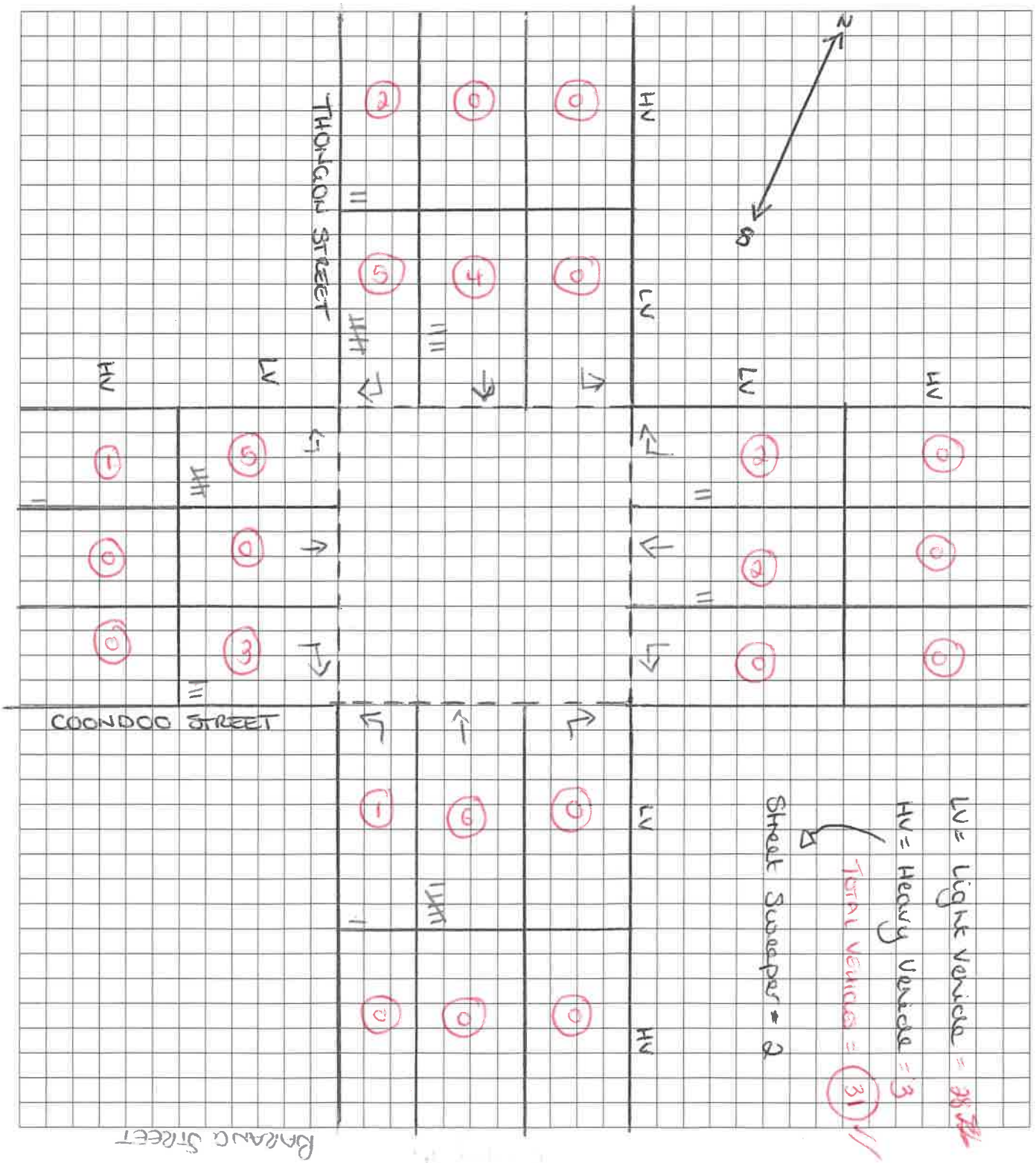


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 7:30 - 7:45 am Sheet 4 of 9

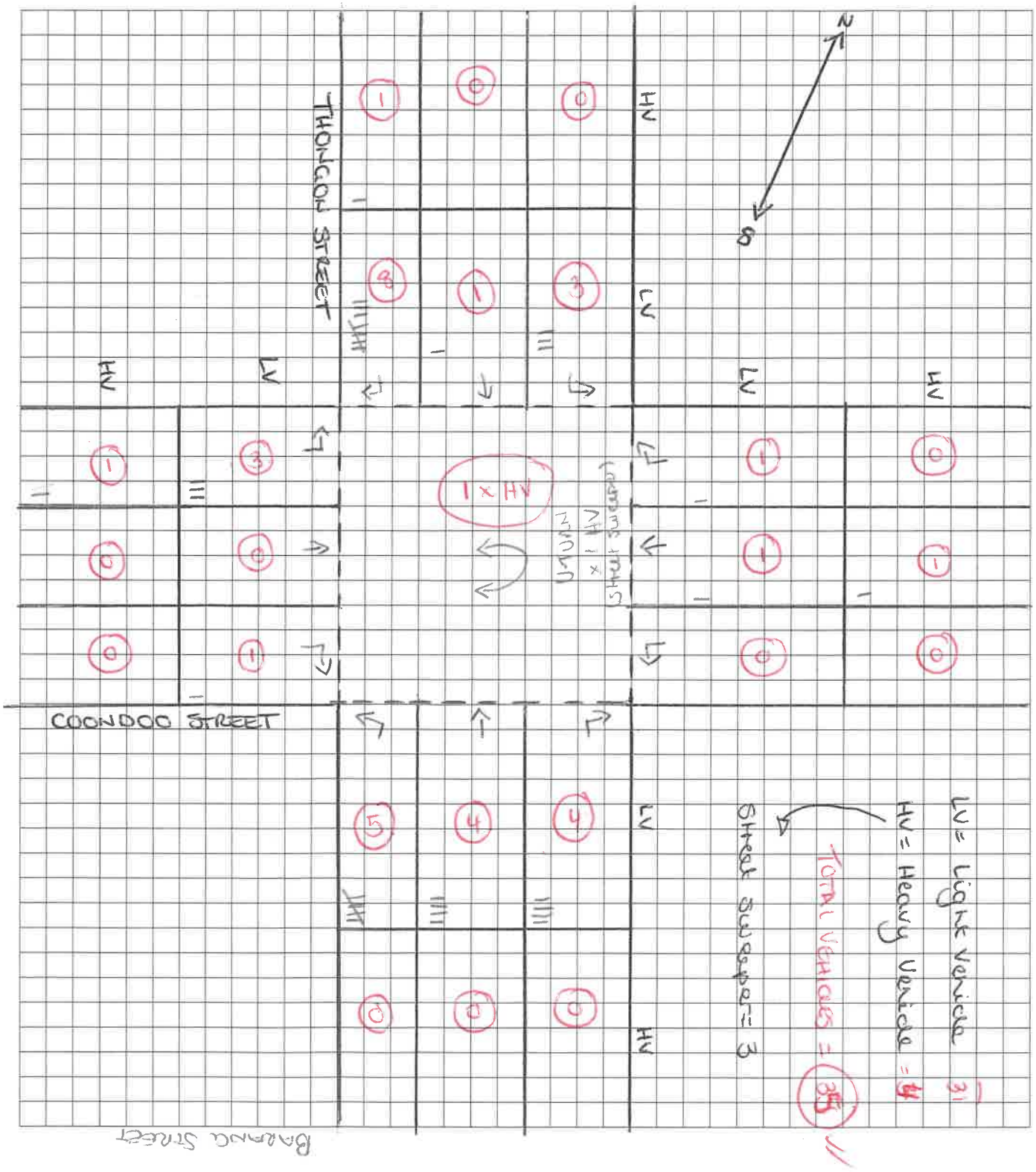


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17-04-24

Subject TRAFFIC COUNT 7:45 - 8:00 am Sheet 5 of 9



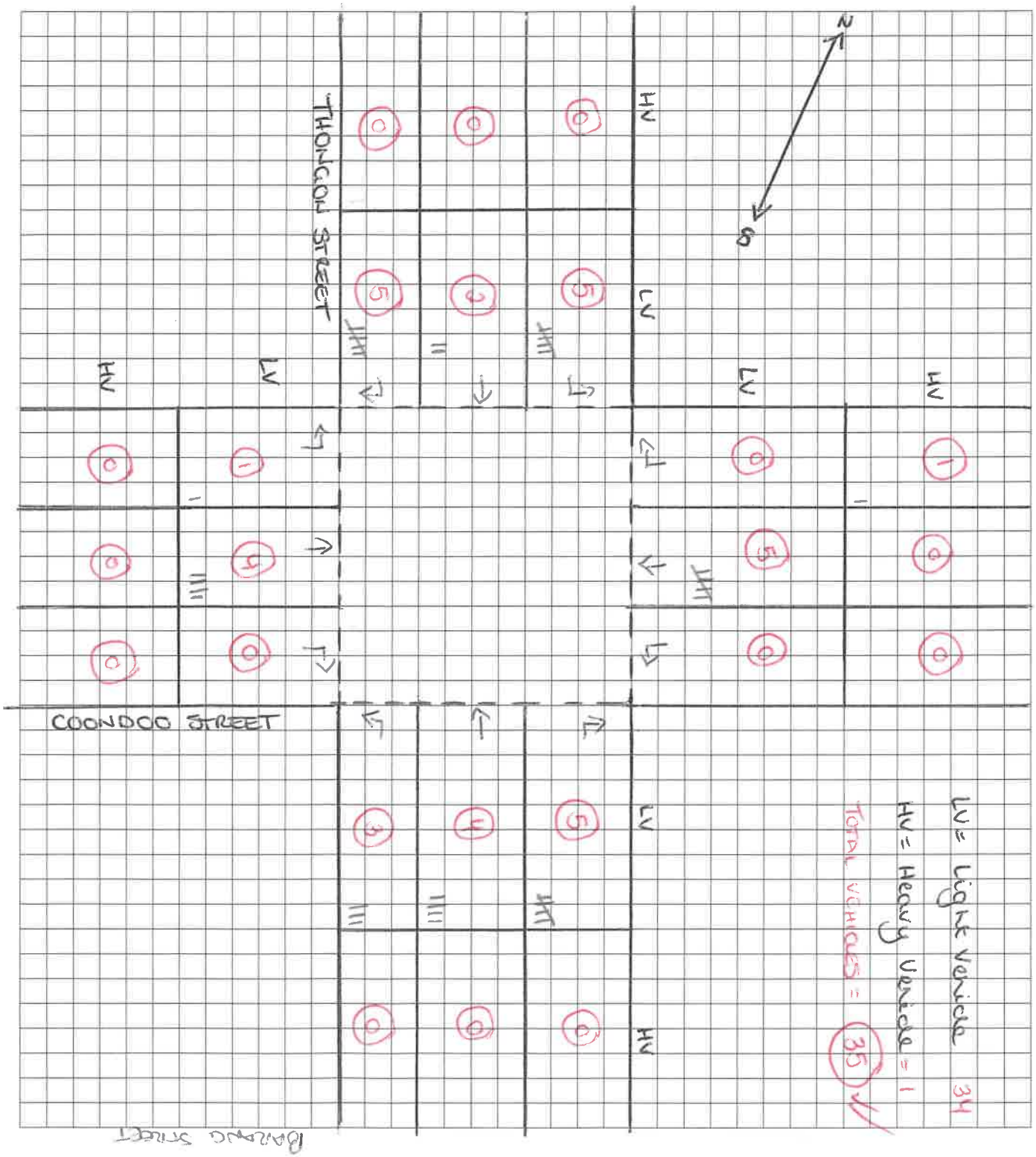
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.01.24

Subject TRAFFIC COUNT 8:00 - 8:15 am Sheet 6 of 9



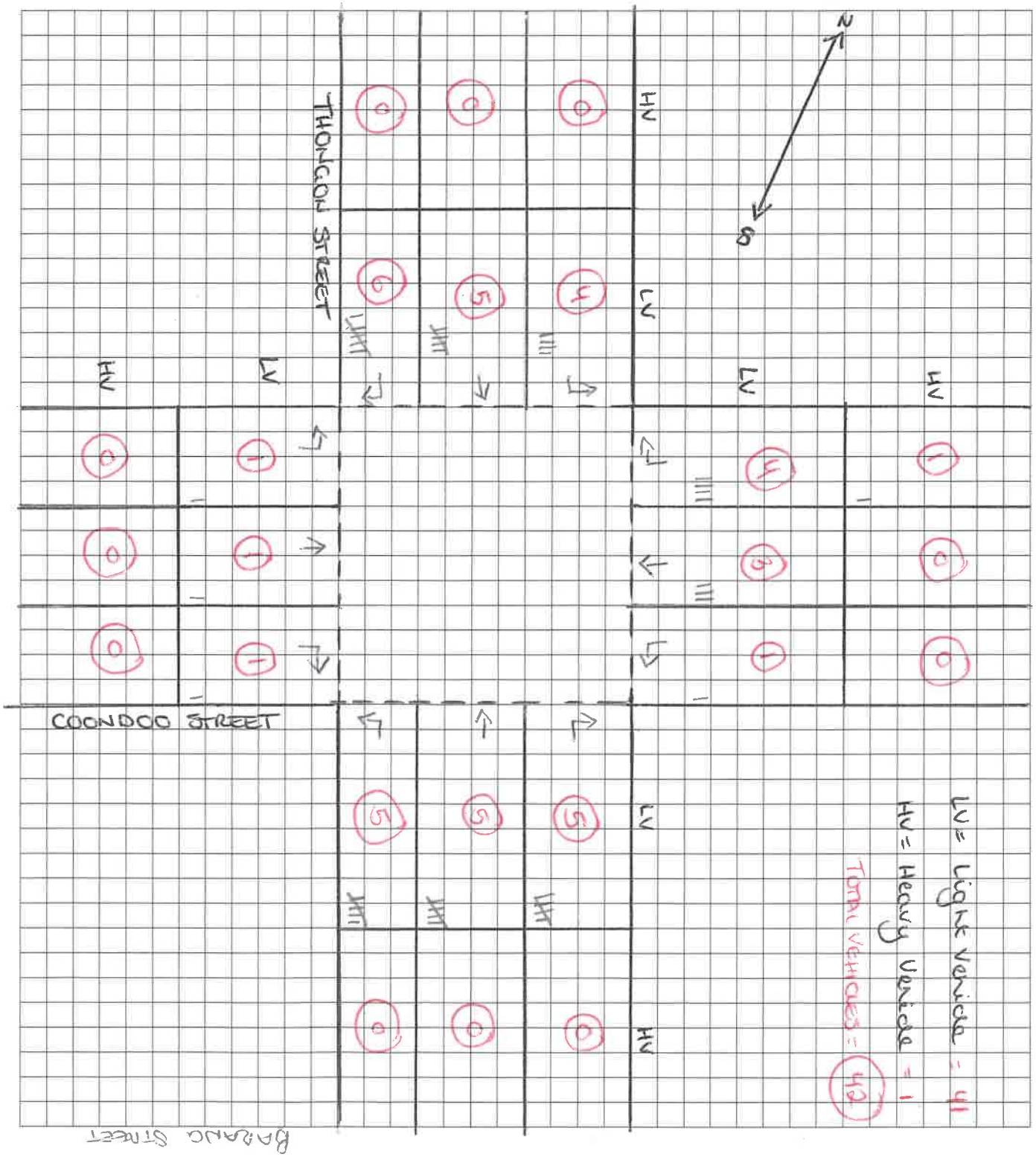
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.01.24

Subject TRAFFIC COUNT 8:15 - 8:30 am Sheet 7 of 9



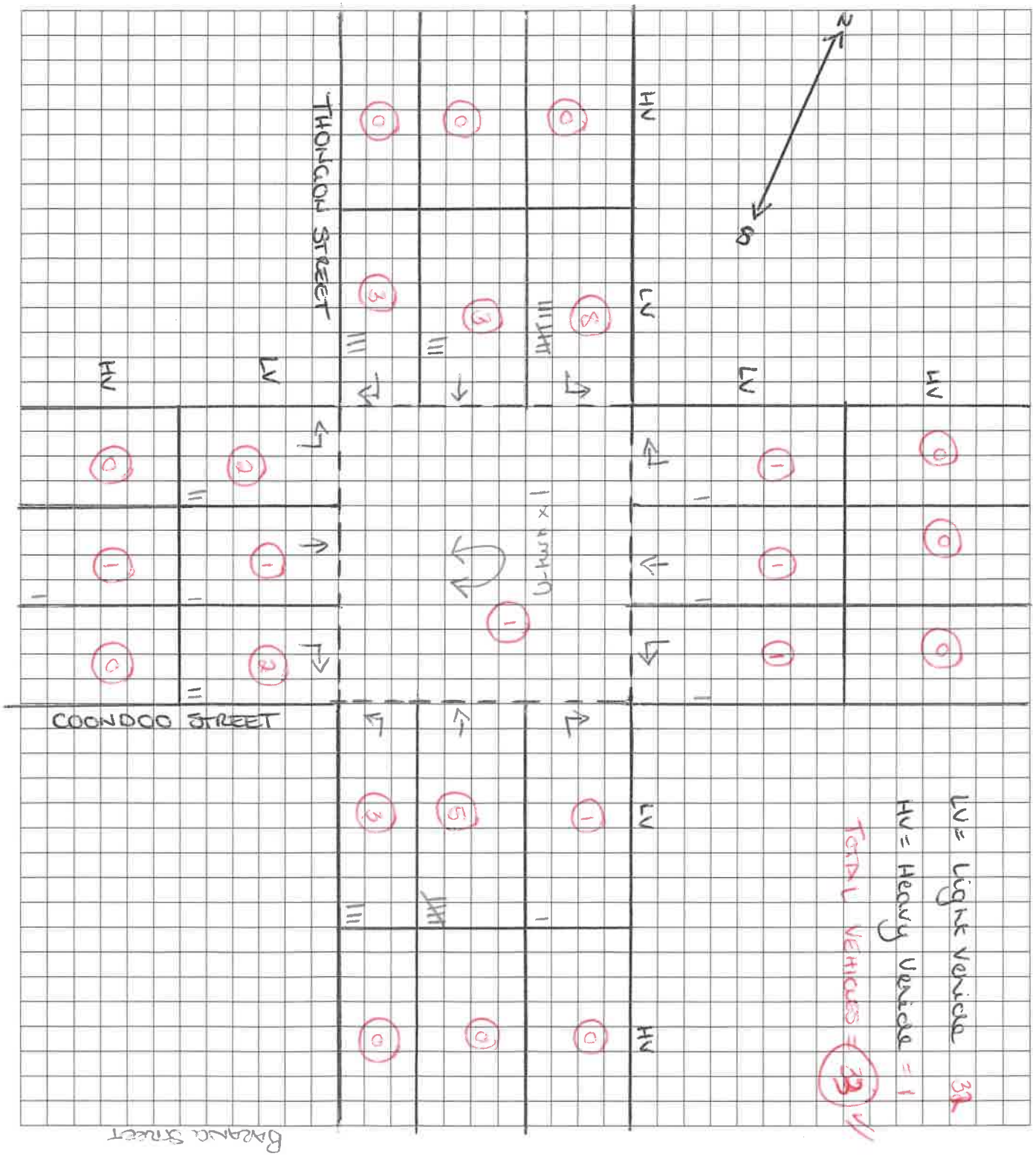
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.01.24

Subject TRAFFIC COUNT 8:30 - 8:45 am Sheet 8 of 9



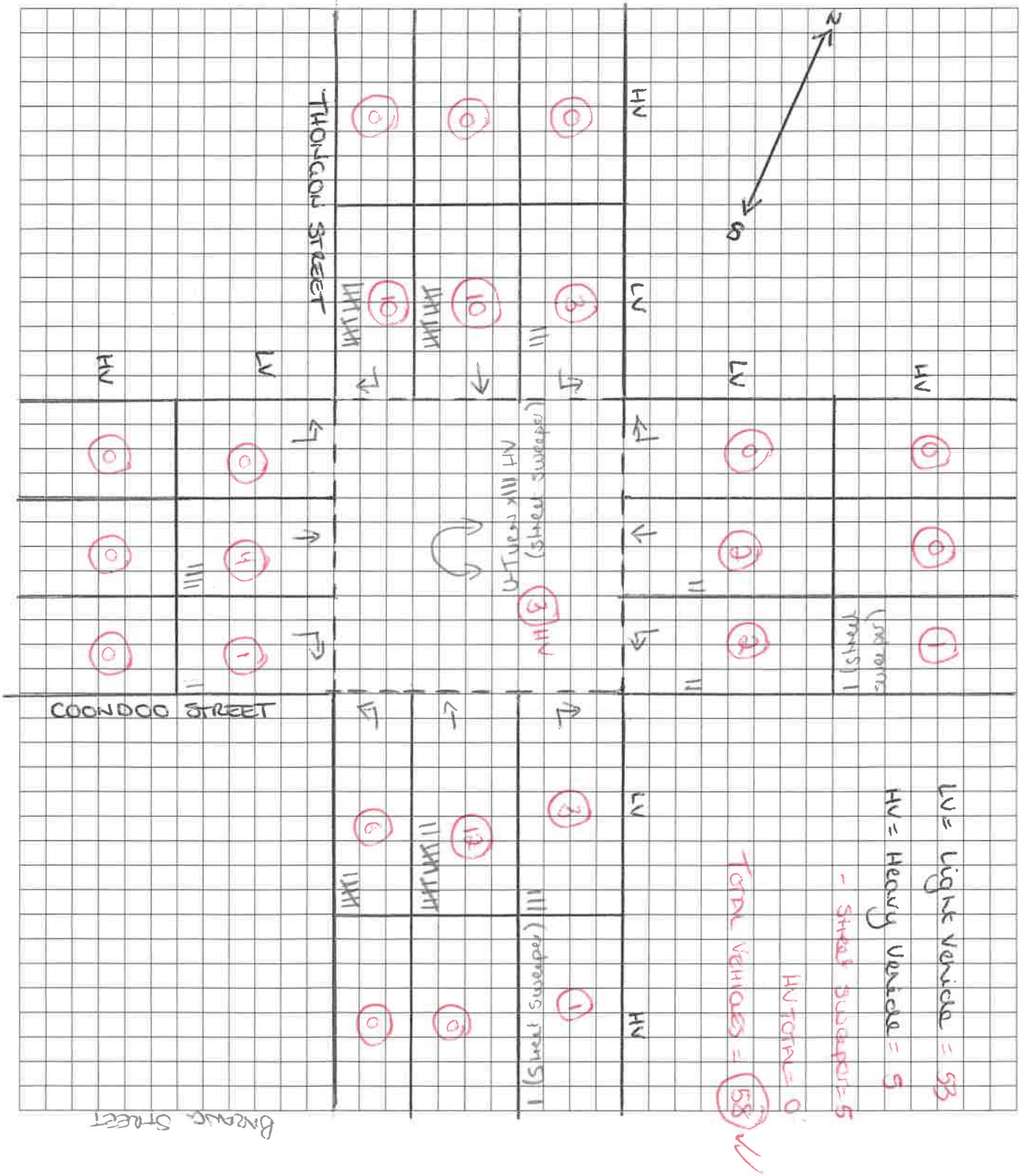
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

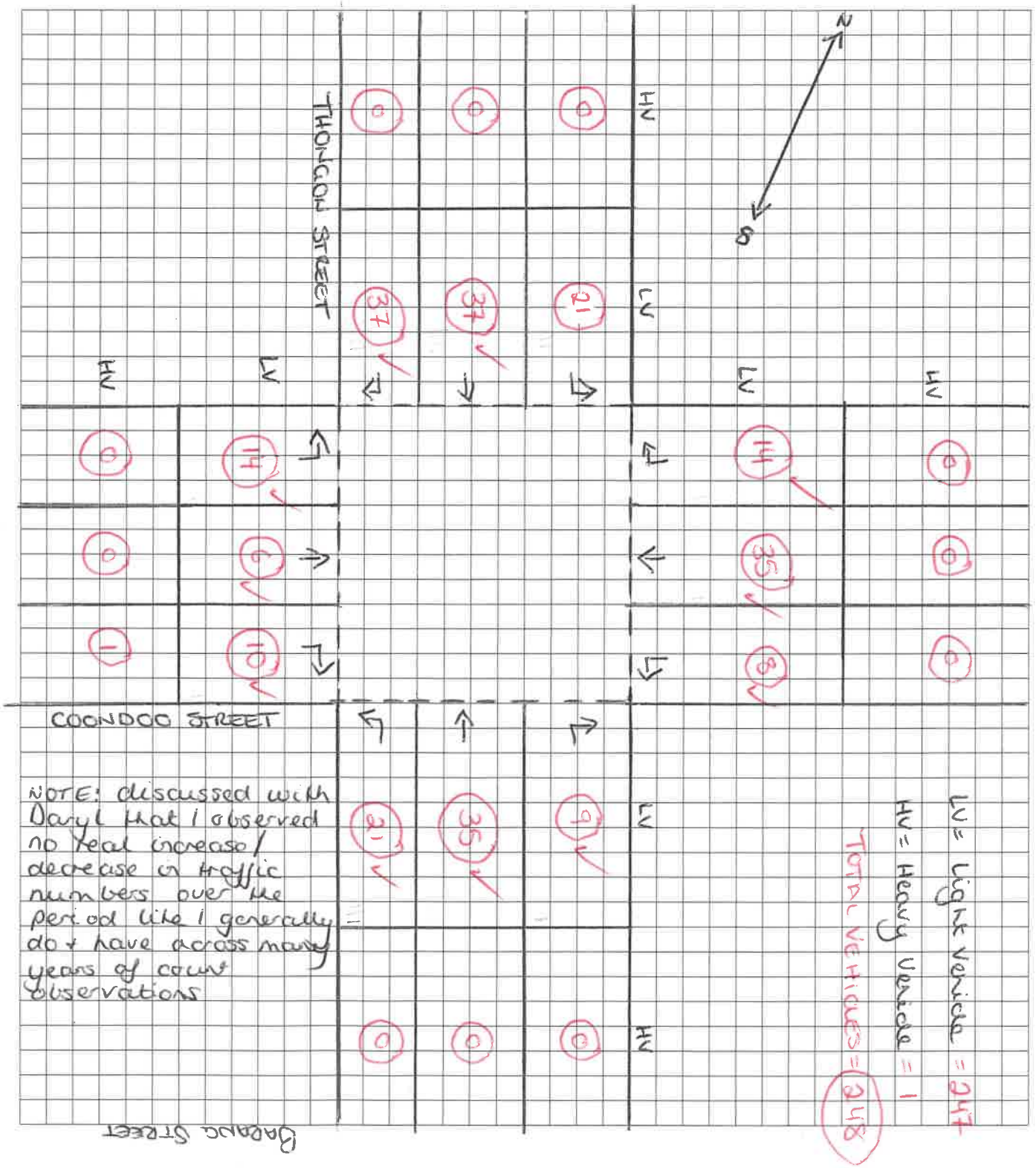
Client Date 17.01.24

Subject TRAFFIC COUNT 8:45 - 9:00 am Sheet 9 of 9



CivilWalker
CONSULTING ENGINEERS

Project	THONGON STREET - KURANDA	Ref	262-001
Client	PM PEAK	Date	17.04.24
Subject	TRAFFIC COUNT 4:00 - 5:00pm	Sheet	1 of 9



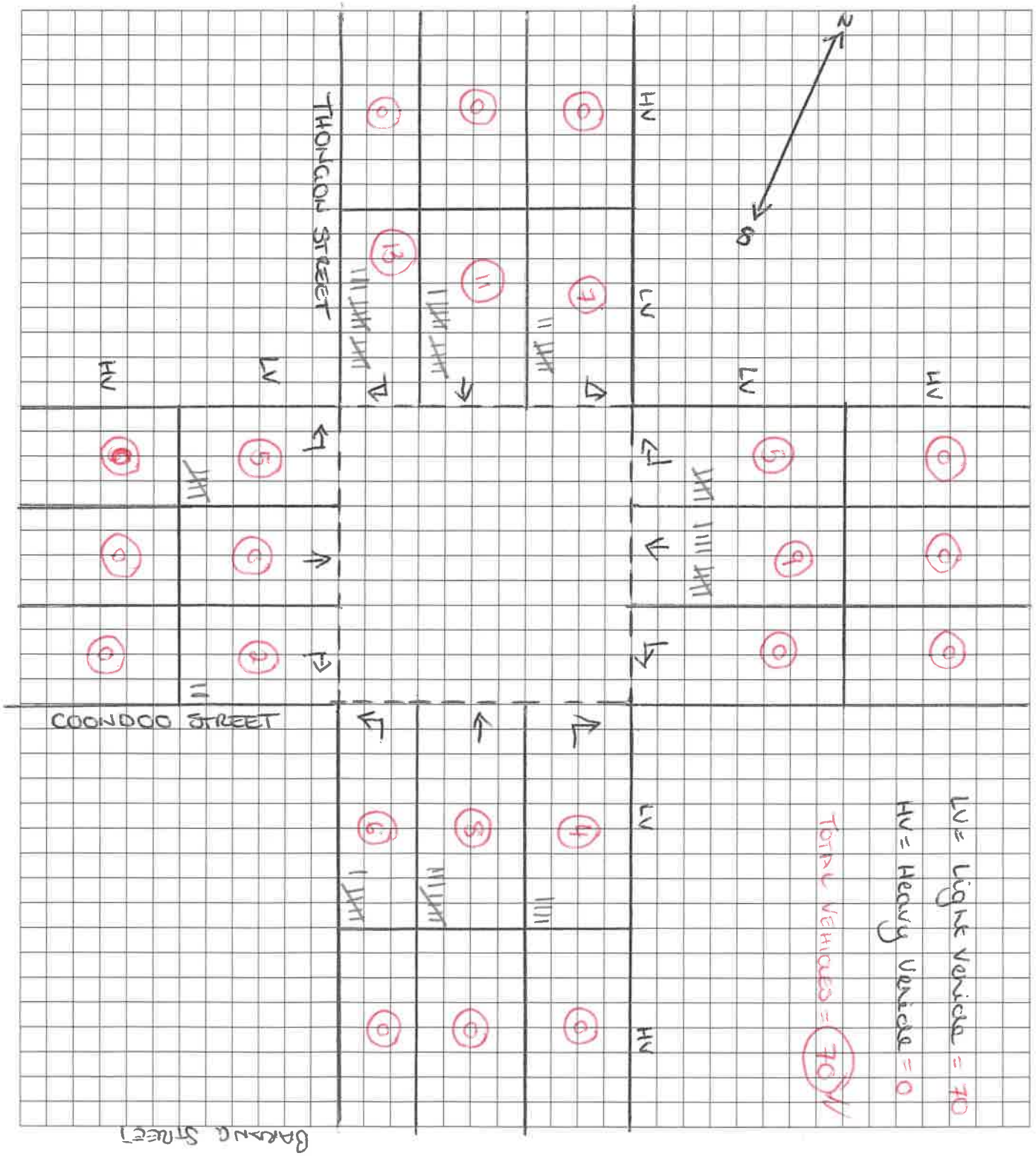
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 4:00 - 4:15 pm Sheet 2 of 9



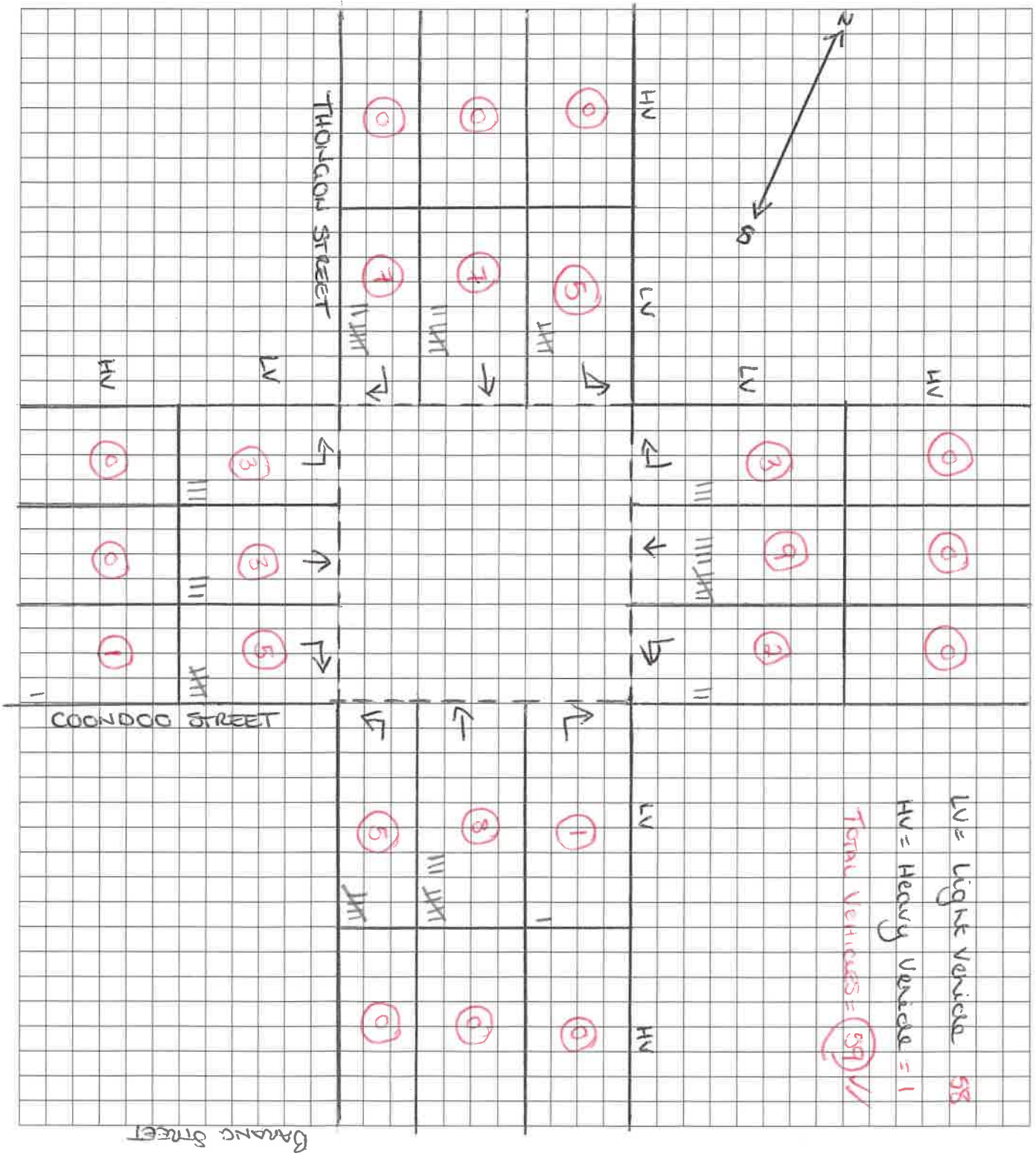
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 4:15 - 4:30 pm Sheet 3 of 9



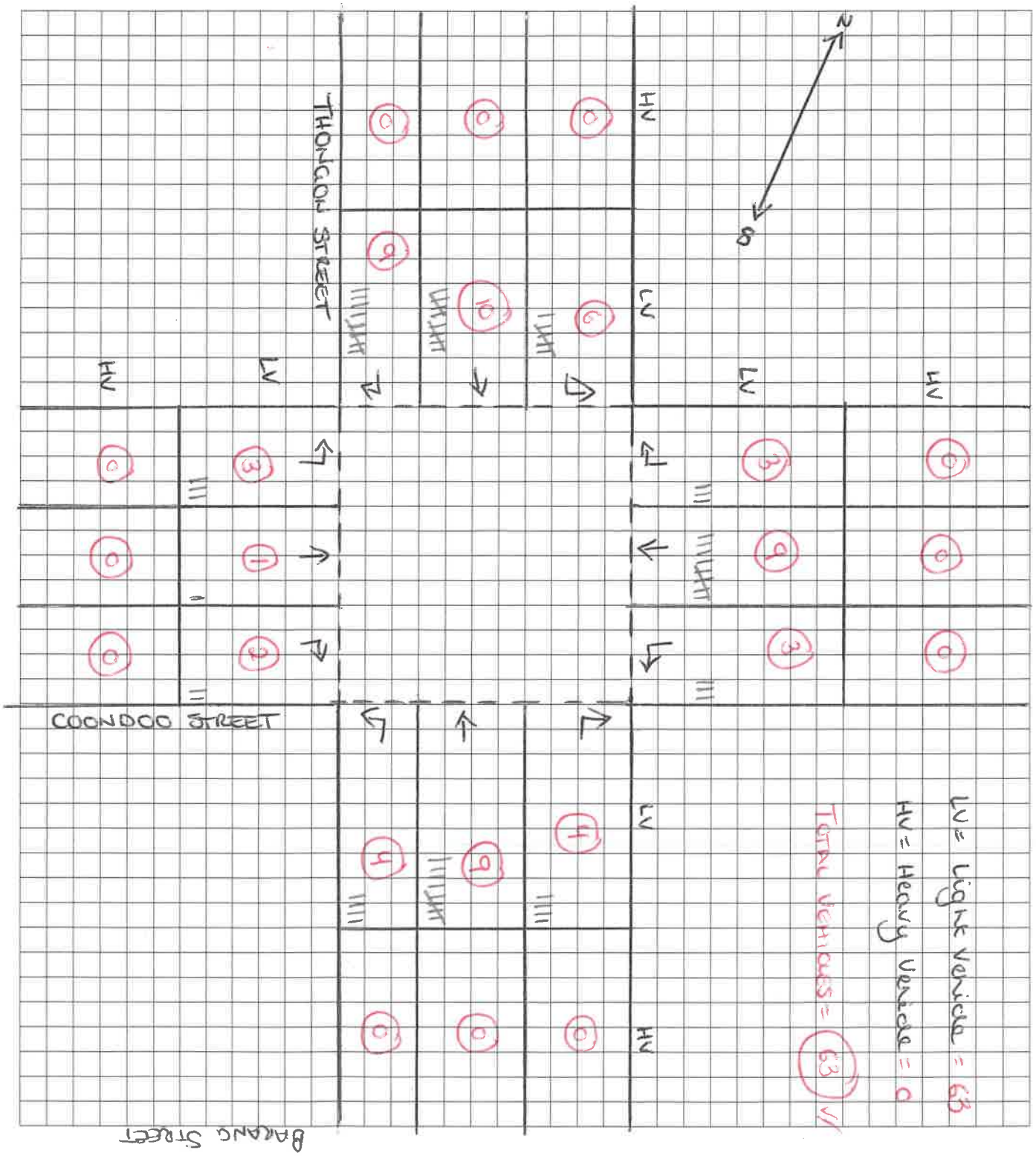
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 4:30 - 4:45 Sheet 4 of 9



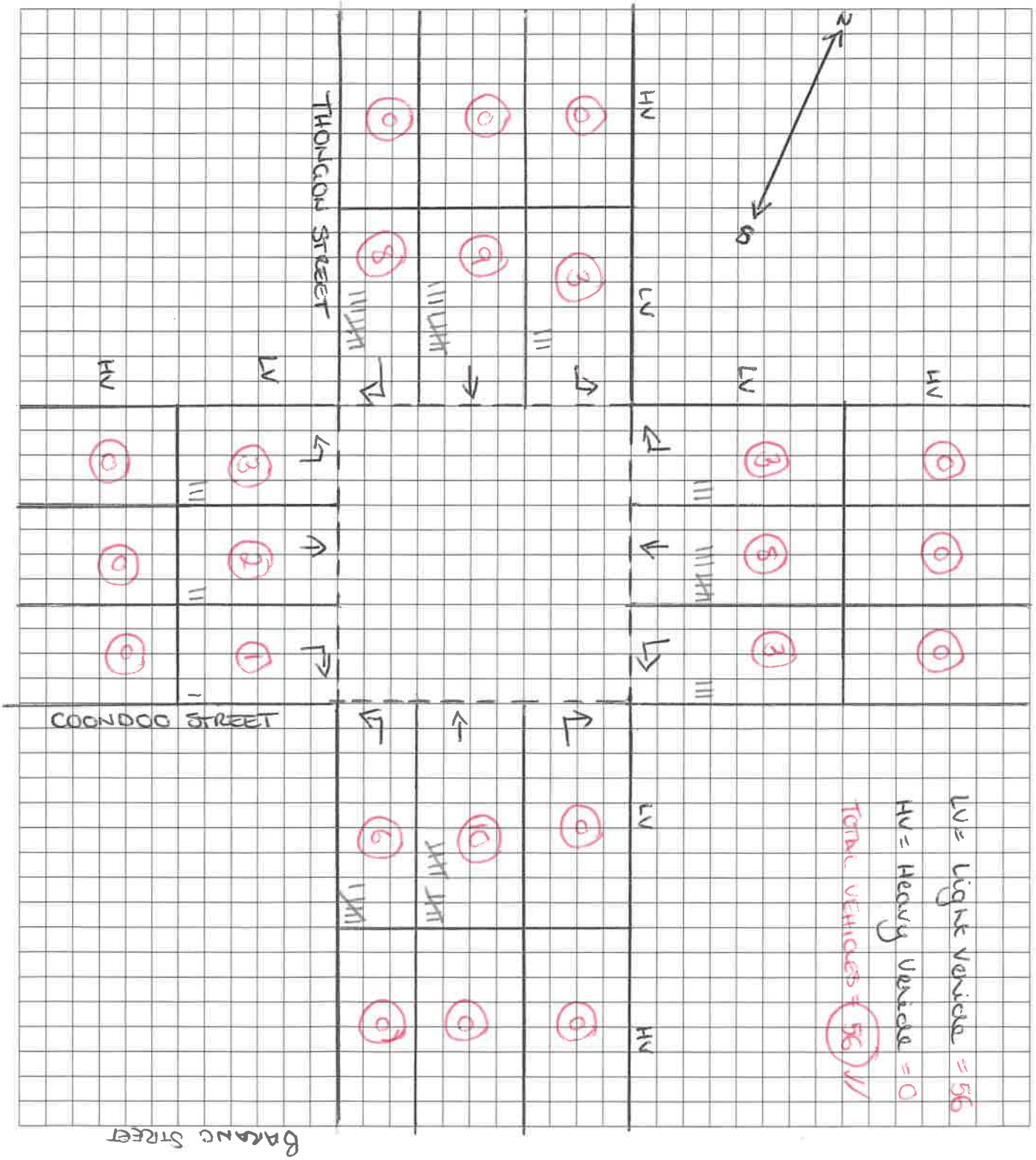
CivilWalker
CONSULTING ENGINEERS

PEAK

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 4:45 - 5:00pm Sheet 5 of 9

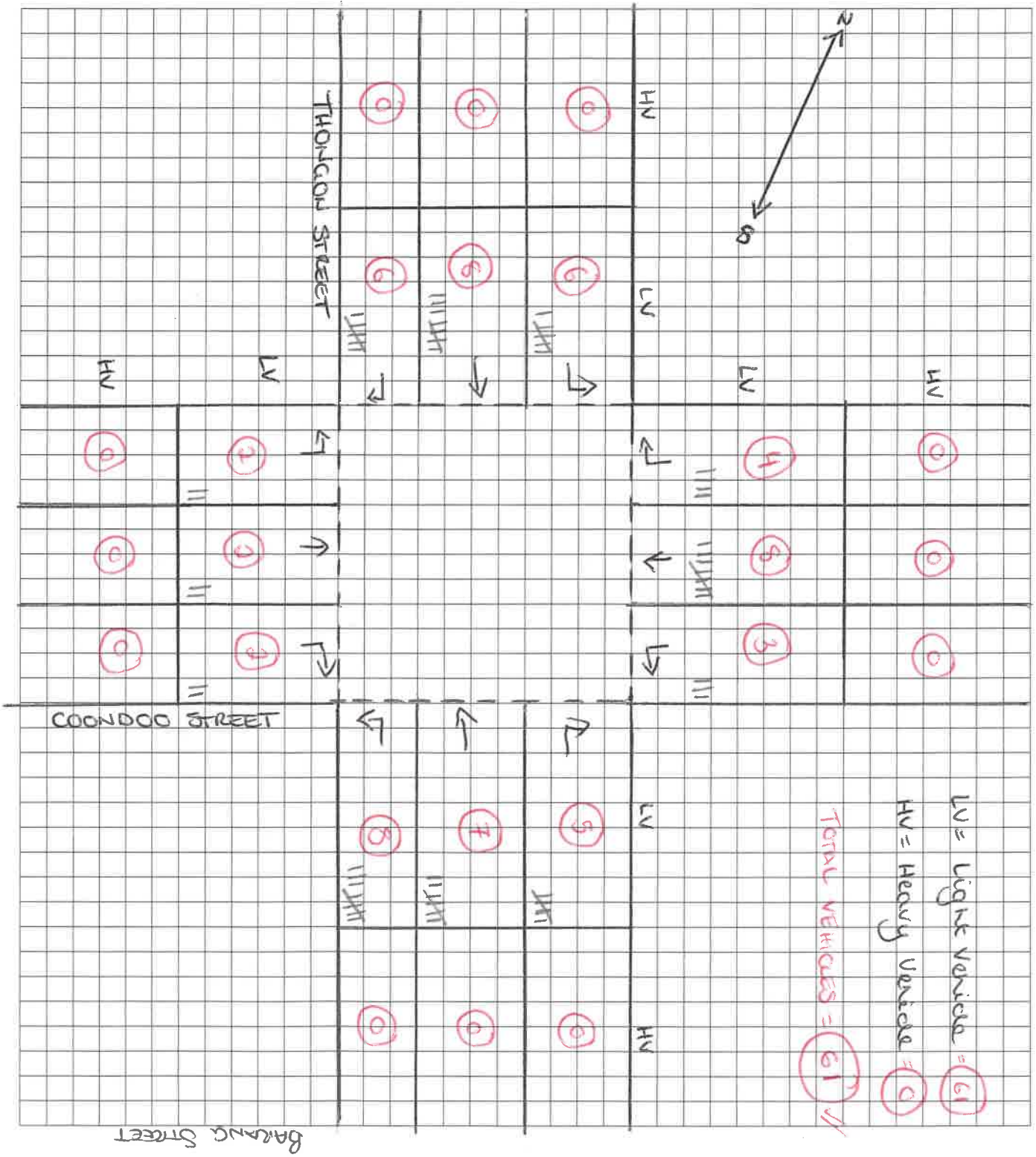


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 5:00-5:15pm Sheet 6 of 9



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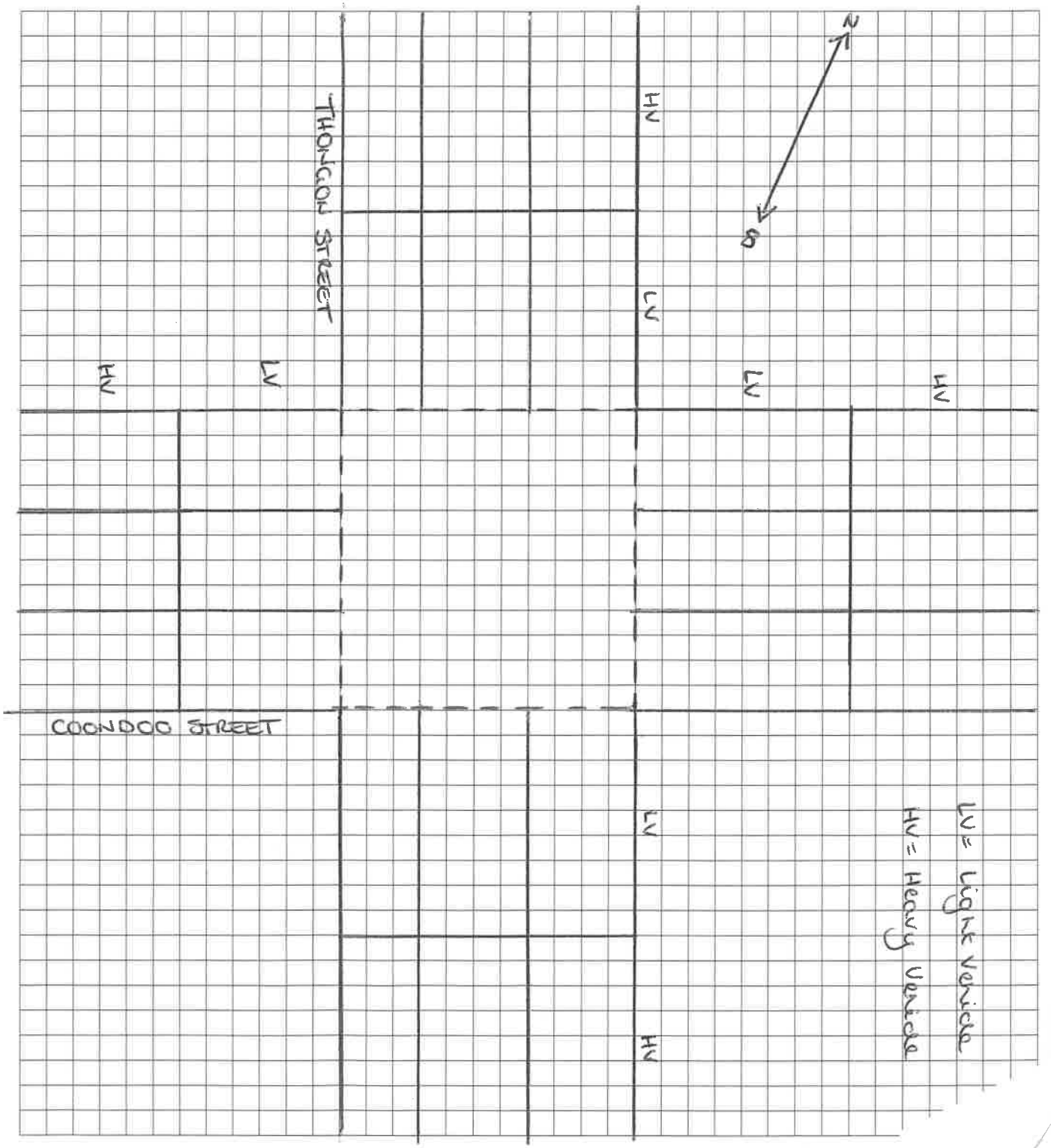
Project THONGON STREET - KURANDA Ref 262-001

Client _____ Date _____

Subject TRAFFIC COUNT Sheet ____ of ____

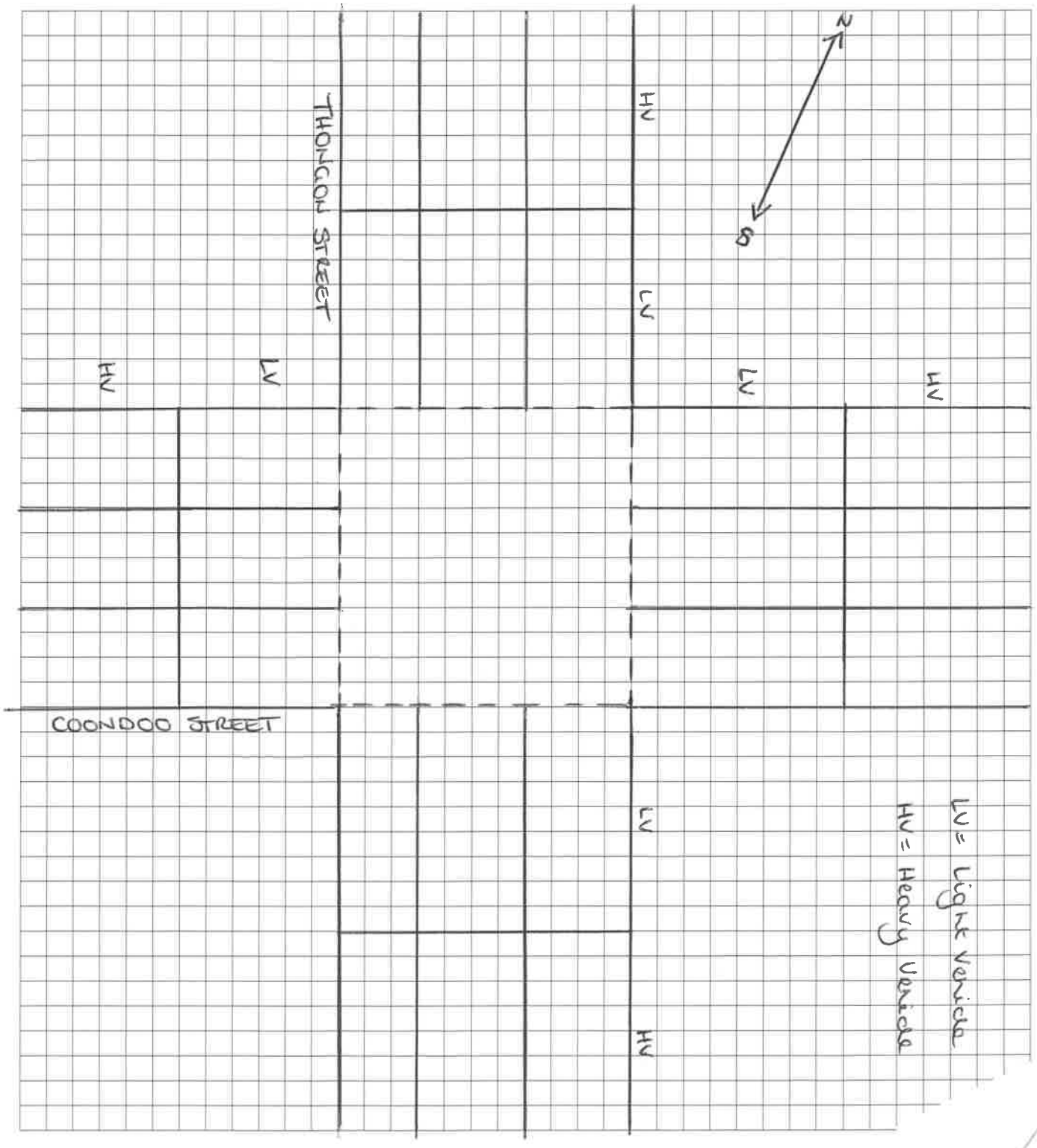


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client _____ Date _____

Subject TRAFFIC COUNT Sheet ____ of ____

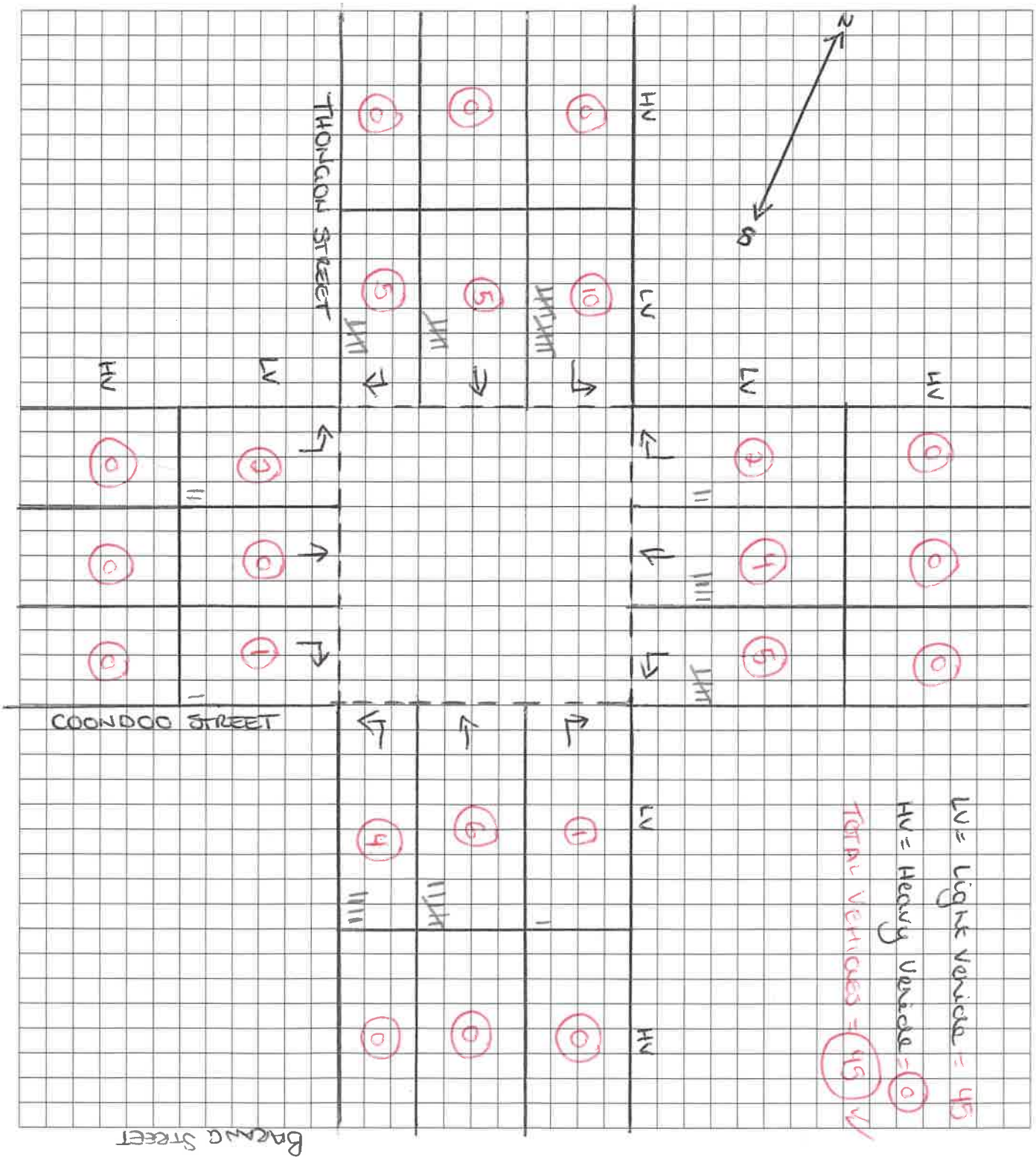


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 5:15 - 5:30pm Sheet 7 of 9

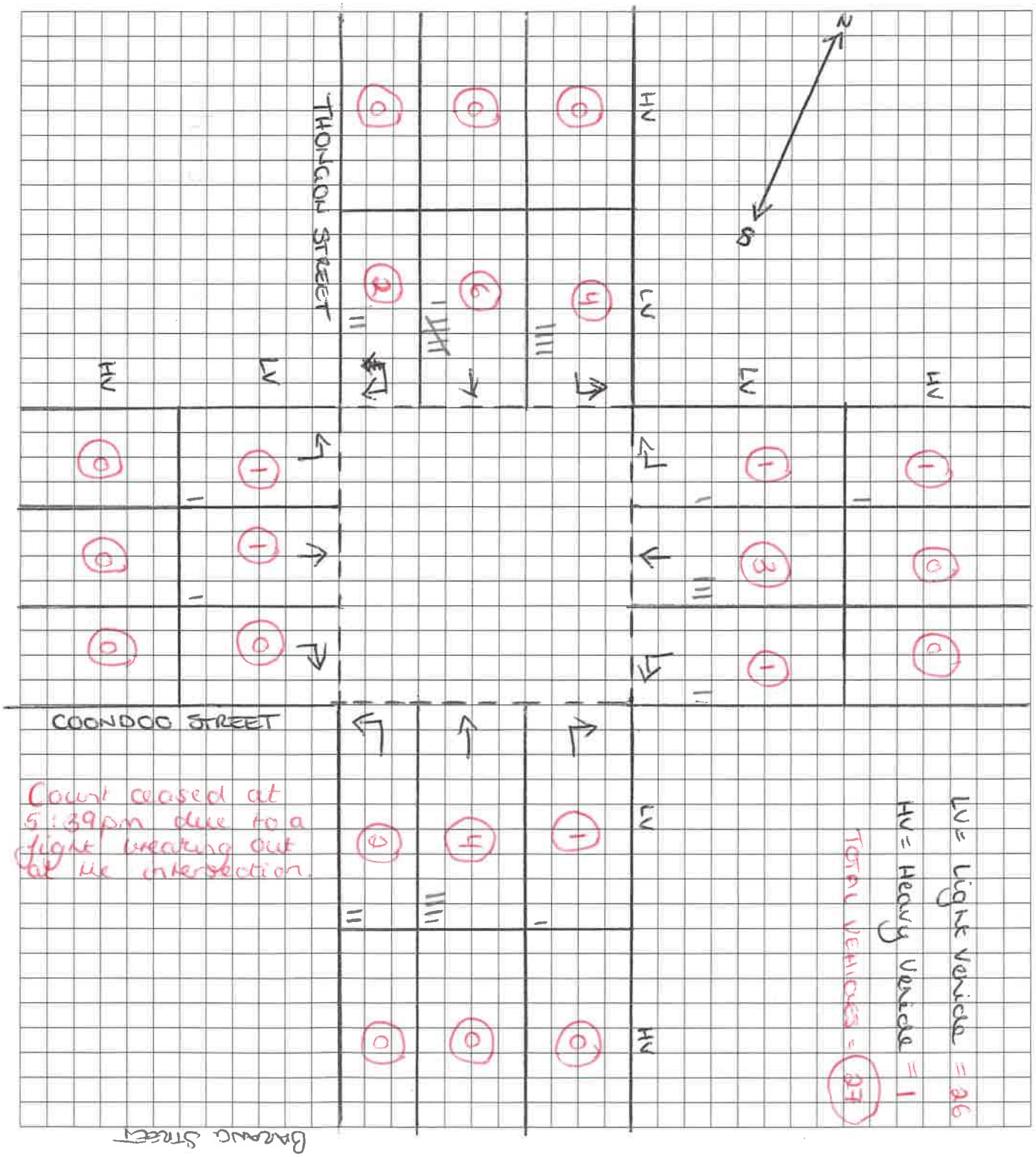


CivilWalker
CONSULTING ENGINEERS

Project THONGON STREET - KURANDA Ref 262-001

Client Date 17.04.24

Subject TRAFFIC COUNT 5:30 - ~~5:45pm~~ 5:39pm Sheet 8 of 9



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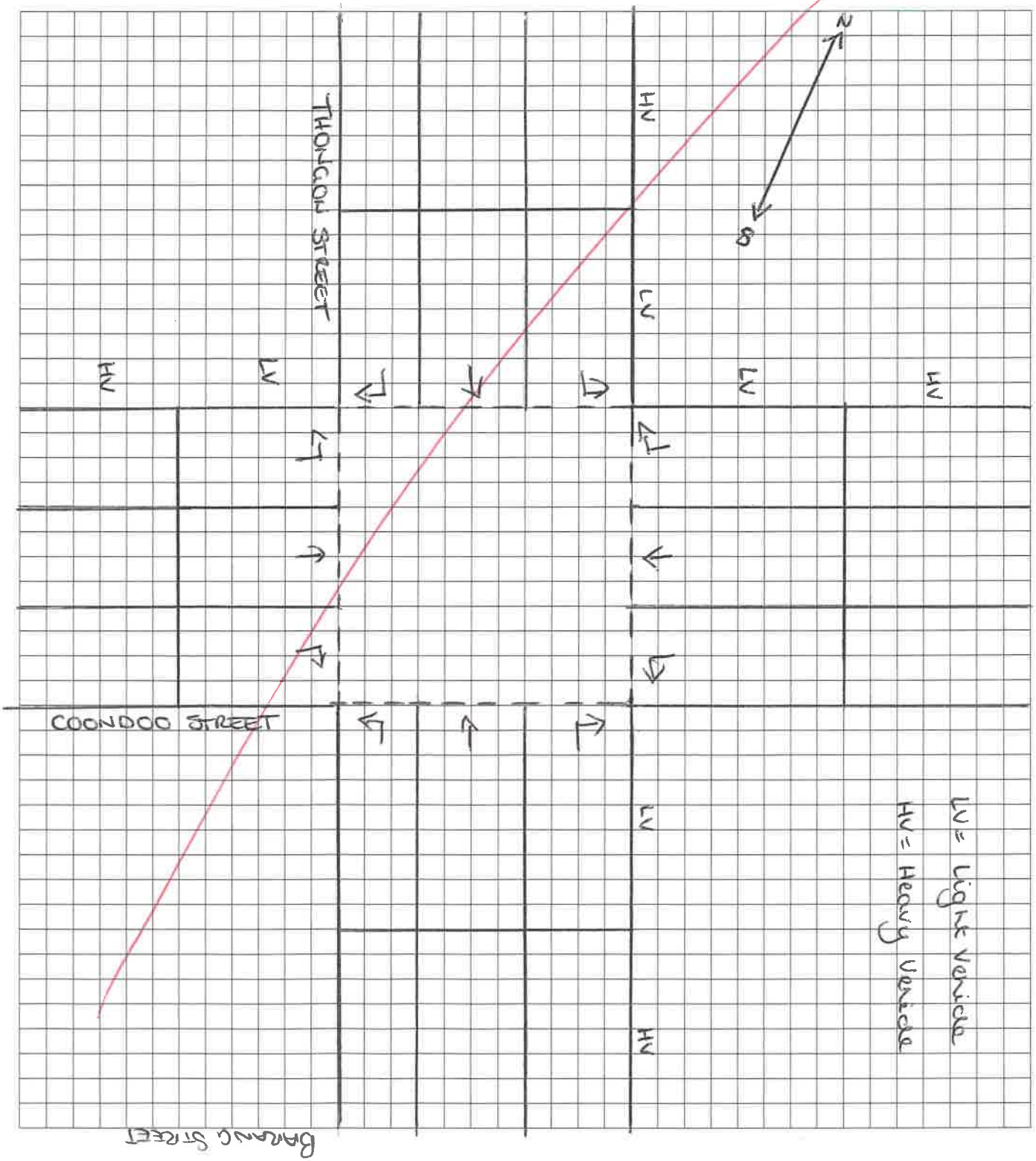
Project THONGON STREET - KURANDA Ref 262-001

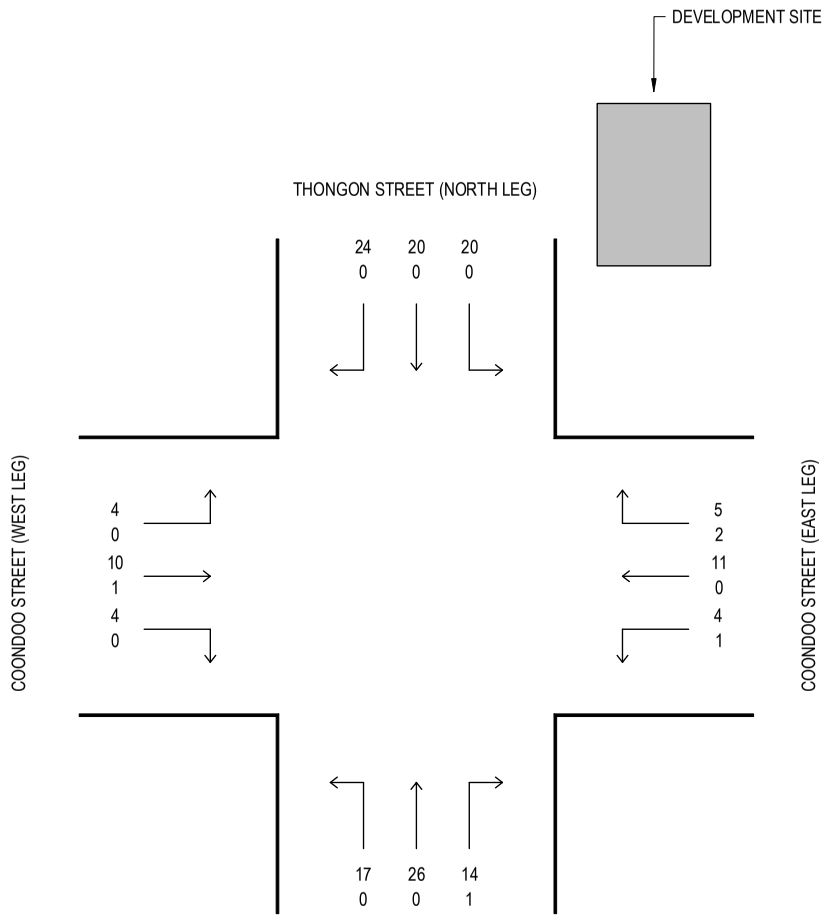
Client NOT COMPLETED Date 17.04.24

Subject TRAFFIC COUNT 5:45 - 6:00pm Sheet 9 of 9

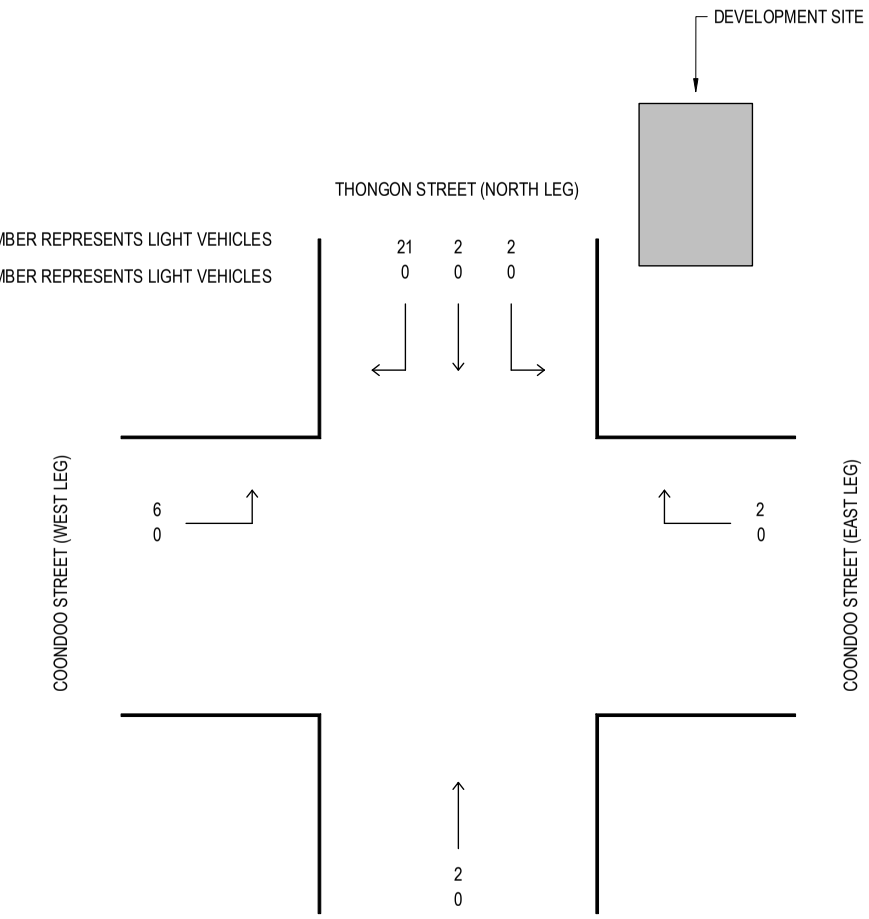


Appendix G

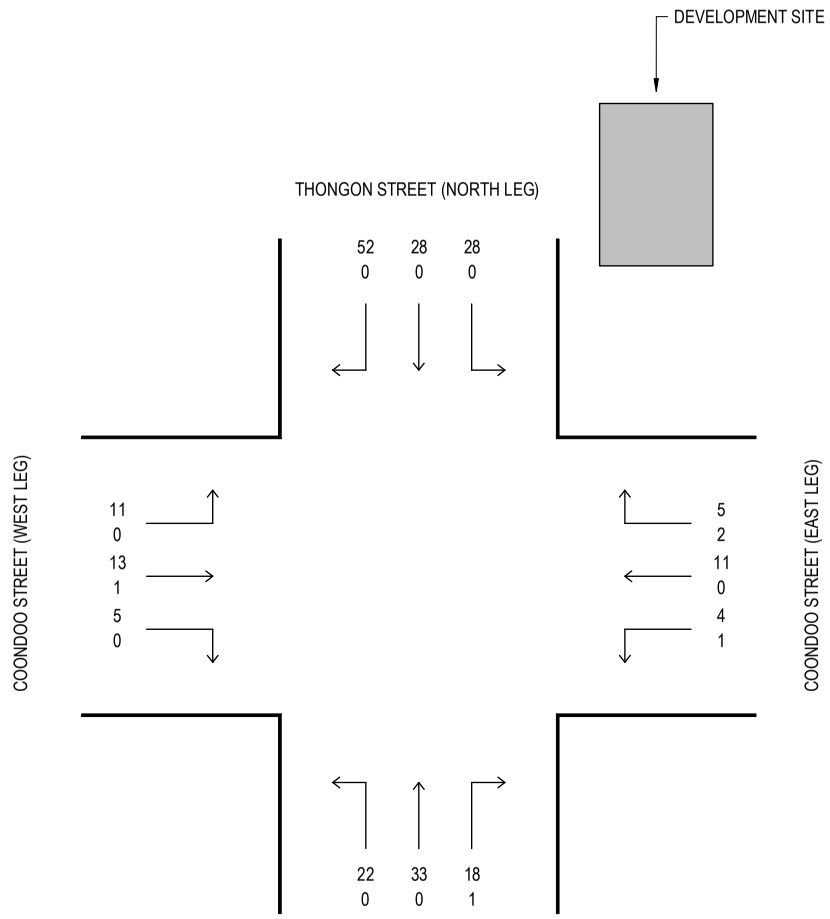
SIDRA Intersection Analysis Modelling Data and Results



TRAFFIC COUNT DATA 2024 (EXISITNG)



DEVELOPMENT GENERATED TRAFFIC DISTRIBUTION



POST DEVELOPMENT + 10 YEARS TRAFFIC

(INCLUDES 2.5% GROWTH ON EXISTING COUNT)

REVISIONS					
	1	27.09.24	INITIAL ISSUE		
	NO.	DATE	DESCRIPTION	DESIGN	APPROVED

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:125 0 2.5 5 7.5 A1
1:250 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

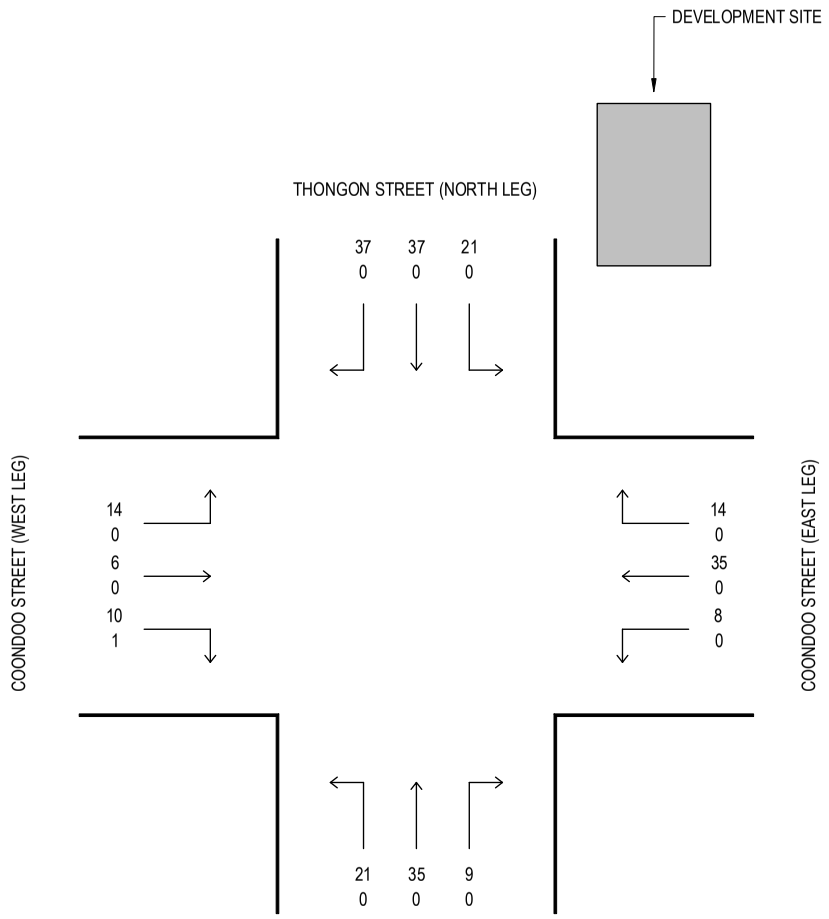
DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

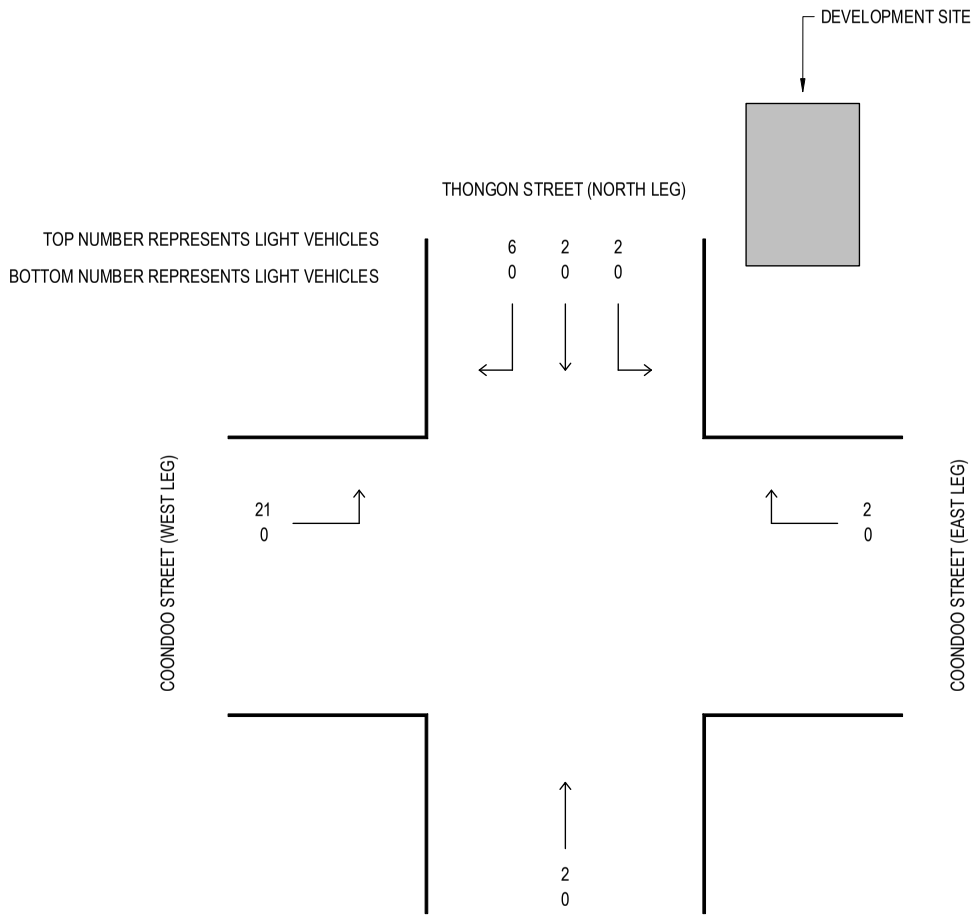
TRAFFIC IMPACT ASSESSMENT
AM PEAK TRAFFIC DATA

DRAWING NO. 262-001-T01

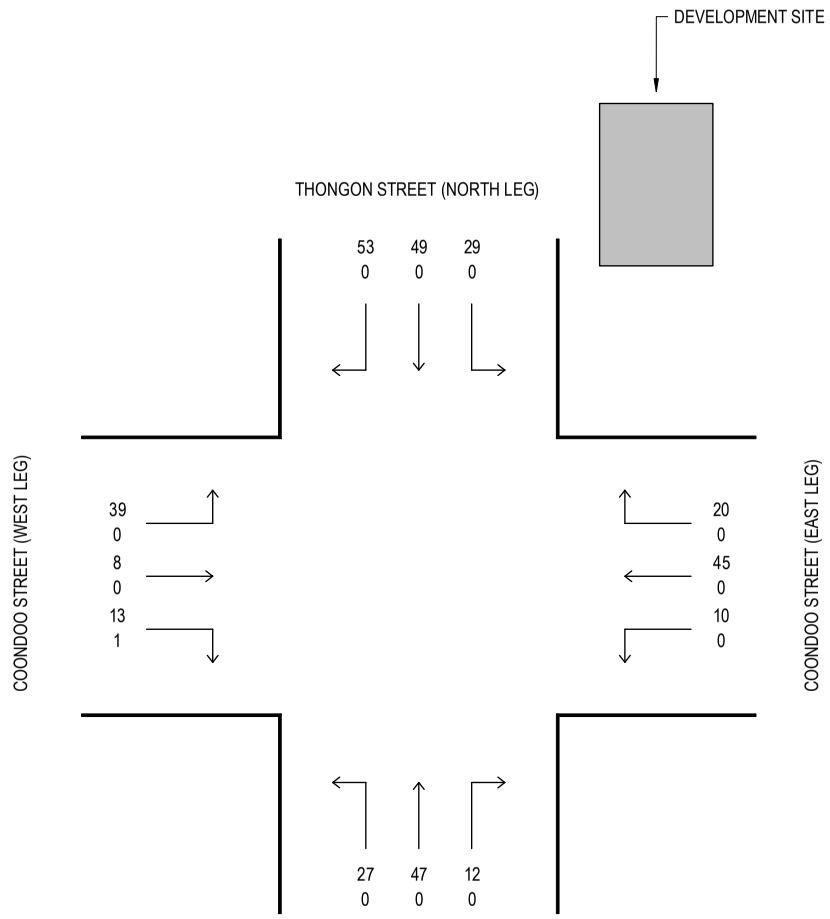
REVISION 1



TRAFFIC COUNT DATA 2024 (EXISITNG)



DEVELOPMENT GENERATED TRAFFIC DISTRIBUTION



POST DEVELOPMENT + 10 YEARS TRAFFIC

(INCLUDES 2.5% GROWTH ON EXISTING COUNT)

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:125 1:250 0 2.5 5 7.5 A1 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

TRAFFIC IMPACT ASSESSMENT

PM PEAK TRAFFIC DATA

DRAWING NO. 262-001-T02

REVISION 1

MOVEMENT SUMMARY

Site: 1 [262-001 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thongon Street / Coondoo Street Intersection
Existing Scenario (AM Peak)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Thongon (Sough Leg)															
1	L2	All MCs	19	5.6	19	5.6	0.035	4.6	LOS A	0.1	0.8	0.08	0.32	0.08	32.2
2	T1	All MCs	28	3.7	28	3.7	0.035	0.1	LOS A	0.1	0.8	0.08	0.32	0.08	45.3
3	R2	All MCs	16	6.7	16	6.7	0.035	4.6	LOS A	0.1	0.8	0.08	0.32	0.08	35.9
Approach			63	5.0	63	5.0	0.035	2.6	NA	0.1	0.8	0.08	0.32	0.08	37.6
East: Coondoo (East Leg)															
4	L2	All MCs	5	20.0	5	20.0	0.023	4.6	LOS A	0.1	0.7	0.16	0.51	0.16	32.4
5	T1	All MCs	13	8.3	13	8.3	0.023	3.7	LOS A	0.1	0.7	0.16	0.51	0.16	37.0
6	R2	All MCs	7	28.6	7	28.6	0.023	5.2	LOS A	0.1	0.7	0.16	0.51	0.16	31.1
Approach			25	16.7	25	16.7	0.023	4.3	LOS A	0.1	0.7	0.16	0.51	0.16	34.4
North: Thongon (North Leg)															
7	L2	All MCs	22	4.8	22	4.8	0.039	4.5	LOS A	0.2	1.1	0.11	0.39	0.11	27.5
8	T1	All MCs	22	4.8	22	4.8	0.039	0.1	LOS A	0.2	1.1	0.11	0.39	0.11	42.8
9	R2	All MCs	26	4.0	26	4.0	0.039	4.5	LOS A	0.2	1.1	0.11	0.39	0.11	37.3
Approach			71	4.5	71	4.5	0.039	3.1	NA	0.2	1.1	0.11	0.39	0.11	35.0
West: Coondoo (West Leg)															
10	L2	All MCs	5	20.0	5	20.0	0.020	5.7	LOS A	0.1	0.5	0.16	0.52	0.16	33.7
11	T1	All MCs	12	9.1	12	9.1	0.020	4.7	LOS A	0.1	0.5	0.16	0.52	0.16	35.3
12	R2	All MCs	5	20.0	5	20.0	0.020	6.2	LOS A	0.1	0.5	0.16	0.52	0.16	33.2
Approach			22	14.3	22	14.3	0.020	5.3	LOS A	0.1	0.5	0.16	0.52	0.16	34.4
All Vehicles			181	7.6	181	7.6	0.039	3.4	NA	0.2	1.1	0.11	0.40	0.11	35.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [262-001 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thongon Street / Coondoo Street Intersection
Existing Scenario (PM Peak)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Thongon (Sough Leg)															
1	L2	All MCs	23	4.5	23	4.5	0.039	4.6	LOS A	0.1	0.6	0.07	0.28	0.07	33.0
2	T1	All MCs	38	2.8	38	2.8	0.039	0.1	LOS A	0.1	0.6	0.07	0.28	0.07	47.1
3	R2	All MCs	11	10.0	11	10.0	0.039	4.6	LOS A	0.1	0.6	0.07	0.28	0.07	36.7
Approach			72	4.4	72	4.4	0.039	2.2	NA	0.1	0.6	0.07	0.28	0.07	39.2
East: Coondoo (East Leg)															
4	L2	All MCs	9	11.1	9	11.1	0.057	4.7	LOS A	0.2	1.5	0.22	0.52	0.22	32.5
5	T1	All MCs	38	2.8	38	2.8	0.057	3.8	LOS A	0.2	1.5	0.22	0.52	0.22	37.3
6	R2	All MCs	16	6.7	16	6.7	0.057	5.3	LOS A	0.2	1.5	0.22	0.52	0.22	31.9
Approach			63	5.0	63	5.0	0.057	4.3	LOS A	0.2	1.5	0.22	0.52	0.22	35.3
North: Thongon (North Leg)															
7	L2	All MCs	23	4.5	23	4.5	0.058	4.6	LOS A	0.2	1.7	0.13	0.35	0.13	27.9
8	T1	All MCs	40	2.6	40	2.6	0.058	0.1	LOS A	0.2	1.7	0.13	0.35	0.13	43.8
9	R2	All MCs	40	2.6	40	2.6	0.058	4.5	LOS A	0.2	1.7	0.13	0.35	0.13	38.0
Approach			103	3.1	103	3.1	0.058	2.8	NA	0.2	1.7	0.13	0.35	0.13	37.0
West: Coondoo (West Leg)															
10	L2	All MCs	16	6.7	16	6.7	0.030	5.7	LOS A	0.1	0.8	0.16	0.54	0.16	33.4
11	T1	All MCs	7	14.3	7	14.3	0.030	4.9	LOS A	0.1	0.8	0.16	0.54	0.16	34.3
12	R2	All MCs	12	9.1	12	9.1	0.030	6.5	LOS A	0.1	0.8	0.16	0.54	0.16	32.9
Approach			35	9.1	35	9.1	0.030	5.8	LOS A	0.1	0.8	0.16	0.54	0.16	33.4
All Vehicles			273	4.6	273	4.6	0.058	3.4	NA	0.2	1.7	0.14	0.40	0.14	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [262-001 AM Peak PD (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thongon Street / Coondoo Street Intersection
Post Development Scenario (AM Peak)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Thongon (Sough Leg)															
1	L2	All MCs	24	4.3	24	4.3	0.044	4.6	LOS A	0.1	1.0	0.10	0.32	0.10	32.2
2	T1	All MCs	36	2.9	36	2.9	0.044	0.1	LOS A	0.1	1.0	0.10	0.32	0.10	45.0
3	R2	All MCs	20	5.3	20	5.3	0.044	4.6	LOS A	0.1	1.0	0.10	0.32	0.10	35.8
Approach			80	3.9	80	3.9	0.044	2.6	NA	0.1	1.0	0.10	0.32	0.10	37.4
East: Coondoo (East Leg)															
4	L2	All MCs	5	20.0	5	20.0	0.025	4.6	LOS A	0.1	0.7	0.20	0.51	0.20	31.9
5	T1	All MCs	13	8.3	13	8.3	0.025	3.9	LOS A	0.1	0.7	0.20	0.51	0.20	36.5
6	R2	All MCs	7	28.6	7	28.6	0.025	5.6	LOS A	0.1	0.7	0.20	0.51	0.20	30.6
Approach			25	16.7	25	16.7	0.025	4.6	LOS A	0.1	0.7	0.20	0.51	0.20	33.9
North: Thongon (North Leg)															
7	L2	All MCs	31	3.4	31	3.4	0.066	4.6	LOS A	0.3	2.1	0.14	0.41	0.14	27.1
8	T1	All MCs	31	3.4	31	3.4	0.066	0.2	LOS A	0.3	2.1	0.14	0.41	0.14	41.6
9	R2	All MCs	56	1.9	56	1.9	0.066	4.5	LOS A	0.3	2.1	0.14	0.41	0.14	36.8
Approach			117	2.7	117	2.7	0.066	3.4	NA	0.3	2.1	0.14	0.41	0.14	34.8
West: Coondoo (West Leg)															
10	L2	All MCs	13	8.3	13	8.3	0.029	5.7	LOS A	0.1	0.8	0.17	0.53	0.17	33.9
11	T1	All MCs	15	7.1	15	7.1	0.029	4.9	LOS A	0.1	0.8	0.17	0.53	0.17	35.0
12	R2	All MCs	6	16.7	6	16.7	0.029	6.5	LOS A	0.1	0.8	0.17	0.53	0.17	33.1
Approach			34	9.4	34	9.4	0.029	5.5	LOS A	0.1	0.8	0.17	0.53	0.17	34.2
All Vehicles			256	5.3	256	5.3	0.066	3.5	NA	0.3	2.1	0.14	0.41	0.14	35.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [262-001 PM Peak PD (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thongon Street / Coondoo Street Intersection
Post Development Scenario (PM Peak)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Thongon (Sough Leg)															
1	L2	All MCs	29	3.6	29	3.6	0.051	4.6	LOS A	0.1	0.8	0.08	0.28	0.08	33.0
2	T1	All MCs	51	2.1	51	2.1	0.051	0.1	LOS A	0.1	0.8	0.08	0.28	0.08	47.0
3	R2	All MCs	14	7.7	14	7.7	0.051	4.7	LOS A	0.1	0.8	0.08	0.28	0.08	36.9
Approach			94	3.4	94	3.4	0.051	2.2	NA	0.1	0.8	0.08	0.28	0.08	39.4
East: Coondoo (East Leg)															
4	L2	All MCs	12	9.1	12	9.1	0.079	4.7	LOS A	0.3	2.1	0.27	0.54	0.27	32.1
5	T1	All MCs	48	2.2	48	2.2	0.079	4.1	LOS A	0.3	2.1	0.27	0.54	0.27	36.7
6	R2	All MCs	22	4.8	22	4.8	0.079	5.8	LOS A	0.3	2.1	0.27	0.54	0.27	31.5
Approach			82	3.8	82	3.8	0.079	4.6	LOS A	0.3	2.1	0.27	0.54	0.27	34.8
North: Thongon (North Leg)															
7	L2	All MCs	32	3.3	32	3.3	0.079	4.6	LOS A	0.3	2.4	0.16	0.37	0.16	27.7
8	T1	All MCs	53	2.0	53	2.0	0.079	0.2	LOS A	0.3	2.4	0.16	0.37	0.16	43.2
9	R2	All MCs	57	1.9	57	1.9	0.079	4.6	LOS A	0.3	2.4	0.16	0.37	0.16	37.7
Approach			141	2.2	141	2.2	0.079	3.0	NA	0.3	2.4	0.16	0.37	0.16	36.6
West: Coondoo (West Leg)															
10	L2	All MCs	42	2.5	42	2.5	0.054	5.7	LOS A	0.2	1.5	0.17	0.54	0.17	33.4
11	T1	All MCs	9	11.1	9	11.1	0.054	5.2	LOS A	0.2	1.5	0.17	0.54	0.17	34.2
12	R2	All MCs	15	7.1	15	7.1	0.054	6.9	LOS A	0.2	1.5	0.17	0.54	0.17	32.8
Approach			66	4.8	66	4.8	0.054	5.9	LOS A	0.2	1.5	0.17	0.54	0.17	33.4
All Vehicles			383	3.3	383	3.3	0.079	3.6	NA	0.3	2.4	0.17	0.41	0.17	36.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix H

CivilWalker Consulting Engineers' Drawings

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:150 0 1 2 3 6 9 A1
1:300 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

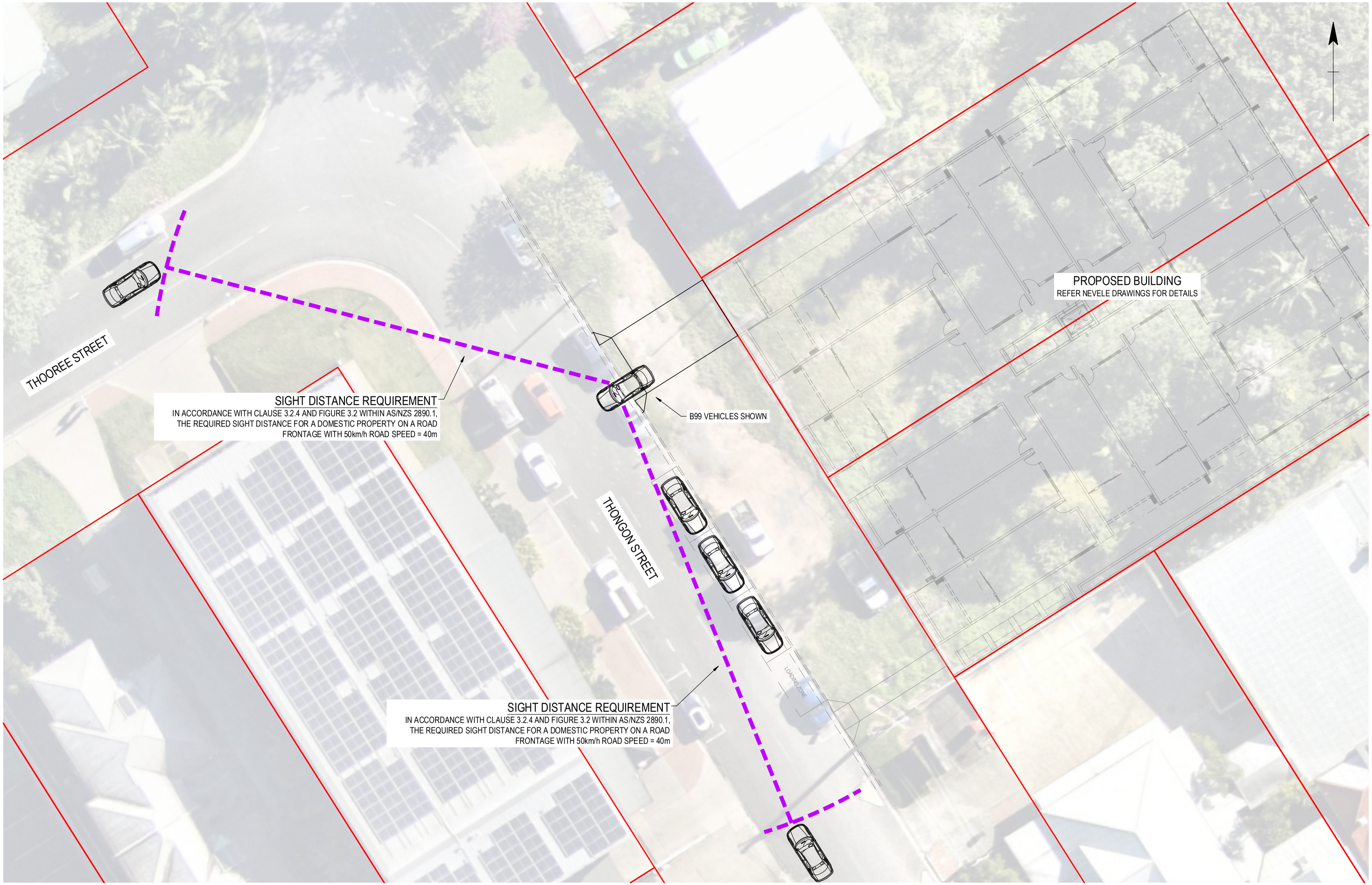
DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

ON-STREET WORK

DRAWING NO. 262-001-SK01

REVISION 1



REVISIONS					
1	27.09.24	INITIAL ISSUE			
NO.	DATE	DESCRIPTION	DESIGN	APPROVED	

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:150 0 1 2 3 6 9 A1
1:300 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

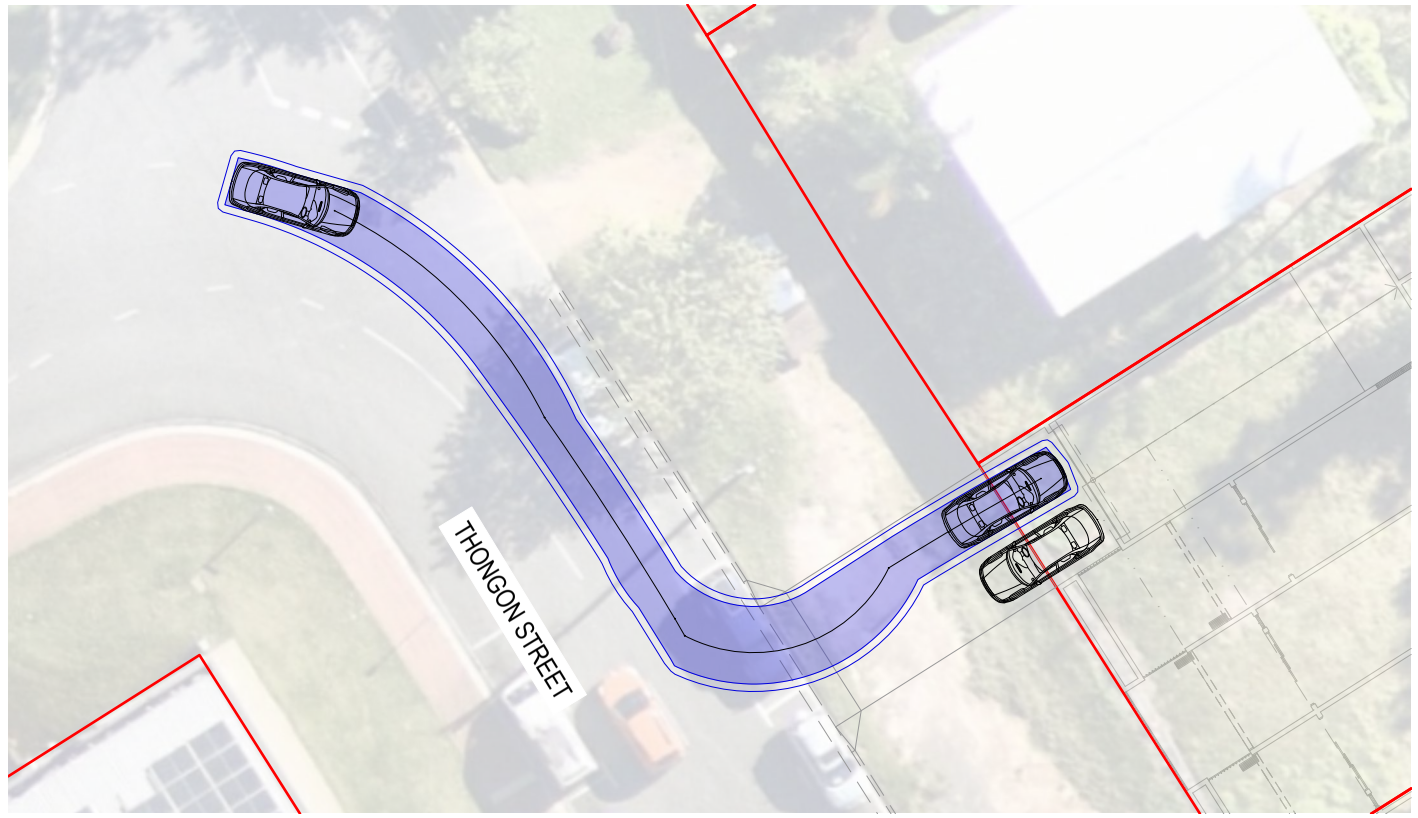
DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

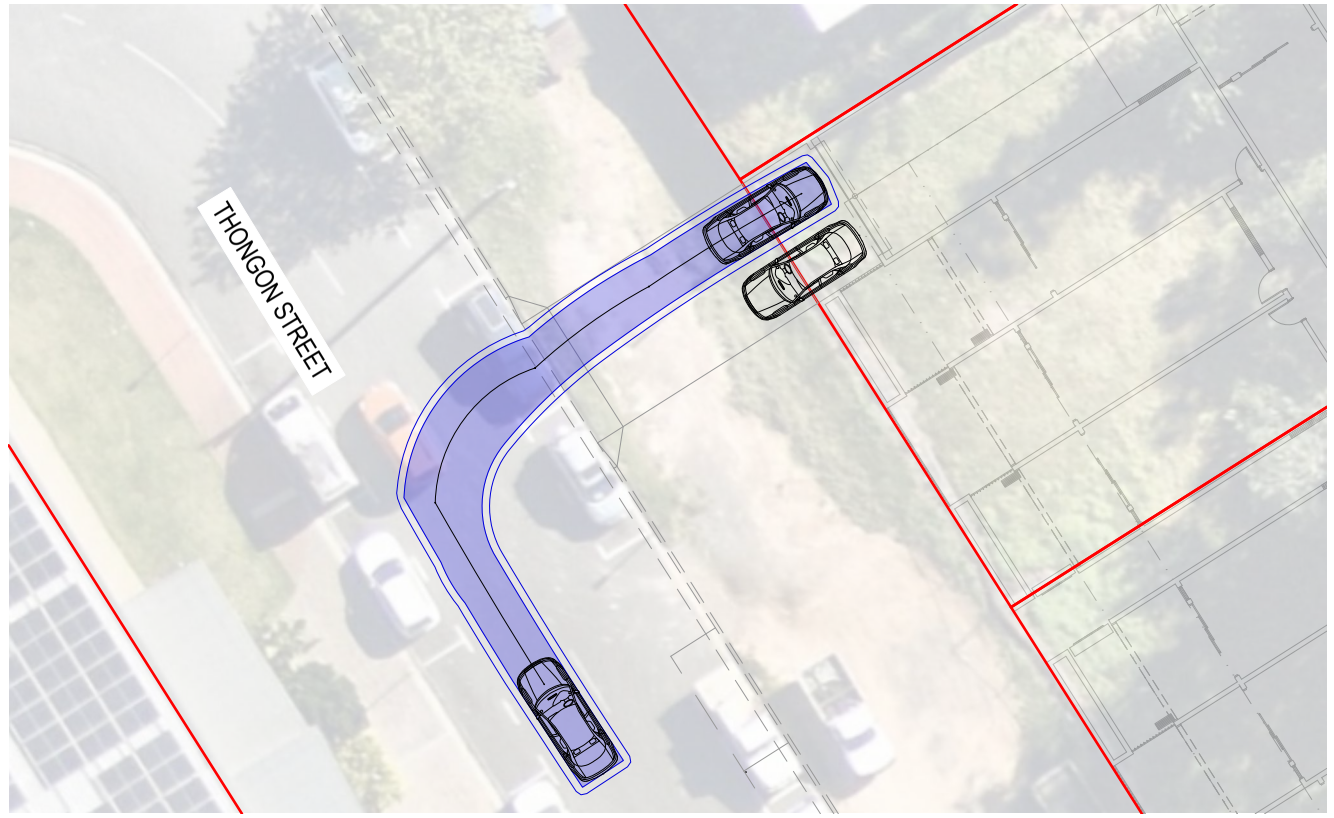
PROPOSED SITE ACCESS
SIGHT DISTANCE ANALYSIS

DRAWING NO. 262-001-SK02

REVISION 1



LEFT IN TO DEVELOPMENT



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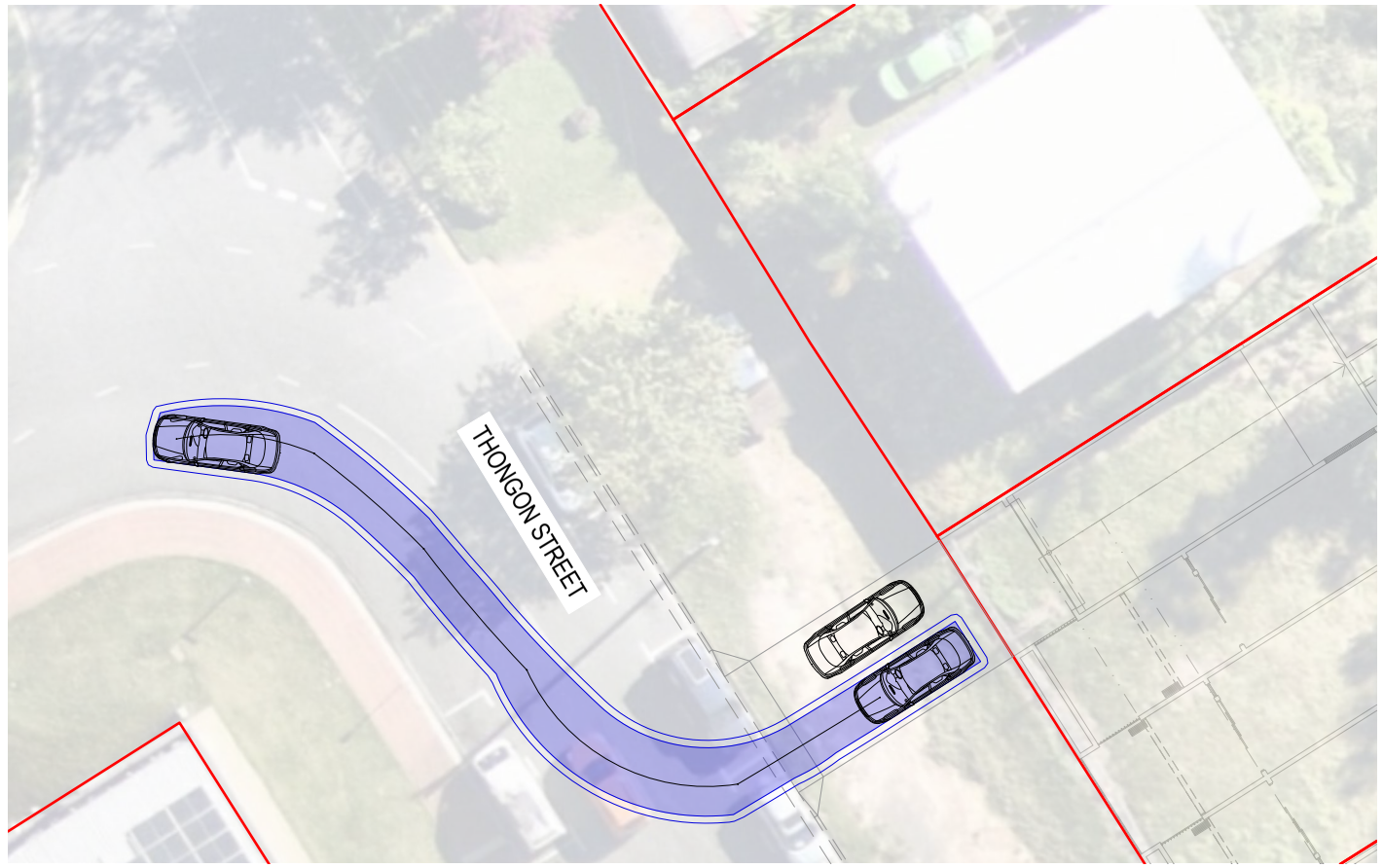
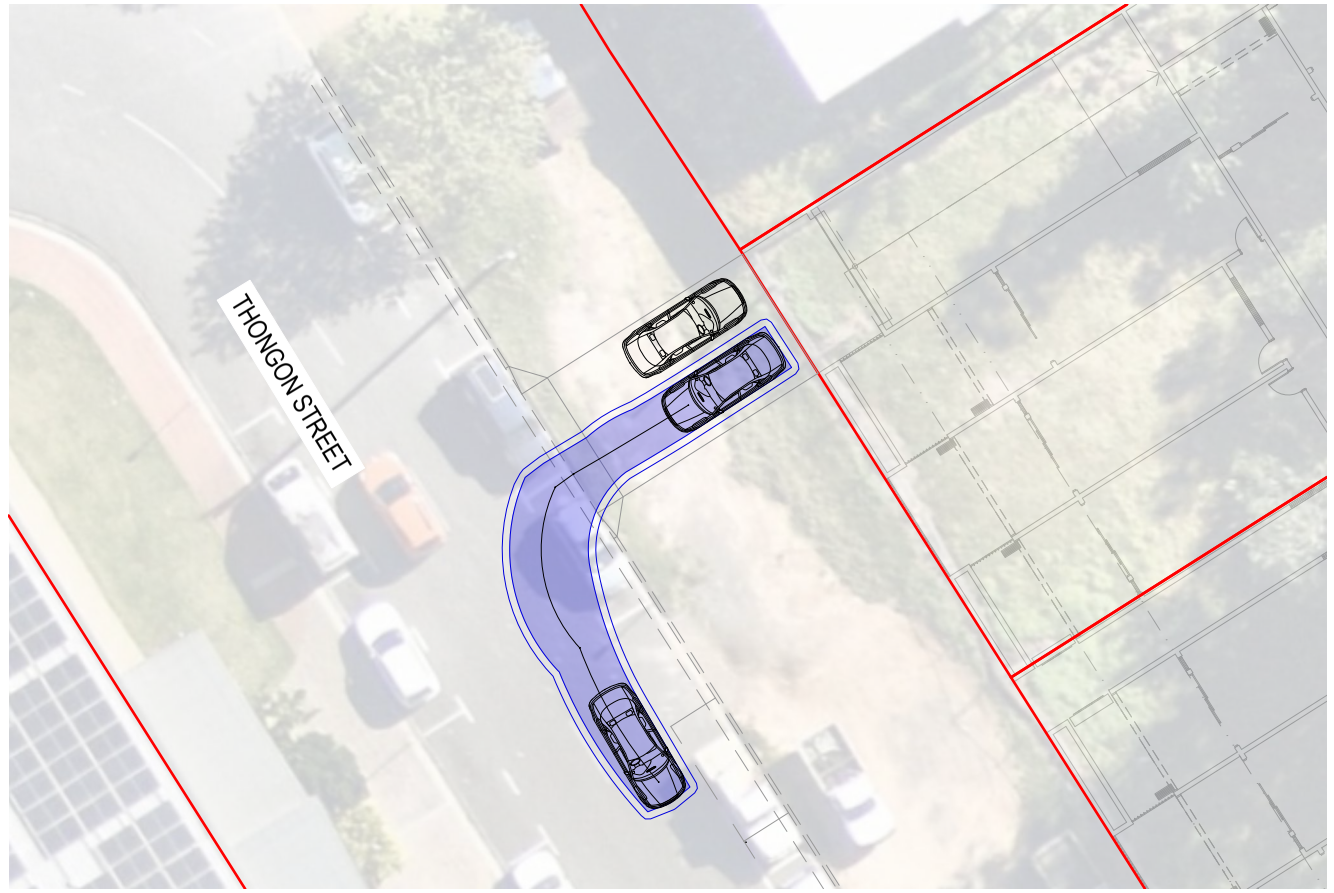


RIGHT OUT OF DEVELOPMENT



LEFT OUT OF DEVELOPMENT

REVISIONS					
	1	27.09.24	INITIAL ISSUE		
	NO.	DATE	DESCRIPTION	DESIGN	APPROVED

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:150 0 1 2 3 6 9 A1
1:300 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

SITE ACCESS VEHICLE SWEPT PATH ANALYSIS - B99

DRAWING NO. 3262-001-SK03

REVISION 1

REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:150 0 1 2 3 6 9 A1
1:300 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

WASTE COLLECTION ANALYSIS

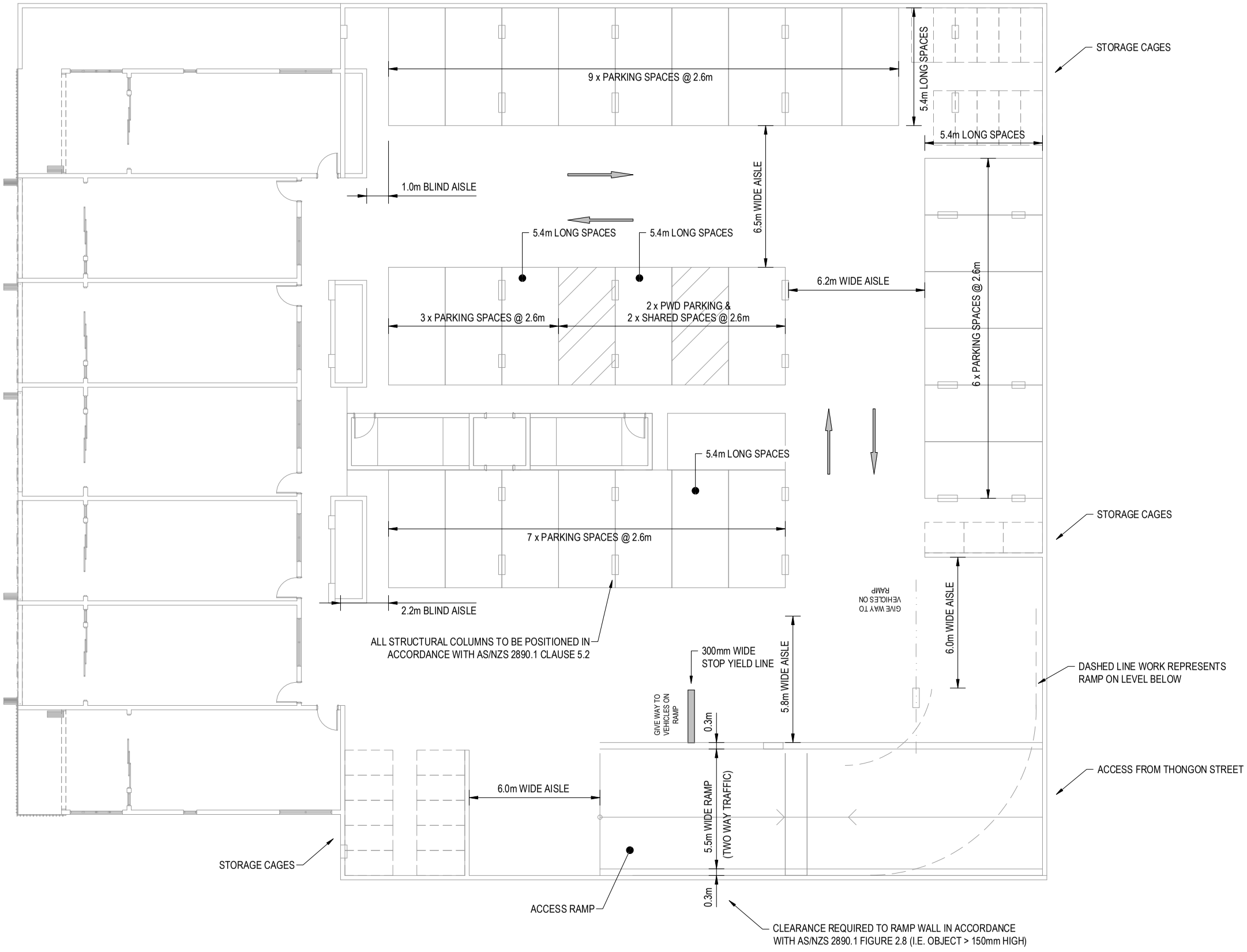
AUSTROADS 8.8m LONG RIGID SERVICE VEHICLE

DRAWING NO. 262-001-SK04

REVISION 1

AS/NZS 2890.1 OFF-STREET CAR PARKING PARAMETERS

- ADOPTED USER CLASS 1A ADOPTED FOR RESIDENTIAL PURPOSES IN ACCORDANCE WITH TABLE 1.1
- PARKING MODULES MIN 2.4m LONG x 5.4m WIDE IN ACCORDANCE WITH FIGURE 2.2
- PWD MODULES MIN 2.4m LONG x 5.4m WIDE AND SHARED SPACE ADJACENT 2.4m WIDE x 5.4m LONG IN ACCORDANCE WITH AS/NZS 2890.6
- AISLE WIDTH MIN 5.8m WIDE IN ACCORDANCE WITH FIGURE 2.2
- BLIND AISLES (WHERE APPLICABLE) MIN LENGTH = 1.0 IN ACCORDANCE WITH CLAUSE 2.4.2(c)



REVISIONS					
2	04.10.24	LAYOUT ADJUSTMENT	CW	DJW
1	27.09.24	INITIAL ISSUE		
NO.	DATE	DESCRIPTION	DESIGN	APPROVED

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 0 1 2 3 4 5 6 A1
1:200 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

OFF-STREET CAR PARK ANALYSIS
LOWER GROUND LEVEL

DRAWING NO. 262-001-SK06

REVISION 2

AS/NZS 2890.1 OFF-STREET CAR PARKING PARAMETERS

- ADOPTED USER CLASS 1A ADOPTED FOR RESIDENTIAL PURPOSES IN ACCORDANCE WITH TABLE 1.1
- PARKING MODULES MIN 2.4m LONG x 5.4m WIDE IN ACCORDANCE WITH FIGURE 2.2
- PWD MODULES MIN 2.4m LONG x 5.4m WIDE AND SHARED SPACE ADJACENT 2.4m WIDE x 5.4m LONG IN ACCORDANCE WITH AS/NZS 2890.6
- AISLE WIDTH MIN 5.8m WIDE IN ACCORDANCE WITH FIGURE 2.2
- BLIND AISLES (WHERE APPLICABLE) MIN LENGTH = 1.0 IN ACCORDANCE WITH CLAUSE 2.4.2(c)

REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 1:200 0 1 2 3 4 5 6 A1 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

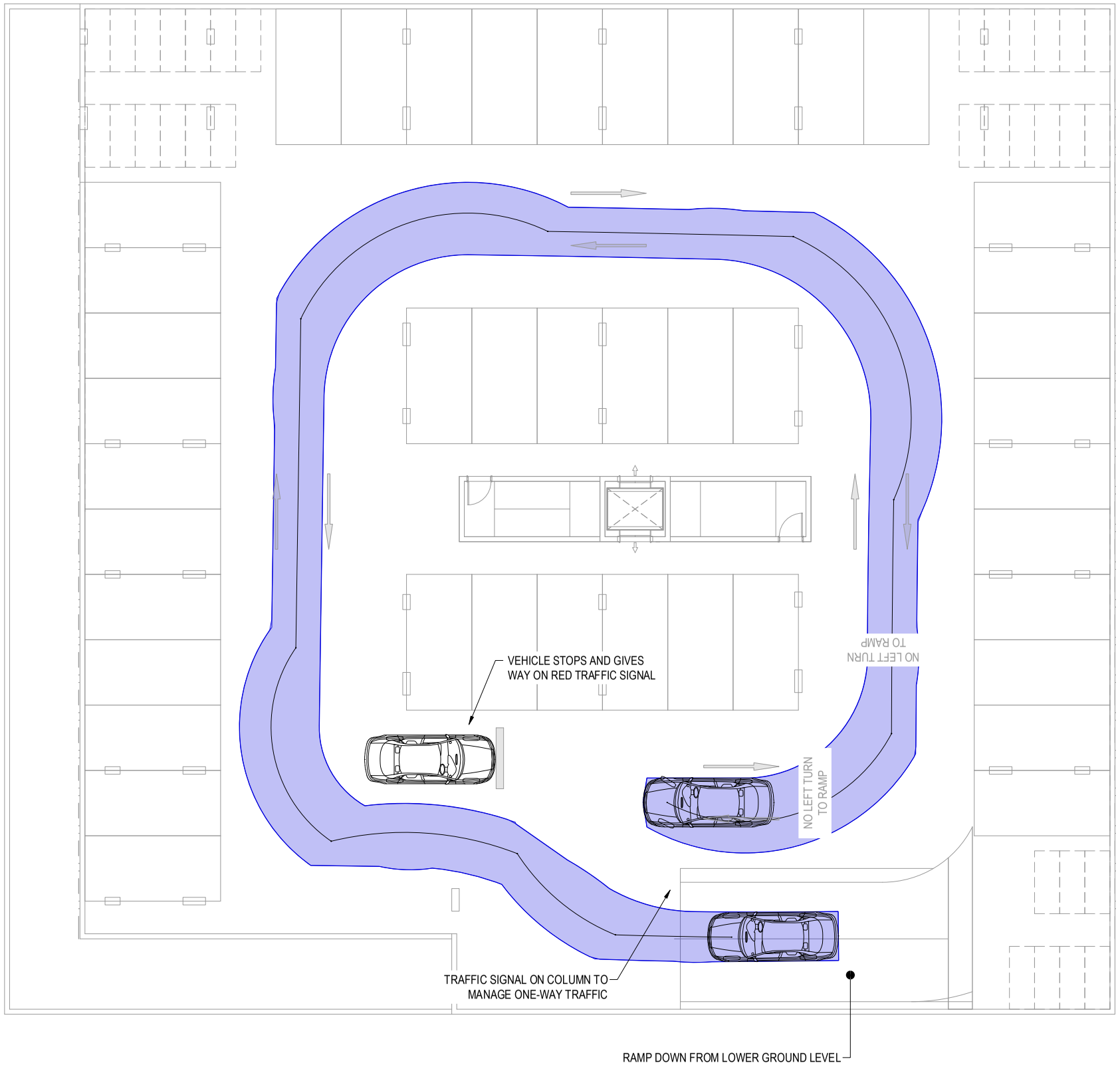
9 - 11 THONGON STREET, KURANDA

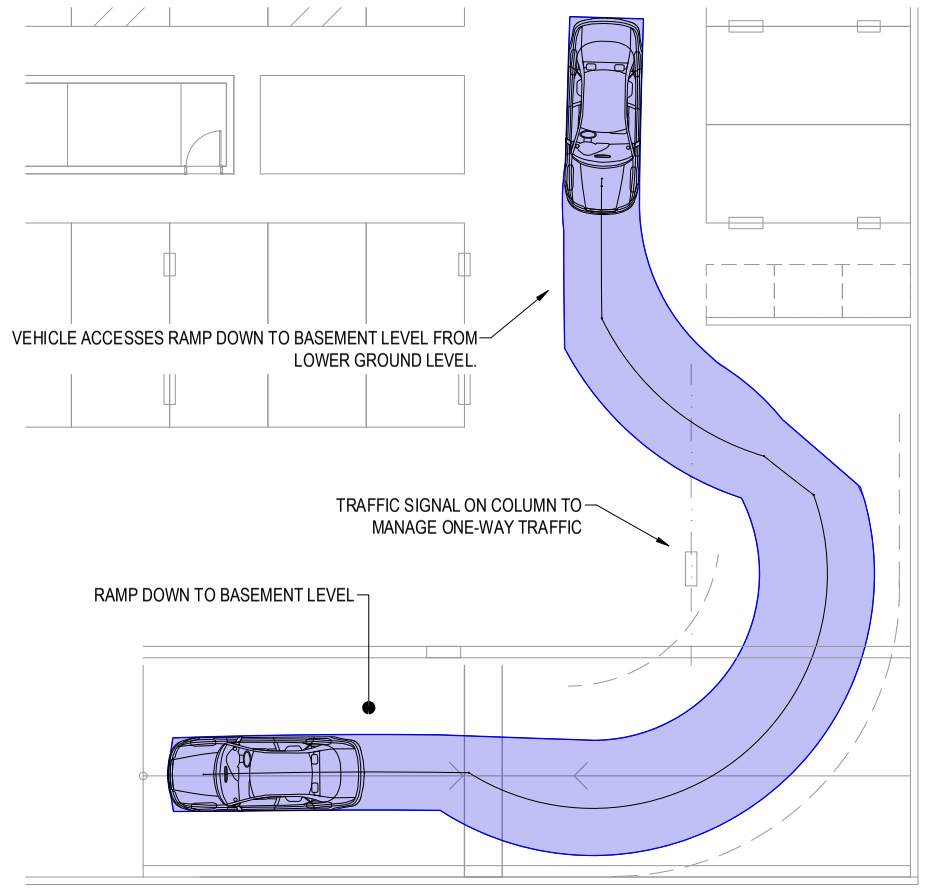
OFF-STREET CAR PARK ANALYSIS

LOWER GROUND LEVEL

DRAWING NO. 262-001-SK06

REVISION 1





RAMP MOVEMENT FROM LOWER GROUND LEVEL

REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 0 1 2 3 4 5 6 A1
1:200 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

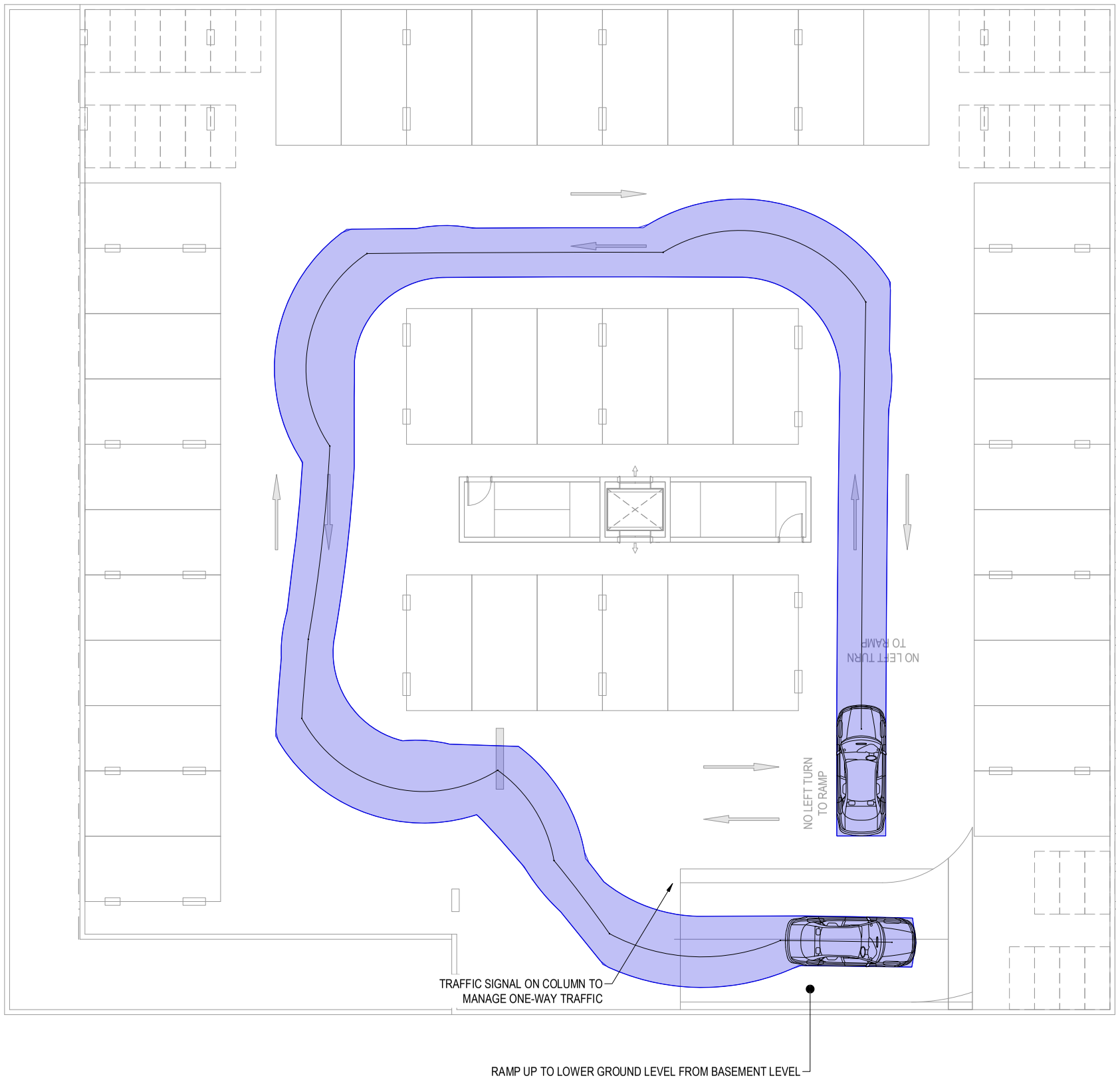
9 - 11 THONGON STREET, KURANDA

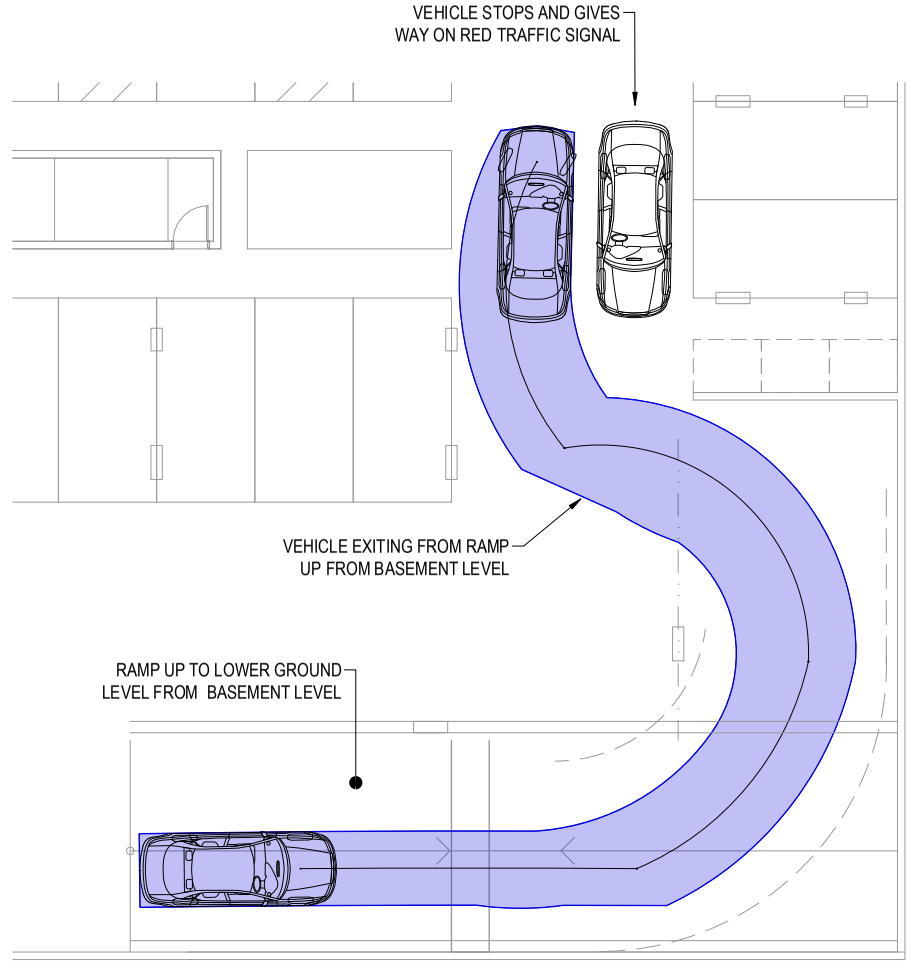
OFF-STREET CAR PARK ANALYSIS

BASEMENT LEVEL B99 VEHICLE ENTERING

DRAWING NO. 262-001-SK07

REVISION 1





REVISIONS					
	1	27.09.24	INITIAL ISSUE		
	NO.	DATE	DESCRIPTION	DESIGN	APPROVED

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 0 1 2 3 4 5 6 A1
1:200 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

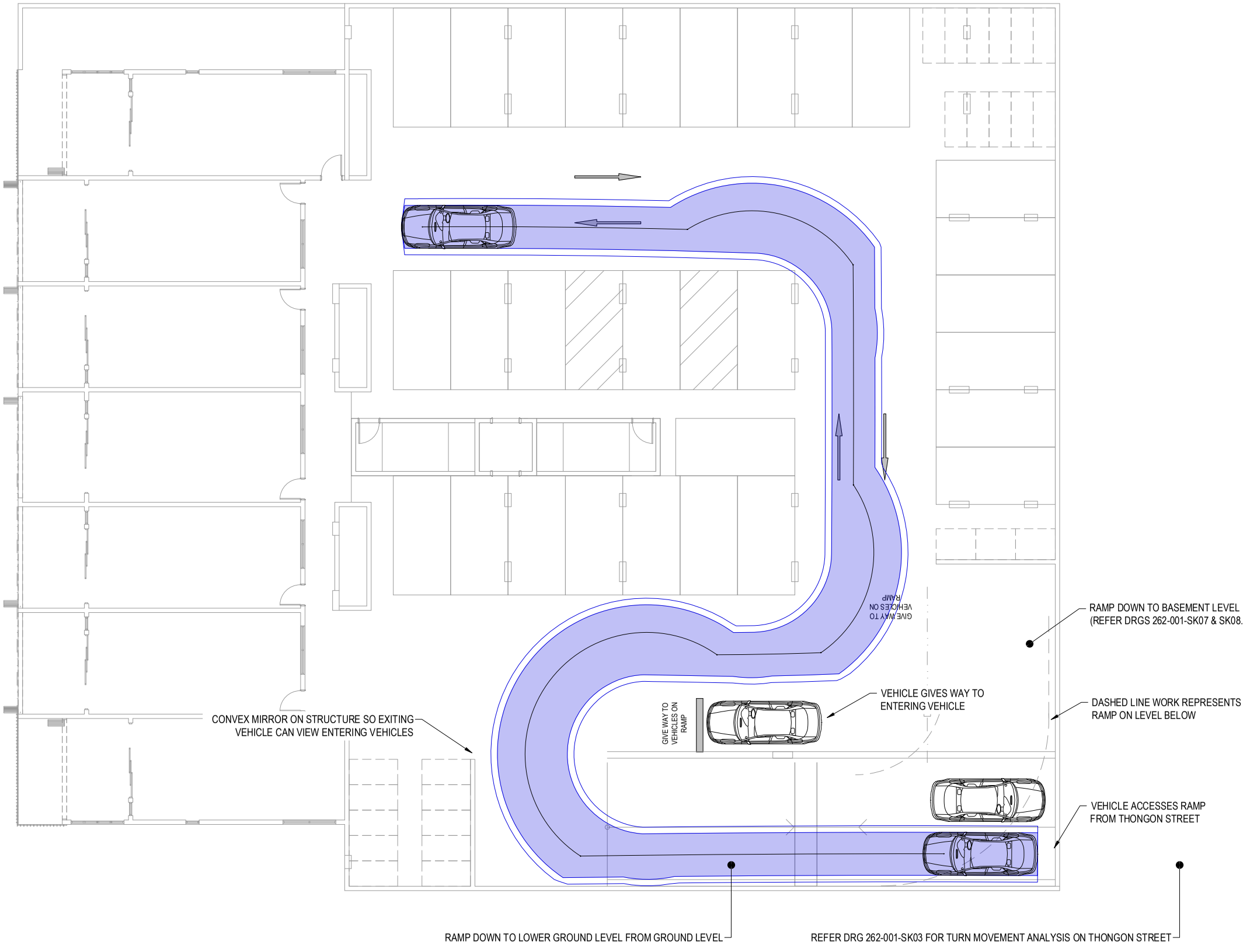
9 - 11 THONGON STREET, KURANDA

OFF-STREET CAR PARK ANALYSIS

BASEMENT LEVEL B99 VEHICLE EXITING

DRAWING NO. 262-001-SK08

REVISION 1



REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
2	04.10.24	LAYOUT ADJUSTMENT	CW	DJW
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 0 1 2 3 4 5 6 A1
1:200 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

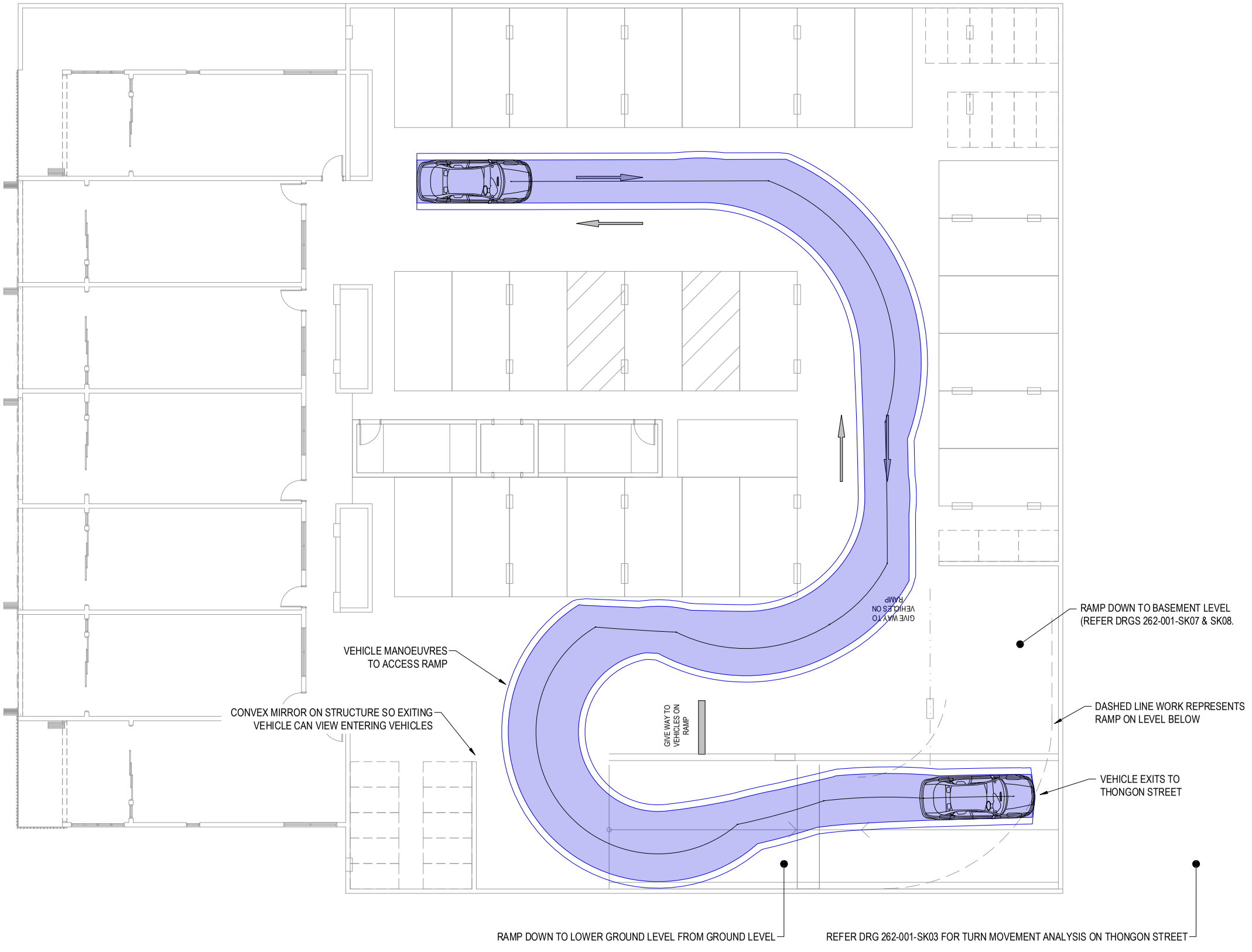
9 - 11 THONGON STREET, KURANDA

OFF-STREET CAR PARK ANALYSIS

LOWER GROUND LEVEL B99 VEHICLE ENTERING

DRAWING NO. 262-001-SK09

REVISION 2



REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
2	04.10.24	LAYOUT ADJUSTMENT		
1	27.09.24	INITIAL ISSUE		

CLIENT

THONGON STREET
KURANDA PTY LTD

SCALE

1:100 0 1 2 3 4 5 6 A1
1:200 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

9 - 11 THONGON STREET, KURANDA

OFF-STREET CAR PARK ANALYSIS

LOWER GROUND LEVEL B99 VEHICLE EXITING

DRAWING NO. 262-001-SK10

REVISION 2

GENERAL NOTES

ALL PLANS ARE TO BE READ IN CONJUNCTION WITH THE CONSTRUCTION NOTES.

ABBREVIATIONS:

A.F.L.	ABOVE FLOOR LEVEL
A.F.F.L.	ABOVE FINISHED FLOOR LEVEL
APPROX.	APPROXIMATE
B	BENCH
BH	BULKHEAD
BR	BROOM CUPBOARD
BTH	BATH TUB
C.O.S.	CONFIRM ON SITE
CPD	CUPBOARD
CT	COOKTOP
CL	CLOTHESLINE
DFW	DRY FLOOR WASTE
DIA.	DIAMETER
DN	DOWN
DP	DOWNPIPE
DWR	DRAWERS
DW	DISHWASHER
FF	FROG FLAP
FW	FLOOR WASTE
HC	HOSE COCK
LN	LINEN
MSB	MAIN SWITCH BOARD
N.S.L.	NATURAL SURFACE LEVEL
OA	OVERALL
O/H	OVERHANG
O/HC	OVERHEAD CUPBOARD
ORG	OVERFLOW RELIEF GULLY
OV	OVEN
PAD	BUILDING PAD
PIT	STORMWATER PIT
PTY	PANTRY
RA	RODDING ACCESS
REF	REFRIGERATOR SPACE
ROBE	WARDROBE
RV	ROOF VENT
SA	SMOKE ALARM
SB	SPLASH BACK
S/B	SETBACK
SH	SHELF FIXED
SHR	SHOWER
S-HWU	SOLAR HOT WATER UNIT
SJ	SAW JOINT
SK	SINK
SVP	100 SOIL VENT PIPE
TUB	LAUNDRY TUB
VB	VANITY BASIN
WC	TOILET
WCJ	WALL CONTROL JOINT
WM	WASHING MACHINE
U.N.O.	UNLESS NOTED OTHERWISE

GENERAL NOTES:

1. SCOPE EXTENT TO BE CONFIRMED/ VERIFIED PRIOR TO COMMENCING ANY WORK ON SITE. ALL MEASUREMENTS TO BE CONFIRMED/ VERIFIED ON SITE BY THE MANAGING CONTRACTOR.
2. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE DESIGNER. THE MANUFACTURER SHALL NOT COMMENCE ANY WORKS PRIOR TO THE RETURN OF REVIEWED SHOP DRAWINGS SIGNED BY THE RELEVANT CONSULTANT.
3. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
4. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SPECIFICATION (WHERE SUPPLIED) AND ALL CONSULTANT DRAWINGS AND SPECIFICATIONS.
5. ALL BUILDING WORK SHALL COMPLY WITH ALL THE LOCAL AUTHORITY REGULATIONS AND ALL RELEVANT STANDARDS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE WATERTIGHTNESS OF THE BUILDING AND MUST PROVIDE FLASHINGS, TANKING AND DPC REQUIRED TO PREVENT THE ENTRY OF MOISTURE INTO THE BUILDING.
7. PRIOR TO COMMENCEMENT OF WORK ON SITE ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE LOCATION OF ALL POSSIBLE UNDERGROUND SERVICES.
8. PRIOR TO SETOUT & CONSTRUCTION OF ALL CONCRETE WALLS, CONFIRM ALL DIMENSIONS OF WALL THICKNESSES ON THESE DRAWINGS AGAINST THE LATEST STRUCTURAL ENGINEER'S DRAWINGS & ALL SUBCONTRACTOR DRAWINGS.
9. CROSS REFERENCE ALL DOOR OPENINGS AS DIMENSIONED WITH DOOR SCHEDULE PRIOR TO CONSTRUCTION.

DRAWING LIST

NUMBER	DESCRIPTION	ISSUE DATE	REVISION No.
TP01	COVER SHEET	07/05/2024	C
TP02	PERSPECTIVE VIEWS	07/05/2024	C
TP03	SITE PLAN	07/05/2024	C
TP04	BASEMENT	07/05/2024	C
TP05	LOWER GROUND LEVEL	07/05/2024	C
TP06	GROUND LEVEL	07/05/2024	C
TP07	LEVEL 01	07/05/2024	C
TP08	LEVEL 02	07/05/2024	C
TP09	LEVEL 03	07/05/2024	C
TP10	ROOF PLAN	07/05/2024	C
TP11	ELEVATIONS	07/05/2024	C
TP12	ELEVATIONS	07/05/2024	C
TP13	STREET ELEVATION AND SITE SECTION	07/05/2024	C
TP14	SHADOW STUDY	07/05/2024	C

MULTI - RESIDENTIAL UNIT DEVELOPMENT
9 - 11 THONGON STREET, KURANDA

PLANNING OVERVIEW

LOTS 310 & 311
PLAN No: NR7409
LOCAL GOVERNMENT: **MAREEBA SHIRE COUNCIL**

ZONE: **MEDIUM DENSITY RESIDENTIAL**
LOCAL PLAN: **KURANDA – PRECINCT A VILLAGE HEART**
OVERLAY: **SLOPE OVERLAY**
DEFINED USE: **MULTIPLE DWELLING**

	ALLOWABLE/ REQUIRED:	PROVIDED
HEIGHT:	8.5m	**13.0m** (EXCLUDES LIFT OVERRUN)
SETBACK		
STREET:	6.0m	**3.0m AT GR & L1** **5.0m AT L2** **6.0m AT L3**
SIDE AND REAR:	2.0m	**ZERO M** AT BASMENT **3.0m** TO L. GR, GR, L1 & L2 **6.0m** TO L3
SITE AREA:	800m2	**2024m2**
FRONTAGE:	20m	**40.2m**

PERCENTAGE OF SITE SLOPE

SOUTH-EAST BOUNDARY	(353 - 347) / 50M = **12%**
NORTH-WEST BOUNDARY	(352.5 - 340) / 50M = **25%**

LANDSCAPE AREA:

BASEMENT	152.88m2
LOWER GR.	14.93m2
GROUND	65.00m2
FIRST FL.	29.28m2
SECOND FL.	80.60m2
THIRD FL.	63.84m2
TOTAL	**406.53m2**

DENSITY BASED ON 1/75m2 (1 BED) AND 1/150m2 (2 BED+)

LOWER GR.	7 x 1 BED
GROUND	19 x 1 BED
1950m2	**26 x 1 BED**
FIRST FL.	12 x 2 BED
SECOND FL.	10 x 2 BED
THIRD FL.	8 x 3 BED
4500m2	**30 x 2/3 BED**
TOTAL AREA: 6450m2	**56 UNITS**

COMMUNAL OPEN SPACE AREA:

50m2	**50m2**

PRIVATE OPEN SPACE:

15m2 / UNIT	**15m2 / UNIT**

VEHICLE PARKING 1.25 / UNIT + 1 WASHDOWN BAY (WB)

70 + 1 WB	**70 + 1 WB**

STORAGE SPACE:

1 / UNIT @ 2.5m2	**56 SPACES**

PLEASE NOTE: SUBSTITUTION OF ANY STRUCTURAL MEMBERS, & OR VARIATIONS TO ANY PART OF THE DESIGN, **WILL VOID** ANY RESPONSIBILITIES OF THE BUILDER DESIGNER FOR THE STRUCTURAL INTEGRITY AND PERFORMANCE OF THE BUILDING

NEVELE ARCHITECTS
ABN 31 639 940 704 | Reg No. 5977
m 0410 633 159 | p 07 42 433 588 | w nevele.com.au
a shop 5, 116-118 Reed Rood, Trinity Park, Q 4879

1. ALL DESIGN, CONSTRUCTION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS AND CODES.
2. NOTIFY DESIGNER OF ANY DISCREPANCIES ON THE PLANS, OTHERWISE WE ACCEPT NO LIABILITY.
3. DO NOT SCALE FROM DRAWINGS.
4. CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION OF ANY SHOP DRAWINGS.

PROJECT REVISIONS

No	DATE	DETAILS
1	01/09/2023	PRELIMINARY ISSUE A
2	18/09/2023	PRELIMINARY ISSUE B
3	03/11/2023	PRELIMINARY ISSUE C
4	09/11/2023	PRELIMINARY ISSUE D
5	12/11/2023	PRELIMINARY ISSUE E
A	04/12/2023	ASSESSMENT ISSUE A
B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

ASSESSMENT ISSUE

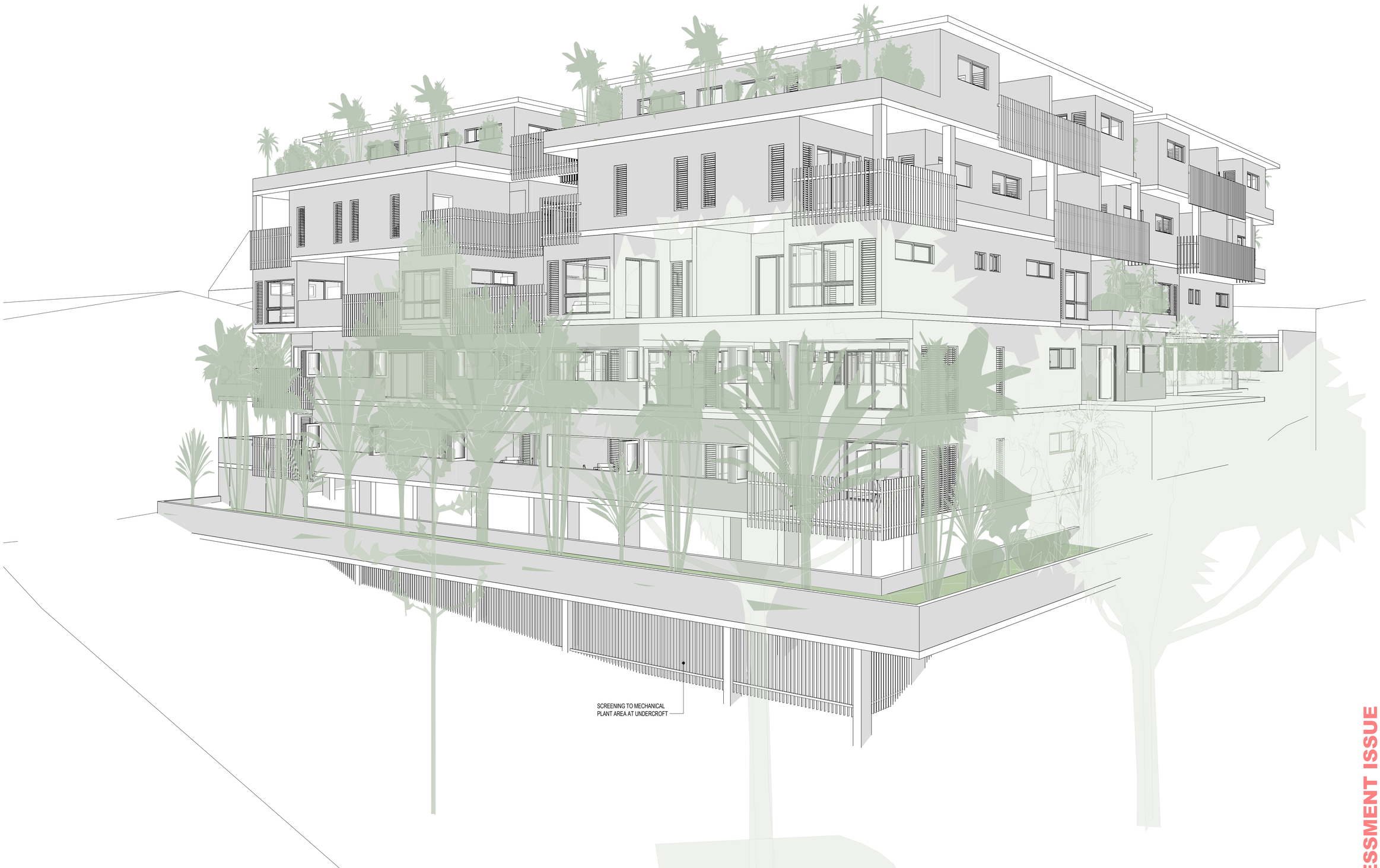
MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	N.T.S.
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP01
REV No:	C

G:\Nevele\Projects\011701 - 9-11 Thongon Street, Kuranda - Kunze and Munnich\Drawings_Schematic\11701SK02A - 9-11 Thongon Street, Kuranda - Kunze and Munnich.rvt



PLEASE NOTE: SUBSTITUTION OF ANY STRUCTURAL MEMBERS, & OR VARIATIONS TO ANY PART OF THE DESIGN, **WILL VOID** ANY RESPONSIBILITIES OF THE BUILDER DESIGNER FOR THE STRUCTURAL INTEGRITY AND PERFORMANCE OF THE BUILDING

NEVELE ARCHITECTS
ABN 31 639 960 704 | Reg No. 5977
m 0410 633 159 | p 07 42 433 588 | w nevele.com.au
a shop 5, 116-118 Reed Road, Trinity Park, Q 4879

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PROJECT REVISIONS

No	DATE	DETAILS
1	01/09/2023	PRELIMINARY ISSUE A
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B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	N.T.S.
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP02
REV No:	C

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PROPERTY INFORMATION

LOT NUMBER	**LOT 310 & 311**
PLAN NUMBER	**NR7409**
SITE AREA	**2024 m2**
LOCAL GOVERNMENT	**MAREEBA SHIRE COUNCIL**

FLOOD INUNDATION

ALL CONSTRUCTED IS TO BE ABOVE Q-100 FLOOD LEVEL ACCORDING TO LOCAL AUTHORITY REQUIREMENTS.

SITE NOTES:

1. BOUNDARIES BASED UPON SURVEY DRAWING. CONTRACTOR TO CONFIRM ON SITE PRIOR TO ANY CONSTRUCTION.
2. EXISTING SERVICES LOCATIONS ARE INDICATIVE ONLY. CONTRACTOR TO VERIFY ON SITE.
3. REFER TO SLAB PLAN FOR SETOUT.
4. REFER TO SERVICES CONSULTANT DRAWINGS FOR WORKS TO NEW & EXISTING SERVICES.
5. VERIFY ALL BEARING AND DIMENSIONS ON SITE PRIOR TO ANY CONSTRUCTION. ALL MISSING PEGS TO BE REINSTATED PRIOR TO ANY CONSTRUCTION. NOTIFY THIS OFFICE IMMEDIATELY OF ANY DISCREPANCIES IN SETOUT DIMENSIONS.
6. DISCLOSURE PLAN ONLY. DO NOT START CONSTRUCTION UNTIL BOUNDARIES ARE CONFIRMED.
7. APPROXIMATE POSITION OF SEWER JUMP UP. VERIFY POSITION ON SITE PRIOR TO CONSTRUCTION. CONNECT 100Dia LINE TO COUNCIL REQUIREMENTS.
8. THE FILL USED ON THIS SITE WILL HAVE CONTROLLED PLACEMENT.

SITE PLAN
SCALE 1 : 100

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a shop 5, 116-118 Reed Road, Trinity Park, Q 4879

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B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP03
REV No:	C

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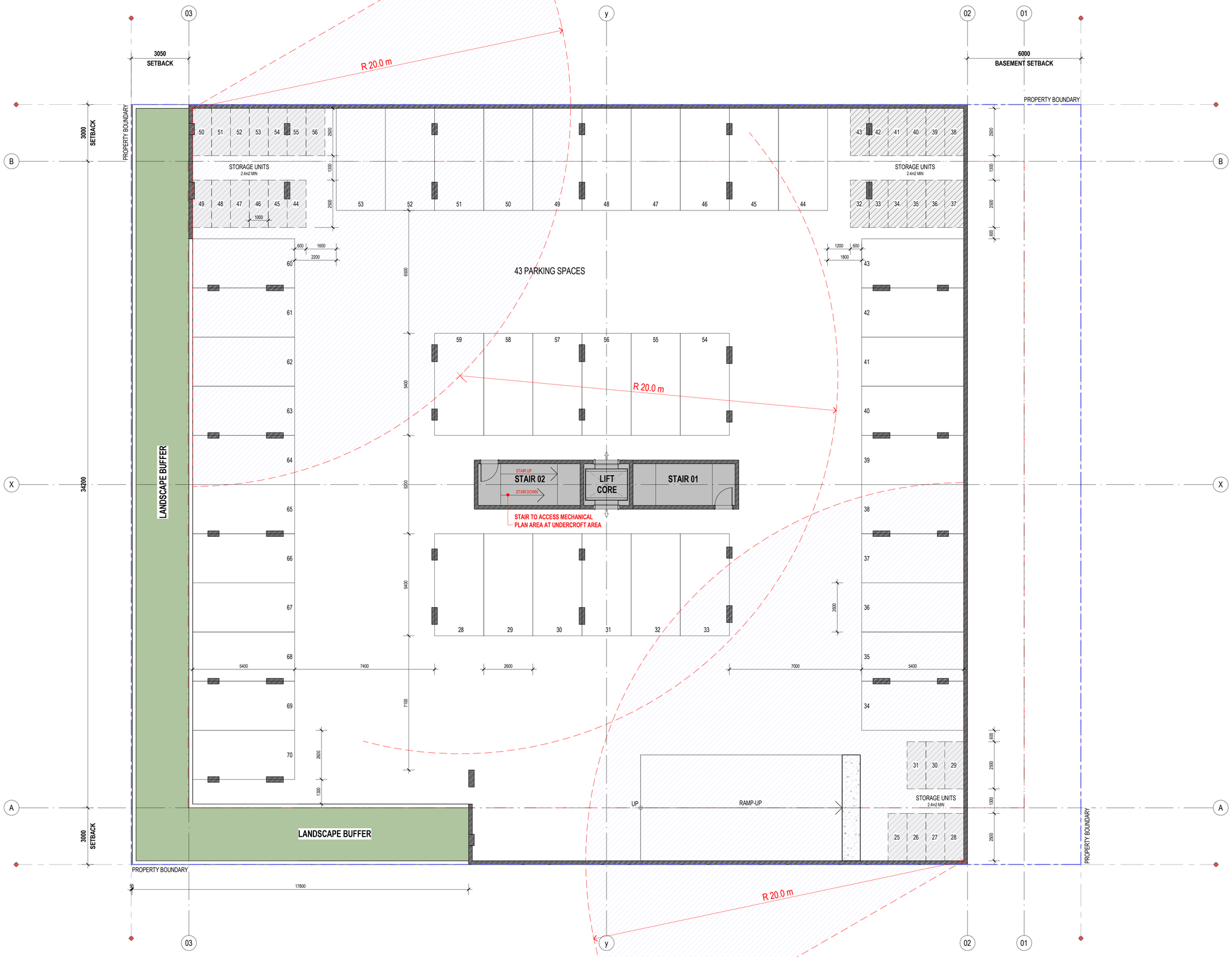

BASEMENT
SCALE 1 : 100

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP04
REV No:	C

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56 UNITS
24 PARKING SPACES
3 PWD PARKING SPACES
1 VEHICLE WASHDOWN BAY
(43 PARKING SPACES LOWER LEVEL)
71 TOTAL

APT 07 1 BED
APT 06 1 BED
APT 05 1 BED
APT 04 1 BED
APT 03 1 BED
APT 02 1 BED
APT 01 1 BED

STAIR 02 | LIFT CORE | STAIR 01

VEHICLE WASH DOWN BAY

STORAGE UNITS 2.4m2 MIN

RAMP-UP | RAMP-DN

PROPERTY BOUNDARY

LOWER GROUND LEVEL
SCALE 1 : 100

ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

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START DATE:	SEPT 2023
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JOB No:	11-1701
SHEET No:	TP05
REV No:	C

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EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

HC AND WASTE CONNECTION FOR BIN CLEANING

PROPERTY BOUNDARY

REFUSE | REFUSE | REFUSE | REFUSE

SEALED PATHWAY / RAMPED ACCESS TO ROADSIDE

ACCESS TO REFUSE

APT 17 1 BED
APT 18 1 BED
APT 19 1 BED
APT 20 1 BED
APT 21 1 BED
APT 22 1 BED
APT 23 1 BED
APT 16 1 BED
APT 15 1 BED
APT 14 1 BED
APT 24 1 BED
APT 25 1 BED
APT 26 1 BED
APT 13 1 BED
APT 12 1 BED
APT 11 1 BED
APT 10 1 BED
APT 09 1 BED
APT 08 1 BED

STAIR 02 | LIFT CORE | STAIR 01

RAMP-DN | UP

LANDSCAPE BUFFER

EXISTING ADJOINING RESIDENCE

THONGON STREET

GROUND LEVEL
SCALE 1 : 100

ELEVATION KEY

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ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP06
REV No:	C

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EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

03 y 02 01

3050 SETBACK | 13000 | 1800 | 14600 | 1800 | 13000 | 3000 SETBACK

3000 | 200 | 9600 | 200 | 200 | 7000 | 200 | 7000 | 200 | 200 | 9600 | 200 | 3000

PROPERTY BOUNDARY

REFUSE BELOW

APT 33 2 BED

APT 34 2 BED

APT 32 2 BED

APT 31 2 BED

APT 30 2 BED

APT 29 2 BED

STAIR 02 | LIFT CORE | STAIR 01

APT 35 2 BED

APT 36 2 BED

APT 37 2 BED

APT 38 2 BED

APT 28 2 BED

APT 27 2 BED

B

X

A

3000 SETBACK | 200 | 14600 | 14200 | 200 | 5000 | 200 | 14600 | 7000 | 200 | 7000 | 200 | 3000 SETBACK

3000 SETBACK | 200 | 14600 | 7000 | 200 | 7000 | 200 | 2200 | 200 | 14600 | 7000 | 200 | 7000 | 200 | 5800 SETBACK

PROPERTY BOUNDARY

200 | 12600 | 200 | 200 | 7000 | 200 | 7000 | 200 | 200 | 12600 | 200

3050 SETBACK | 13000 | 1800 | 14600 | 1800 | 13000 | 3000 SETBACK

03 y 02 01

EXISTING ADJOINING RESIDENCE

LEVEL 01
SCALE 1 : 100

THONGON STREET

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NEVELE ARCHITECTS
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C	07/05/2024	RESPONSE TO INFORMATION REQUEST

ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP07
REV No:	C

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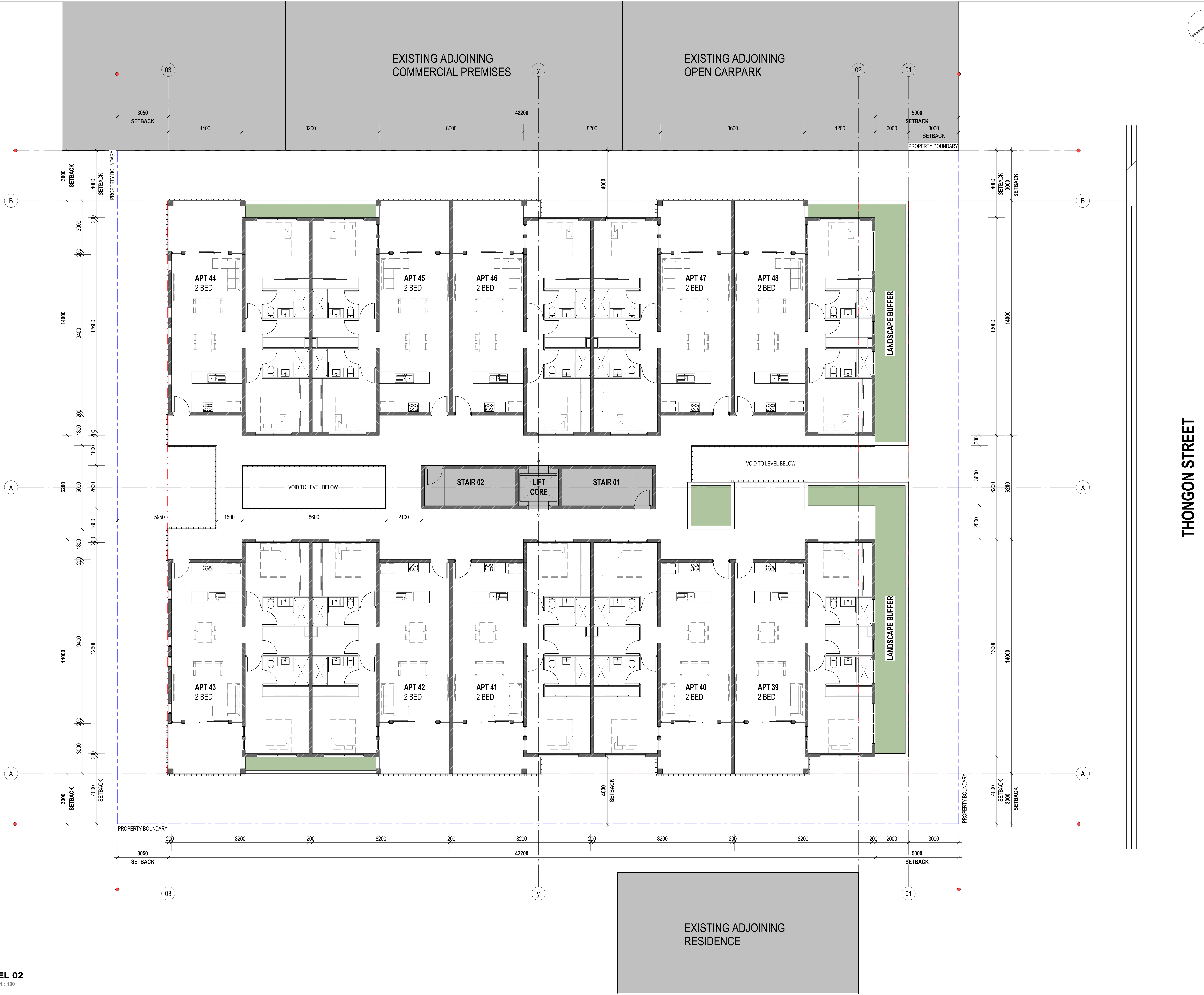

LEVEL 02
SCALE 1 : 100

ASSESSMENT ISSUE

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NEVELE architects
ABN 31 639 960 704 | **Reg No.** 5977
m 0410 633 159 | **p** 07 42 433 588 | **w** nevele.com.au
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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No: TP08	REV No: C

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EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

03 — y — 02 — 01

6650 SETBACK | 17000 | 3000 | 17000 | 6600 SETBACK

PROPERTY BOUNDARY

3000 SETBACK

B

X

A

APT 53 3 BED

APT 54 3 BED

APT 55 3 BED

APT 56 3 BED

APT 52 3 BED

APT 51 3 BED

APT 50 3 BED

APT 49 3 BED

LANDSCAPE BUFFER

VOID TO LEVEL BELOW

STAIR 02

LIFT CORE

STAIR 01

VOID TO LEVEL BELOW

14000 | 13600 | 9800 | 3200 | 200 | 2400 | 7400 | 2800 | 6200 | 600

5950 | 1500 | 8600 | 2100 | 2100 | 3700 | 1700 | 10600

3050 | 3600 | 200 | 8200 | 200 | 8200 | 200 | 200 | 8200 | 200 | 8200 | 200 | 1600 | 5000

EXISTING ADJOINING RESIDENCE

THONGON STREET

LEVEL 03
SCALE 1 : 100

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP09
REV No:	C

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EXISTING ADJOINING COMMERCIAL PREMISES

EXISTING ADJOINING OPEN CARPARK

03 y 02 01

6050 SETBACK | 18200 | 1800 | 18200 | 6000 SETBACK

PROPERTY BOUNDARY

2400 OMP | 15500 | 4400 | 15500 | 2400 OMP

B X A

VOID TO LEVEL BELOW

LIFT OVER RUN

VOID TO LEVEL BELOW

EXISTING ADJOINING RESIDENCE

ROOF PLAN
SCALE 1 : 100

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
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START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP10
REV No:	C

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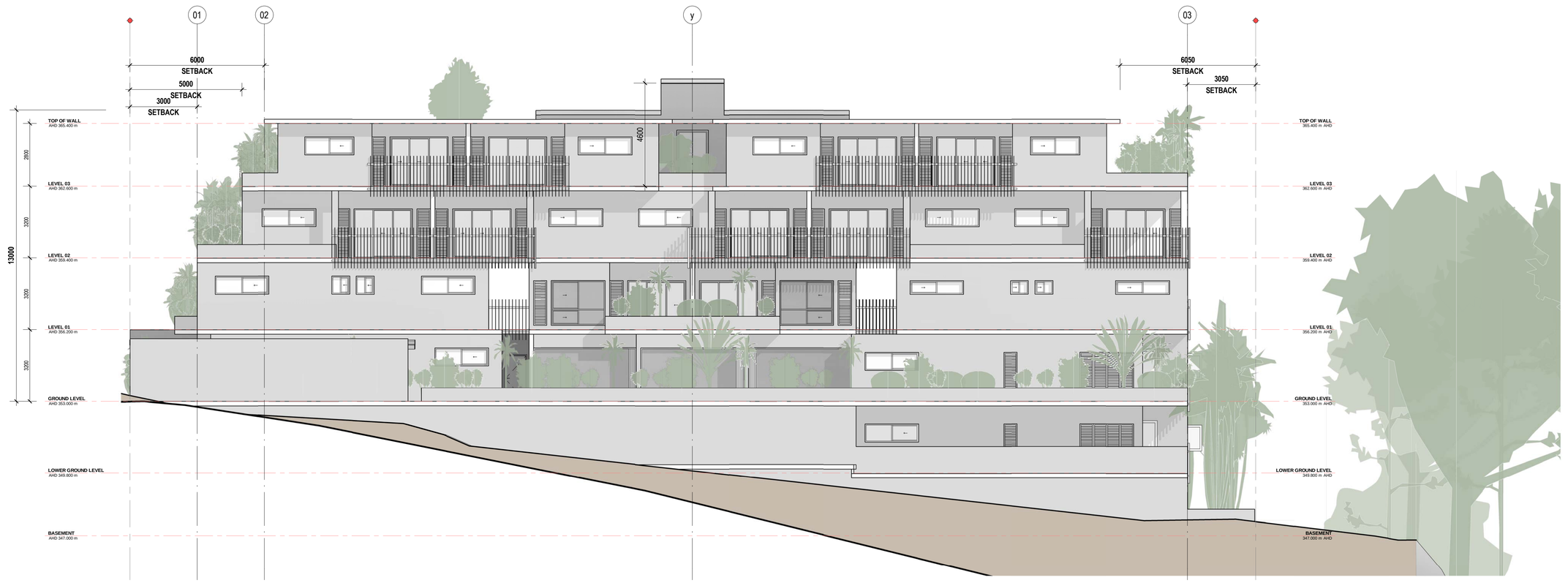
ELEVATION 1

SCALE 1 : 100



ELEVATION 2

SCALE 1 : 100

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A	04/12/2023	ASSESSMENT ISSUE A
B	24/03/2024	GENERAL AMENDMENTS
C	07/05/2024	RESPONSE TO INFORMATION REQUEST

ASSESSMENT ISSUE

MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	1 : 100
START DATE:	SEPT 2023
REVISION DATE:	07/05/2024
JOB No:	11-1701
SHEET No:	TP11
REV No:	C

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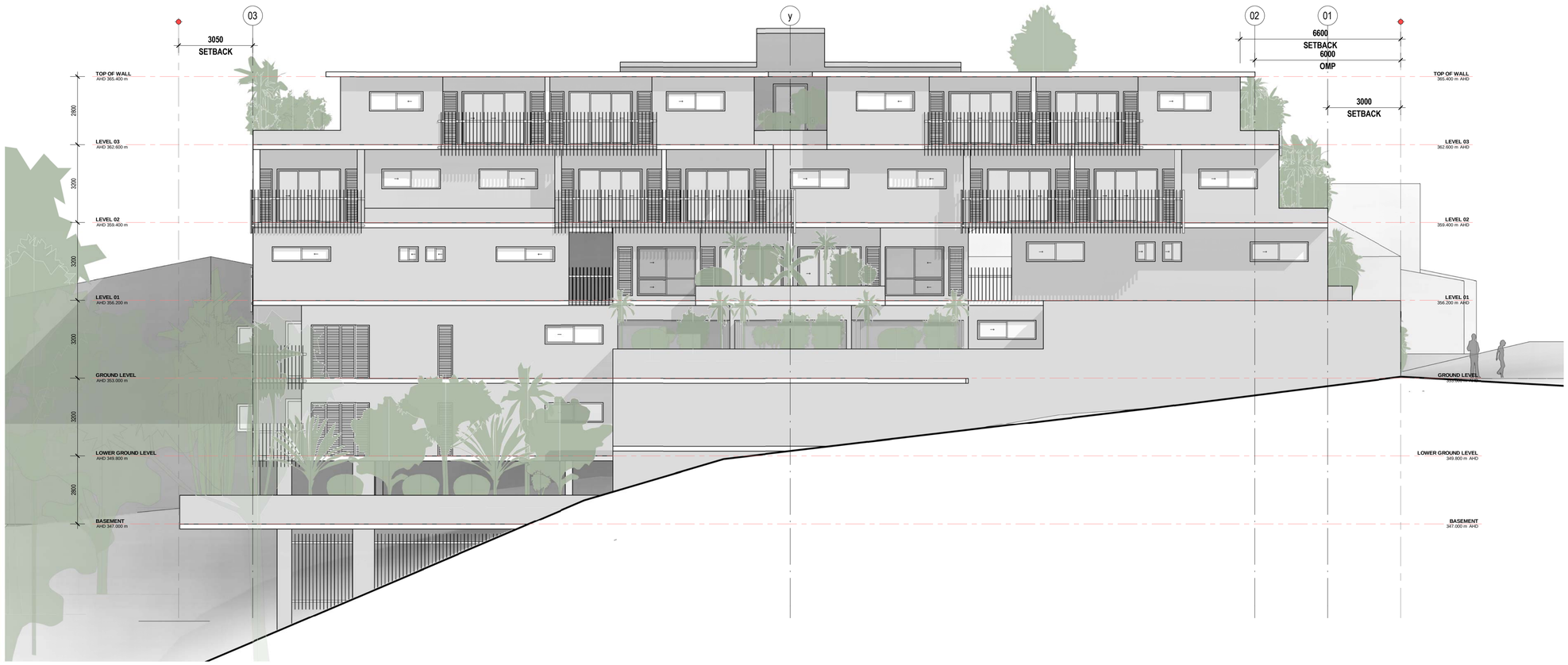

ELEVATION 4

SCALE 1 : 100

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PROJECT REVISIONS

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

ASSESSMENT ISSUE

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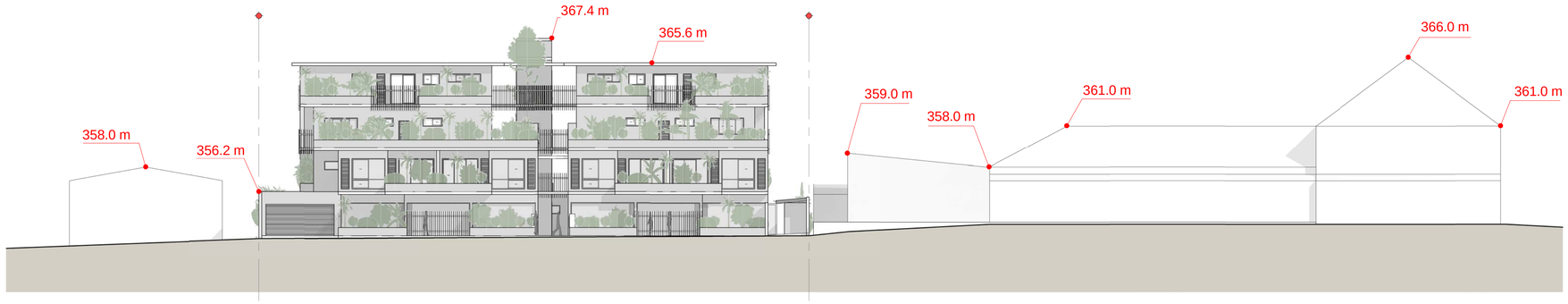

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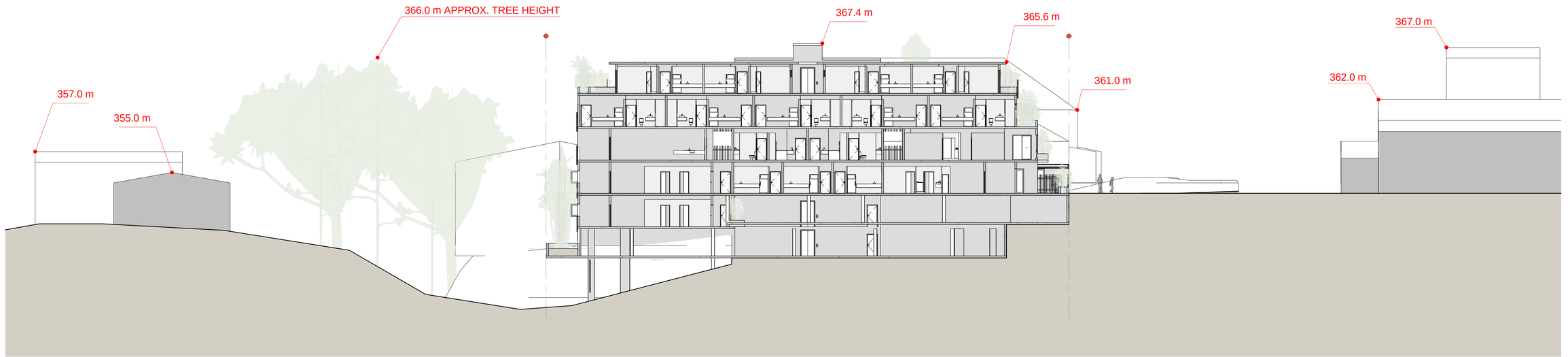

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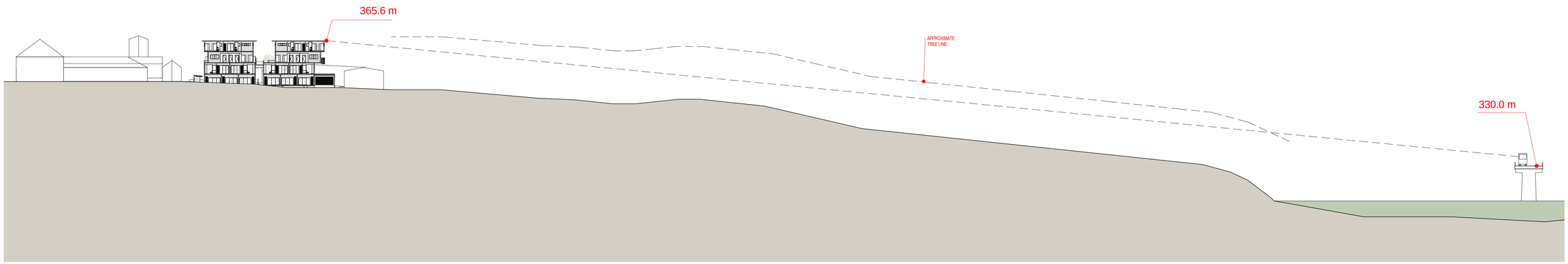

SITE TO BRIDGE

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VISUAL IMPACT

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

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DRAWN BY:	CD
SCALE:	AS SHOWN
START DATE:	SEPT 2023
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JOB No:	11-1701
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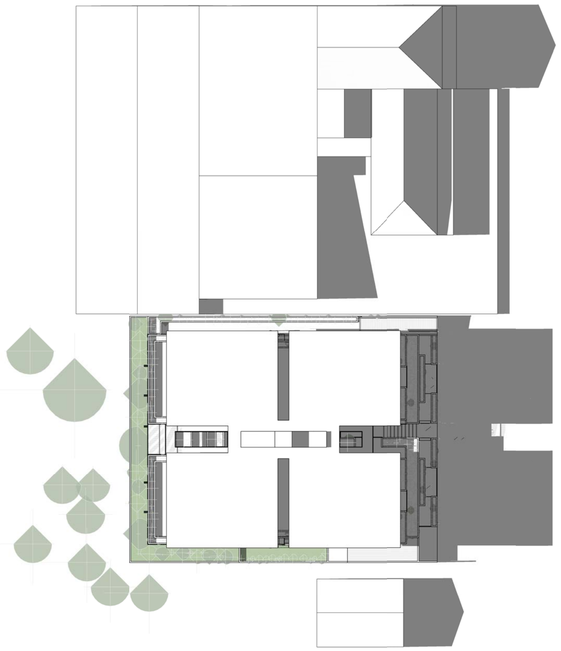

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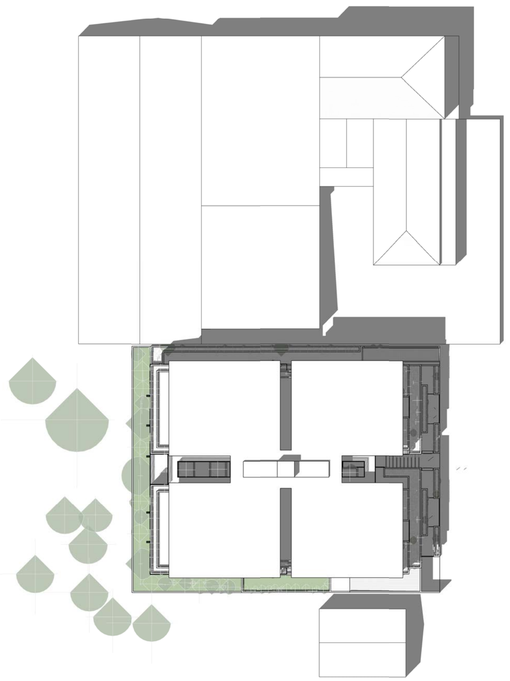

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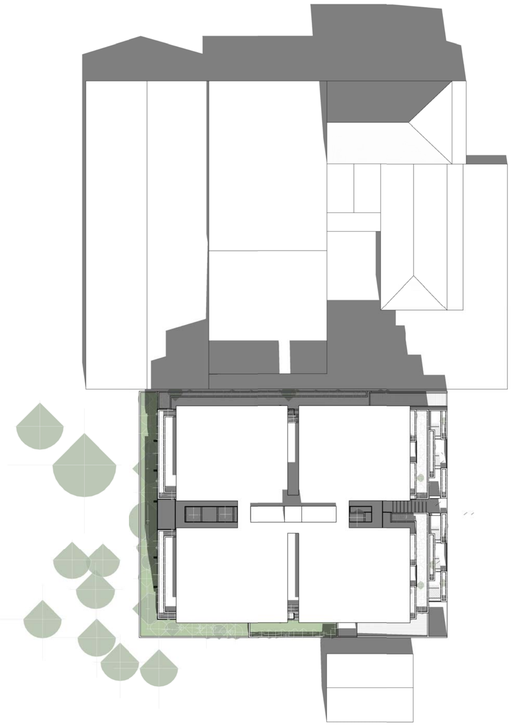

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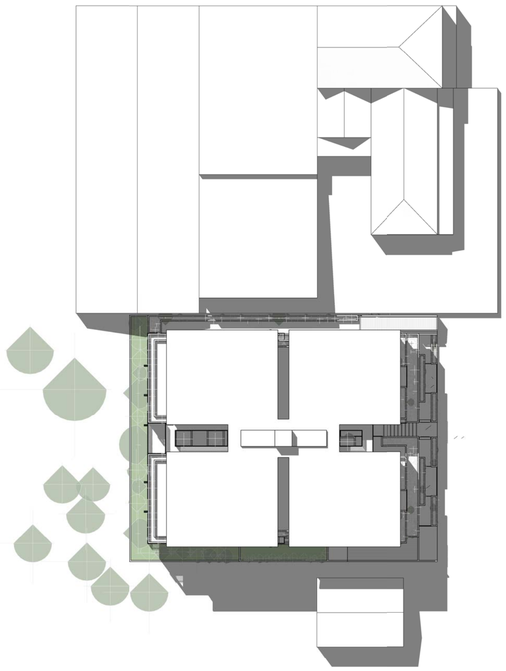

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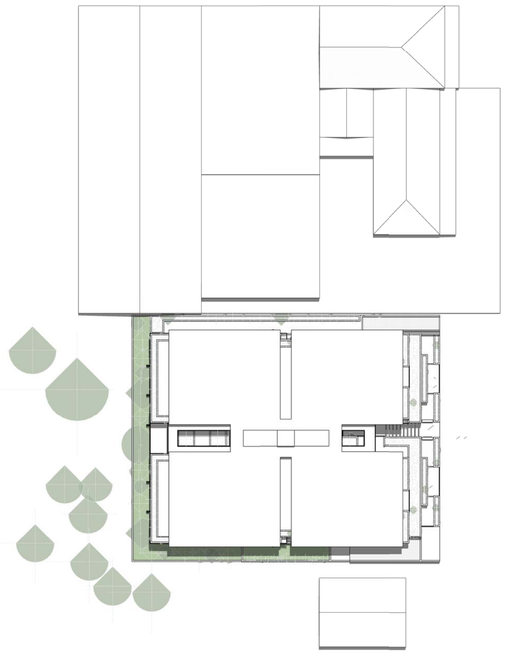

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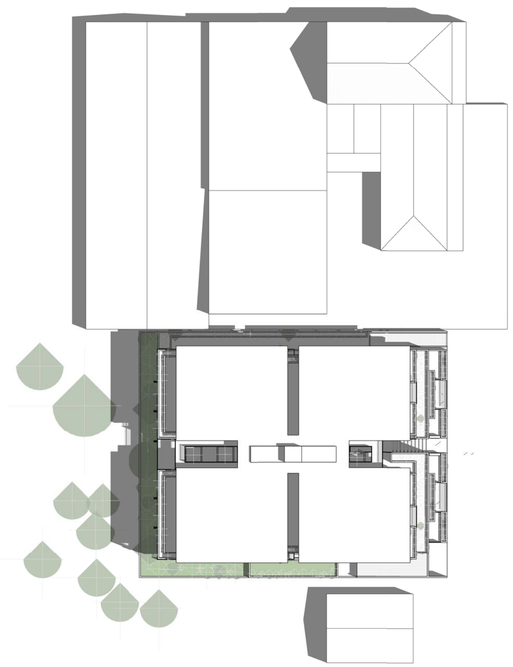

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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
SCALE:	N/A
START DATE:	SEPT 2023
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Image 01 Unit 01 Lower Ground Level Outlook to rear boundary	
Image 02 Unit 04 Lower Ground Level Outlook to rear boundary	
Image 03 Unit 20 Ground Level Outlook to rear boundary	
Image 04 Unit 23 Ground Level Outlook to rear boundary	

Image 05 Unit 26 Ground Level Outlook to side boundary	
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Image 11 Unit 53 Level 03 Outlook to side boundary	

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WASTE MANAGEMENT PLAN

9-11 THONGON ST
KURANDA QLD 4881

CLIENT

9-11 Thongon St Kuranda Pty Ltd

September 2024

DOCUMENT INFORMATION

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Document Details:

Title:	Waste Management Plan 9-11 Thongon St Kuranda, Qld 4881
Project Number:	MRA24-079

Revision	Date	Author	Reviewed By	Issued By
V.1	10 September 2024	A Reiser	M Rigby	A Reiser

Destination	Draft	Final
Michael Kunze	V.1	V.1
MRA Environmental	V.1	V.1

LIMITATIONS

Mark Rigby & Associates Pty Ltd (MRA Environmental) has prepared this Waste Management Plan for the sole use of 9-11 Thongon St Kuranda Pty Ltd to support a Development Application for the residential development located on 9-11 Thongon St, Kuranda QLD.

Specifically, this report supports the Development Application and relates to the waste storage and collection activities for the operational phase of the planned development generally in accordance with solid waste management outcomes in Accommodation activities code PO2 within the Mareeba Shire Council's *Planning Scheme July 2016.* This WMP will be submitted to Council as a component of the Information Request Response of the Development Application.

This report is for the sole use of 9-11 Thongon St Kuranda Pty Ltd and in relation to the Development Application to be submitted to Mareeba Shire Council. It may not contain sufficient information for the purposes of other parties, for other uses or at other locations.

We have performed our services for this project in accordance with our current professional standards. No other warranty, expressed or implied, is made as to the professional advice included in this submission.

Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions. The report also contains comments and information provided by others. MRA Environmental cannot take responsibility for advice provided by any third party.

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1.0 INTRODUCTION

1.1 BACKGROUND

MRA Environmental (MRA) has been commissioned by 9-11 Thongon St Kuranda Pty Ltd to prepare a Waste Management Plan (WMP) for the proposed residential development at 9-11 Thongon St, Kuranda QLD 4870.

It is understood that a Development Application (MCU/23/0025) has been lodged with Mareeba Shire Council (Council) and that an Information Request (IR) dated 12th January 2024 has been received. Item 18 of IR relates to on-site refuse storage and requests:

The refuse storage area provided is not considered adequate for 56 residential units and therefore the development cannot comply with PO2 of the Accommodation activities code. It is considered reasonable that each unit be provided with 1 x 240 litre wheelie bin, or equivalent communal bulk/skip bin refuse storage.

Please amend the plans to provide adequate refuse storage. Additionally, please demonstrate how the refuse storage will be emptied/serviced.

Therefore, this WMP has been prepared to address the Information Request received and ensures that the waste storage and collection activities for the operational phase of the development are generally in accordance with solid waste management outcomes in PO2 of Council's Accommodation activities code.

1.2 SITE DETAILS

The subject site is located at 9-11 Thongon St, Kuranda QLD on two (2) parcels of land described as Lots 310 & 311 on NR7409 (Refer to **Figure 1**). The site has a frontage onto Thongon Street, with commercial development generally to the south and west and residential properties generally to the north and east.

The proposed development is a single three (3) level building offering fifty-six (56) residential dwellings, consisting of 26 x 1-bedroom units, 22 x 2-bedroom units and 8 x 3-bedroom units with carparking provided on basement and lower ground levels.

1.3 PURPOSE & SCOPE OF REPORT

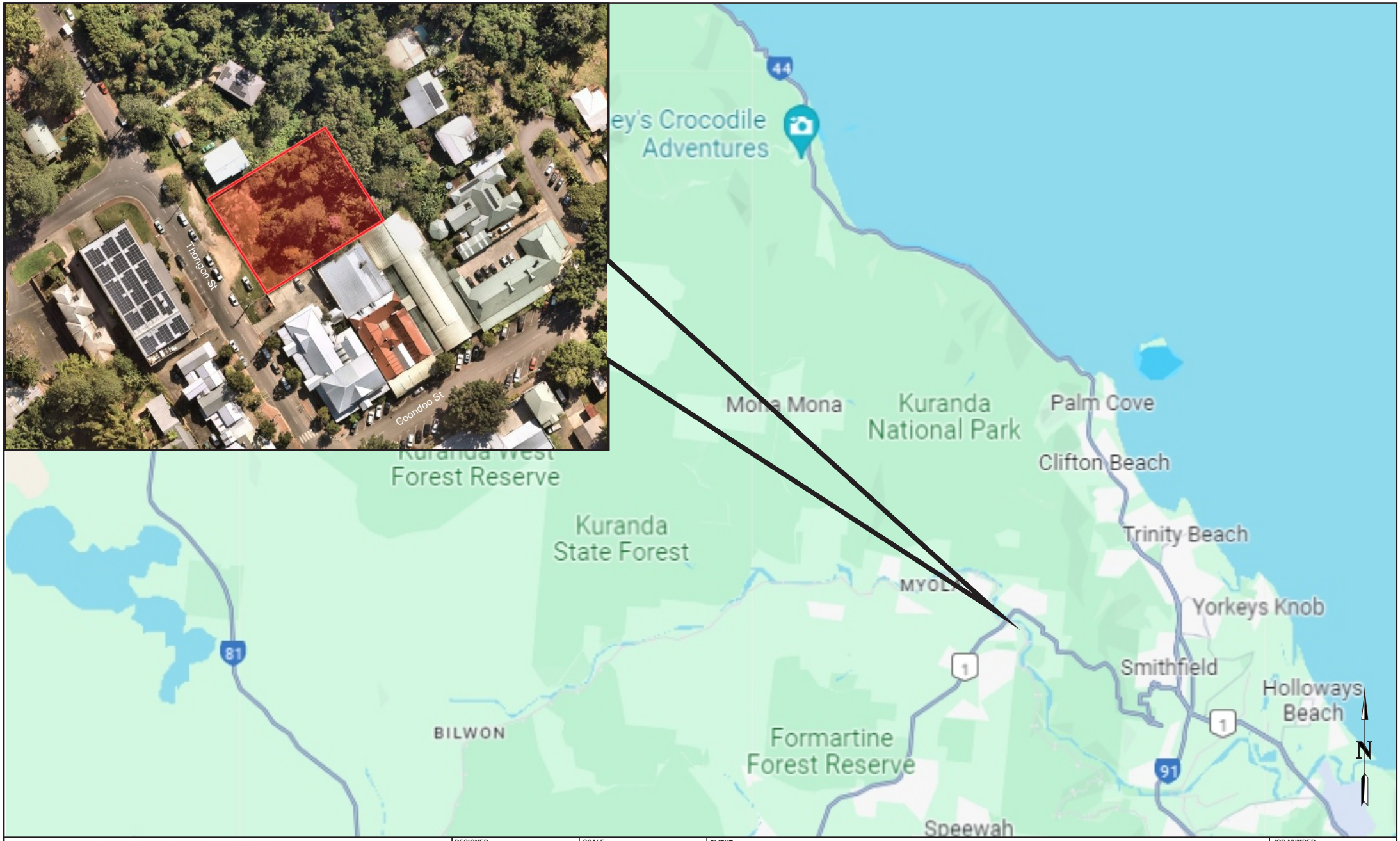
This report represents a Waste Management Plan for the operational phase of the development, which includes:

- Details on the anticipated type and quantity of waste (**Section 2.0**);
- Details of the waste storage room requirements and waste storage bins (**Section 3.0**); and
- Details of the proposed waste collection arrangements (**Section 4.0**).

1.4 WMP OBJECTIVES & STRUCTURE

The structure of this report will be as follows:

- An introduction including the site details, summary, purpose and scope of the report along with the objectives and structure;
- Development figures including the site location and outlining the waste storage and servicing infrastructure and locations;
- Waste quantities including the type of waste, quantities of waste based on the proposed development tenancy;
- Proposed waste storage and servicing areas including waste storage infrastructure and locations within the development; and
- Details of the waste collection including servicing frequencies, the waste servicing area and collection vehicle access.



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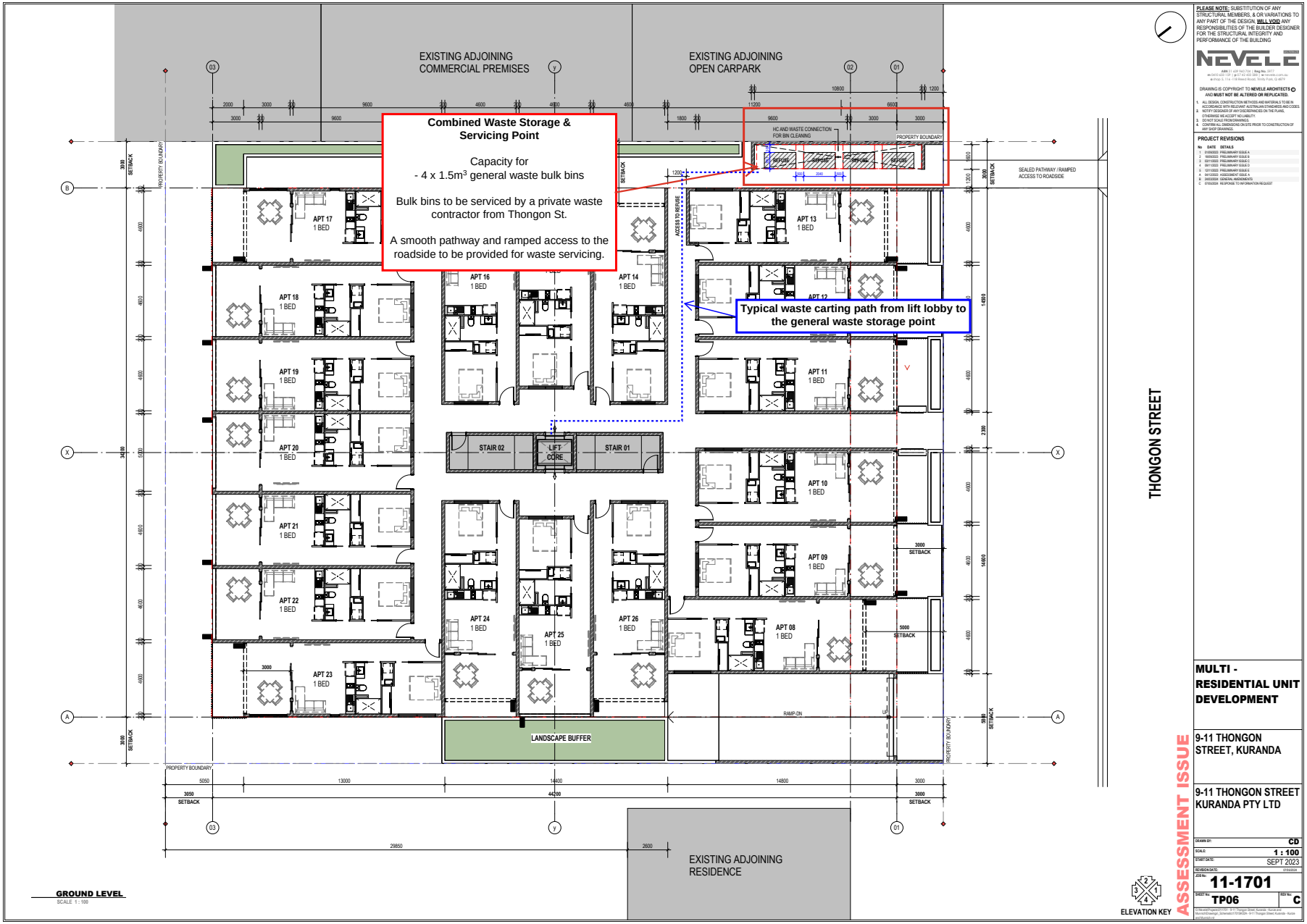
DESIGNED RP	SCALE NTS	CLIENT 9-11 THONGON ST KURANDA PTY LTD	JOB NUMBER MRA24-079
DRAWN RP	LEVEL DATUM -	PROJECT WASTE MANAGEMENT PLAN 9-11 THONGON ST, KURANDA	DRAWING Figure 1
CHECKED AR	SHEET SIZE A4		
APPROVED AR	CAD FILE	TITLE SITE LOCATION	
DATE SEPTEMBER 2024	ISSUE FINAL		REV FINAL



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6	24/11/2023	PRELIMINARY ISSUE F
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MULTI - RESIDENTIAL UNIT DEVELOPMENT

9-11 THONGON STREET, KURANDA

9-11 THONGON STREET KURANDA PTY LTD

DRAWN BY:	CD
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DRAWN	RP	LEVEL DATUM	-
CHECKED	AR	SHEET SIZE	A4
APPROVED	AR	CAD FILE	
DATE	SEPTEMBER 2024	ISSUE	FINAL

CLIENT: 9-11 THONGON ST PTY LTD

PROJECT: WASTE MANAGEMENT PLAN
9-11 THONGON ST, KURANDA

TITLE: COMBINED WASTE STORAGE & SERVICING POINT

JOB NUMBER: MRA24-079

DRAWING: Figure 2

REV: A

2.0 WASTE QUANTITIES

2.1 TYPE OF WASTE

Based on the proposed land uses identified in **Section 1.2, Table 1** below outlines the predicted types of waste that are expected to be generated from the proposed development.

Table 1: Predicted waste types to be generated

Tenancy Type	Predicted Waste Types
Residential units	General waste and recycling

2.2 WASTE QUANTITIES

Calculations of the anticipated waste quantities have been separated into the general waste and recycling components. As there are no waste generation rates provided within Mareeba Shire Council's *Planning Scheme July 2016,* it is not uncommon to utilise waste generation rates provided in other local government planning schemes.

As such, the residential waste calculations for this report were performed using typical waste generation rates as provided for multi-unit developments in Appendix A of the City of Gold Coast's *SC6.16 City Plan Policy v.11 – Solid Waste Management*.

2.3 RESIDENTIAL UNITS

The anticipated waste quantities for general waste and recycling for the proposed development are outlined below in **Table 2** and **Table 3**.

Table 2: Anticipated residential general waste quantities

Tenancy Type	No. of dwellings	Estimated Waste Generation (L/week/dwelling)	Total Required Waste Capacity (L/week)	Estimated Waste Generation (m^3/week)	Estimated Daily Waste Generation (m^3/day)
1 bedroom	26	80	2,080	2.08	0.30
2 bedrooms	22	100	2,200	2.20	0.31
3 bedrooms	8	120	960	0.96	0.14
TOTAL	**56**		**5,240**	**5.24**	**0.75**

Table 3: Anticipated residential recycling quantities

Tenancy Type	No. of dwellings	Estimated Recycling Generation (L/week/dwelling)	Total Required Waste Capacity (L/week)	Estimated Waste Generation (m^3/week)	Estimated Daily Waste Generation (m^3/day)
1 bedroom	26	50	1,300	1.30	0.19
2 bedrooms	22	60	1,320	1.32	0.19
3 bedrooms	8	80	640	0.64	0.09
TOTAL	**56**		**3,260**	**3.26**	**0.47**

2.4 TOTAL WASTE CAPACITY

In total, the proposed residential development is anticipated to generate a total of approximately **0.75m^3/day** of general waste and approximately **0.47m^3/day** of recycling waste.

3.0 GENERAL WASTE STORAGE

This section outlines the general design criteria for the general waste storage point, along with a description of the proposed bins to be used.

We have been advised by Council's Waste Team that the development falls under a commercial collection category and Council does not supply wheelie bins in these instances. Therefore, a private waste contractor is required to service the development.

We understand general waste bulk bins are available to be serviced once per week in Kuranda, therefore the proposed size and number of general waste bulks bins is equivalent to sufficiently store one (1) weeks' worth of general waste generation.

We understand that residential dwellings are not provided with commingled recycling wheelie bins in Kuranda and instead Mareeba Shire Council has provided a recycling depot at the end of Arara St adjacent to the town sewer plant for community recycling. It is therefore considered appropriate that residents of the proposed development will also utilise the community recycling depot.

3.1 GENERAL WASTE STORAGE POINT & SERVICING POINT

It is proposed that there will be one (1) combined waste storage and servicing point on the ground level of the development located in a designated area on the southern boundary (Refer to **Figure 2**).

This combined storage & servicing point will house four (4) x 1.5m^3 general waste bulks bins for residents to place general waste directly into the general waste bulk bins. There is an access pathway provided on ground level to the general waste storage point. The waste carting distances for residents from the lift lobby is approximately 40m.

The general waste storage point will also act as the servicing point and is discussed in more detail in **Section 4.2** below.

The general waste storage point will be designed and constructed to meet the requirements listed below:

1. Be of a sufficient size to accommodate the required bulk bins to meet the anticipated demand for general waste storage;
2. Designed to allow the bins to be easily transported to the servicing point (no steps or lips on bin carting route);

3. Be located to minimise adverse impacts on uses on the site and the adjoining site. The waste storage point is adjacent to a carparking area on the neighbouring property;
4. Be sited and designed to be unobtrusive and screened from view from the street frontage;
5. Safe access to the waste storage point is provided including artificial lighting;
6. Constructed hardstand area with a solid concrete base or acceptable equivalent;
7. Roofed and designed to prevent entry to rainwater; and
8. Graded to fall to a drainage point that is connected to sewer and provided with a hose-cock for cleaning.

3.2 PROPOSED WASTE BINS

To ensure that the design of the combined waste storage & servicing point is sufficient, the details of the type of waste and number of bulk bins provided to accommodate the general waste generated from this development is outlined in **Table 4**.

Table 4: Details of proposed bins & servicing frequency

Waste Source	Waste Type	Estimated Waste Generation (m^3/week)	Bins Proposed	Minimum Collection Frequency
Residential waste	General Waste	5.24	4 x 1.5m^3 general waste bulk bins	Once per week
	Recycling	3.26	Residents to take waste to the community recycling facility located on Arara St	As required

3.3 DIMENSIONS OF WASTE CONTAINERS

Table 5 below provides dimensions of the bulk bins to be used on-site. The 1.5m^3 bulk bins will be composed of steel with lightweight plastic lids.

Table 5: Typical dimensions of waste storage bins

Bin Type	Volume	Length (mm)	Width/ Diameter (mm)	Height (mm)	Collection Vehicle Type
Bulk bin	1.5m^3	2,040	1,051	1,304	Front Lift Truck

3.4 DRAINAGE AND BIN WASH

Appropriately sized bin wash facilities (including nearby access to a hose-cock) will be provided in proximity to the combined waste storage & servicing point (Refer to **Figure 2**). This area will be graded to a central drainage point that is connected to sewer in accordance with trade waste requirements. It will be the responsibility of the site management to wash bins and maintain the cleanliness of the combined waste storage &servicing point.

4.0 DETAILS OF COLLECTION

4.1 FREQUENCY

Waste servicing frequencies for general waste bulk bins for the development have been outlined in **Table 4.** The residential bulk bins are anticipated to be serviced once per week in accordance with the servicing frequency available via the private waste contractor.

4.2 WASTE SERVICING POINT

The proposed development will be serviced by a private waste contractor from Thongon Street. The combined waste storage & servicing point is on the ground level of the development located adjacent to Thongon Street (Refer to **Figure 2**).

The bulk bins will be stored on a level hardstand adjacent to the property boundary and a level pathway and ramped access to the roadside will be provided to allow for waste servicing. On collection day, the bulk bins will be removed from and returned to the waste storage point by the waste contractor for servicing.

There will be sufficient access and unobstructed vertical clearance for the front-lift waste collection vehicle (WCV) to service the development from Thongon Street. The typical dimensions for a front-lift waste collection vehicle are provided in **Table 6** below.

In addition to the requirements listed in **Section 3.1**, the combined waste storage & servicing point will reflect the following requirements:

1. Bin-carting route must allow bins to be easily manoeuvred and be devoid of steps or steep rises;
2. Positioned on a level pad within the site, adjacent to the property boundary and level with the kerbside;
3. A smooth path/ramp will be provided so that the bins can be manoeuvred for servicing without lifting the bins over raised surfaces/kerb;
4. Installation of signage to reserve the area for the WCV on the nominated service days is recommended to be erected.

4.3 COLLECTION VEHICLE ACCESS

Table 6 details the typical dimensions of the front lift waste collection vehicle that will be used to service the development.

Table 6: Typical front-lift truck dimensions

Parameter	Front Lift truck
Height (m)	4.3
Width (m)	2.5
Length (m)	10.2
Working Height (m)	6.5
Total Tonnage (max)	27.5
Min Turning Circle (m^2)	13.2 (wall-wall)
Min Turning Circle (m^3)	12.3 (kerb-kerb)

*Note that the waste collection vehicle clearance height (working height) is to be calculated according to the following formula as a minimum:

SUITABLE CLEARANCE = VEHICLE OPERATING DIMENSION + 100mm + CLEARANCE FOR SERVICES + CALCULATION FOR ROADWAY GRADIENT

5.0 SUMMARY

Details of this Waste Management Plan are summarised below:

- The subject site is located at 9-11 Thongon St, Kuranda QLD on two (2) parcels of land described as Lots 310 & 311 on NR7409 (Refer to **Figure 1**). The site has a frontage onto Thongon Street, with commercial development generally to the south and west and residential properties generally to the north and east;
- The proposed development is a single three (3) level building offering fifty-six (56) residential dwellings, consisting of 26 x 1-bedroom units, 22 x 2-bedroom units and 8 x 3-bedroom units with carparking provided on basement and lower ground levels;
- As there are no waste generation rates provided within Mareeba Shire Council's *Planning Scheme July 2016,* it is not uncommon to utilise waste generation rates provided in other local government planning schemes. As such, the residential waste calculations for this report were performed using typical waste generation rates as provided for multi-unit developments in Appendix A of the City of Gold Coast's *SC6.16 City Plan Policy v.11 – Solid Waste Management*;
- In total, the proposed residential development is anticipated to generate a total of approximately **0.75m^3/day** of general waste and approximately **0.47m^3/day** of recycling waste;
- We have been advised by Council's Waste Team that the development falls under a commercial collection category and Council does not supply wheelie bins in these instances. Therefore, a private waste contractor is required to service the development;
- We understand general waste bulk bins are available to be serviced once per week in Kuranda, therefore the proposed size and number of general waste bulks bins is equivalent to sufficiently store one (1) weeks' worth of general waste generation;
- We understand that residential dwellings are not provided with commingled recycling wheelie bins in Kuranda and instead Mareeba Shire Council has provided a recycling depot at the end of Arara St adjacent to the town sewer plant for community recycling. It is therefore considered appropriate that residents of the proposed development will also utilise the community recycling depot;
- It is proposed that there will be one (1) combined waste storage and servicing point on the ground level of the development located in a designated area on the southern boundary (Refer to **Figure 2**);
- This combined storage & servicing point will house four (4) x 1.5m^3 general waste bulks bins for residents to place general waste directly into the general waste bulk bins. There is an access pathway provided on ground level to the general waste storage point. The waste carting distances for residents from the lift lobby is approximately 40m; and
- The proposed development will be serviced by a private waste contractor from Thongon Street. The bulk bins will be stored on a level hardstand adjacent to the property boundary and a level pathway and ramped access to the roadside will be provided to allow for waste servicing. On collection day, the bulk bins will be removed from and returned to the waste storage point by the waste contractor for servicing.