Report
Prepared for
Pace Development Group

December 2018

Proposed Mixed Use Development

554-556 High Street Road, Mount Waverley

traffic impact

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Prepared for:

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Our reference 15674TREP02-F01

Table of contents:

1 Introduction:

Ratio Consultants was commissioned by Pace Development Group Pty Ltd to assess the traffic and parking implications of the proposed mixed use development at 554-556 High Street Road, Mount Waverley.

The proposed development involves the construction of a seven-storey building, and incorporates the following land uses:

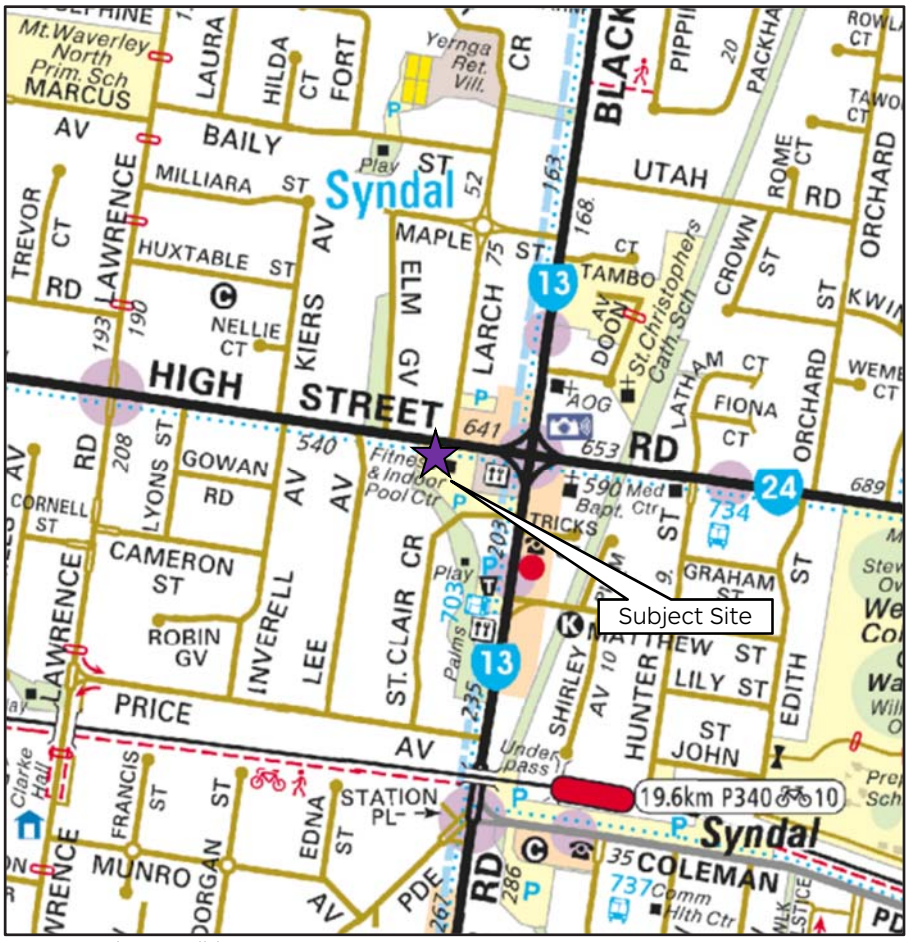
— 83 retirement village units and communal amenities;
— Food and drink premises located on the ground floor, fronting High Street Road, with a floor area of 149 sqm.
— 93 parking spaces (including one DDA space) within a two-level basement car park, accessed via High Street Road.

This report has been prepared to address the traffic and parking needs of the proposed development and is based on surveys and observations in the vicinity of the site and on previous studies of similar developments elsewhere in Melbourne.

2.1 Location and Environment

The site of the proposed development is located on the southern side of High Street Road, approximately 70 metres west of Blackburn Road, in Mount Waverley. The site's location relative to the surrounding road network is shown in Figure 2.1 below.

Figure 2.1: Site Location



Source: Melways Edition 39

The subject site is irregular in shape with a frontage to High Street Road of 61.55 metres, a maximum depth of 52.23 metres, and an overall site area of 2, square metres.

The site is currently occupied by a number of different uses, including: a yoga studio, swimming school, car sales yard, and a fitness centre. Vehicular access to/from the uses is provided via four single-width crossovers to/from High Street Road. Additional access is also provided via the Council public car park, which borders the eastern and southern boundaries of the site. The Council car park gains access to the road network via High Street Road to the north and St Clair Crescent to the east.

The site is located within a General Residential Zone – Schedule 2 (GRZ2). The surrounding land uses are predominantly residential in nature, with the Syndal Neighbourhood Activity Centre located along Blackburn Road east of the site.

Figure 2.2 below shows an aerial view of the site and its surrounds.

Figure 2.2: Aerial View of the Site and Surrounds

Source: www.nearmap.com

2.2 Road Network

High Street Road is a VicRoads managed road, and functions as an undivided Primary State Arterial Road. It runs in an east-west direction between Warrigal Road and Burwood Highway. In the vicinity of the subject site, High Street Road has an approximate carriageway width of 13.0 metres, accommodating two traffic lanes in each direction. Kerbside parallel parking is permitted on both sides of the road, outside of Clearway (directional) peak times. It has a posted speed limit of 60km/hr.

St Clair Crescent is classified as a municipal Local Road. It extends west from Blackburn Road and south to Prince Avenue. It has an approximate carriageway width of 7.2 metres, accommodating two-way vehicle movements. Kerbside parallel parking is provided on both sides of the road.

The High Street Road / Blackburn Road intersection is signal controlled, with pedestrian crossing facilities provided on all legs of the intersection.

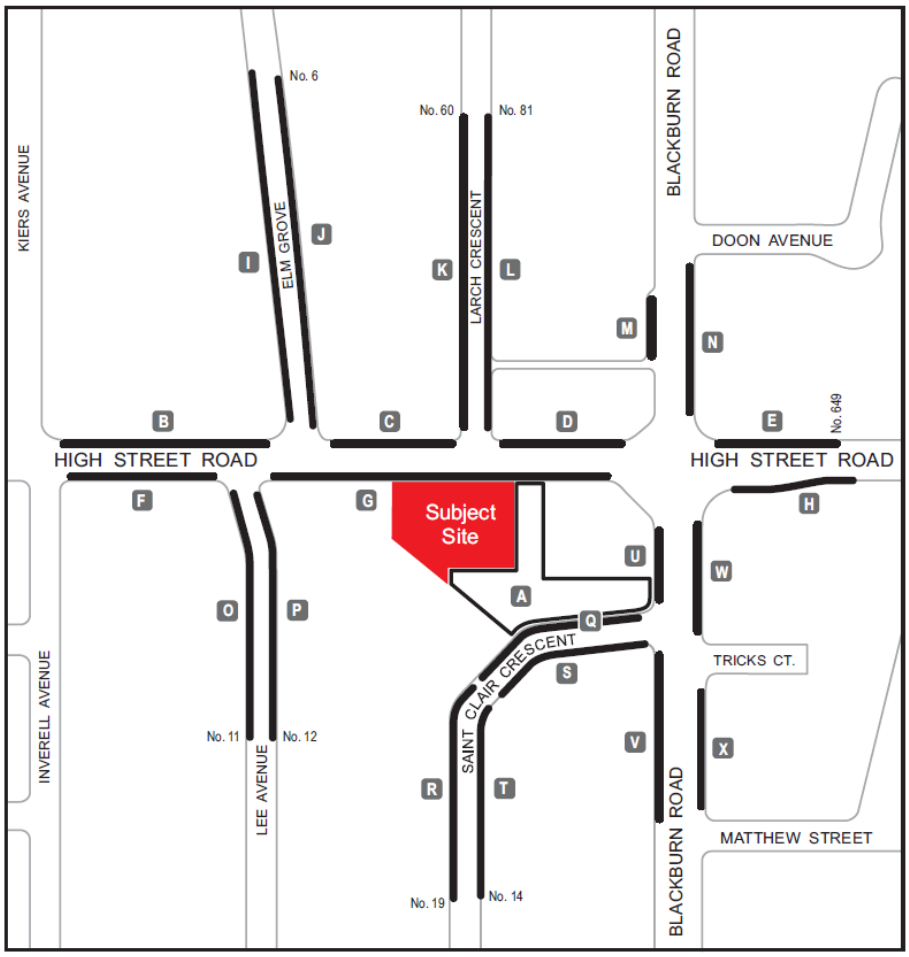
The St Clair Crescent / Blackburn Road intersection is priority controlled, with 'Give Way' signage and line marking provided for vehicles exiting St Clair Crescent.

Footpaths are provided on both sides of all roads in the vicinity of the site.

2.3 Parking Conditions

Ratio Consultants commissioned surveys of parking supply and demand on Friday 7 October 2016 between 11:00am to 8:00pm and on Saturday 8 October 2016 between 11:00am and 4:00pm. The extent of the survey area is presented in Figure 2.3 and detailed survey results are presented in Appendix A.

Figure 2.3: Parking Survey Area



The parking inventory reveals the supply of parking in the precinct is a mixture of restricted and unrestricted parking. Clearway parking restrictions apply along High Street Road, and 'No Stopping' restrictions apply on some local roads during business hours. The Council public car park located adjacent to the site accommodates 88 unrestricted parking spaces.

In summary, the survey results showed:

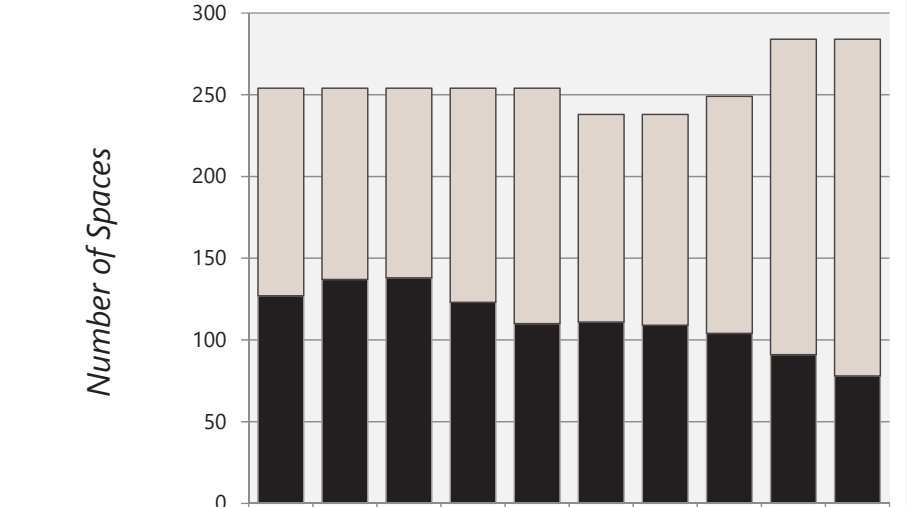
Friday 7 October 2016

— There was observed to be a minimum of 238 and a maximum of 284 parking spaces within the survey area (depending on the time of day). This includes 88 parking spaces associated with the Council car park, and between 150 and 196 on-street parking spaces.
— The demand for on-street parking was low to moderate during the survey period, with parking occupancies ranging between 24% and 40%.
— The on-street parking peak hour occurred at 12:00noon, when a total of 67 publicly available car parking spaces were recorded occupied out of an available supply of 166 spaces, representing a parking occupancy of 40%. There was a minimum of 99 on-street available spaces at this time.
— The Council car park experienced a moderate to high parking demand. The peak hour occurred at 1:00pm, when a total of 74 parking spaces were recorded occupied, representing a parking

occupancy of 84%. There were a minimum of 14 parking spaces available within the Council car park during the survey period.

Graph 2.1 provides a graphical representation of the Friday parking demands.

Graph 2.1: Parking demand survey results – Friday 7 October 2016



	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
PUBLIC VACANCIES	127	117	116	131	144	127	129	145	193	206
PUBLIC OCCUPANCIES	127	137	138	123	110	111	109	104	91	78

Saturday 4 June 2016

— There was observed to be a minimum of 273 and a maximum of 284 parking spaces within the survey area (depending on the time of day). This includes 88 parking spaces associated with the Council car park, and between 185 and 196 on-street parking spaces.

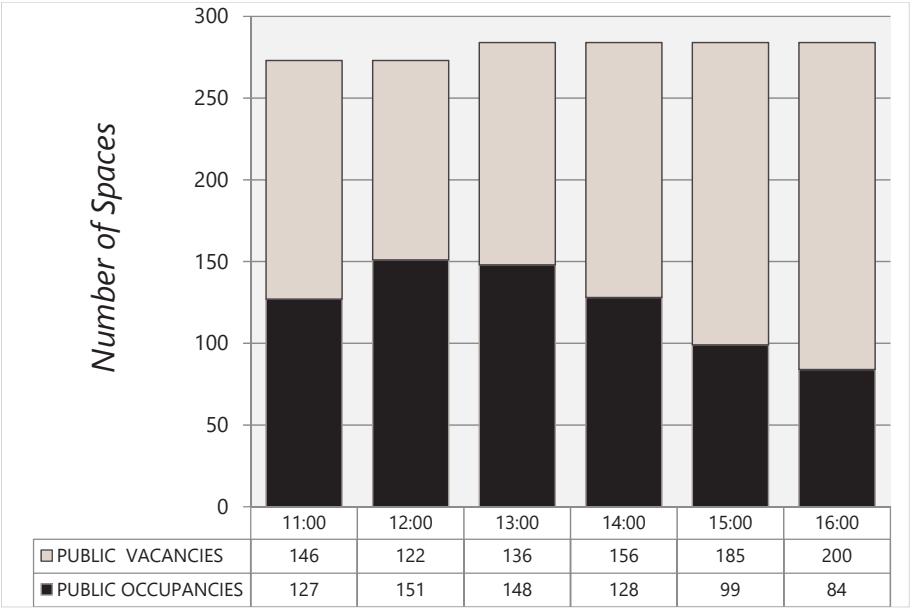
— The demand for on-street parking was low to moderate during the survey period, with parking occupancies ranging between 23% and 39%.

— The on-street parking peak hour occurred at 12:00noon, when a total of 73 publicly available car parking spaces were recorded occupied out of an available supply of 175 spaces, representing a parking occupancy of 39%. There was a minimum of 112 on-street available spaces at this time.

— The Council car park experienced a moderate to high parking demand. The peak hour occurred at 12:00noon, when a total of 78 parking spaces were recorded occupied, representing a parking occupancy of 89%. There were a minimum of 10 parking spaces available within the Council car park during the survey period.

Graph 2.2 provides a graphical representation of the Saturday parking demands.

Graph 2.2: Parking demand survey results - Saturday 8 October 2016



The survey results indicate that the overall parking demand is moderate throughout the survey period. The Council car park often experiences a high parking demand during business hours, which is not surprising given the parking is unrestricted. The on-street parking recorded a low to moderate parking demand during the weekday and weekend surveys. Overall, it is considered that there is spare parking capacity within the vicinity of the site to accommodate an increase in car parking.

2.4 Sustainable Transport

Public Transport

The site has very good access to the public transport network, principally via Syndal Railway Station. The following public transport services are provided within close proximity to the site:

Table 2.1: Public Transport Services - Train

Nearest Station	Railway Lines	Walking Distance
Syndal Railway Station	Glen Waverley	600 metres

Source: ptv.vic.gov.au

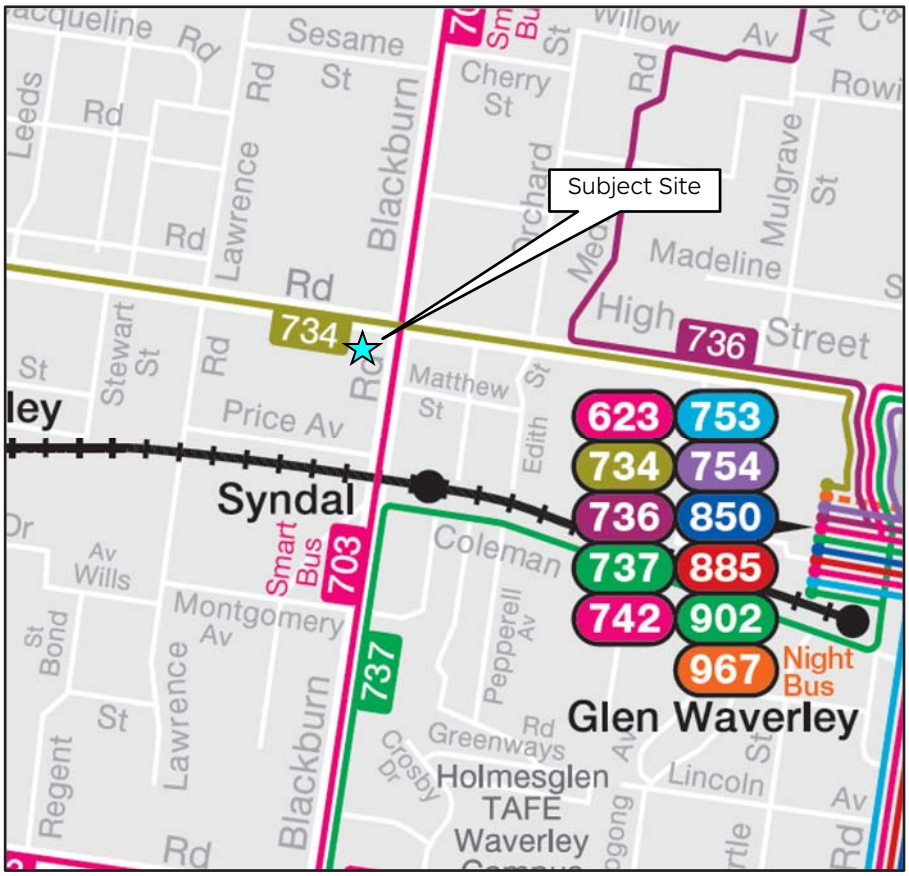
Table 2.2: Public Transport Services - Bus

Route Number	Route Description	Nearest Stop	Walking Distance
734	Glen Iris to Mount Waverley	High Street Road / Blackburn Road	70 metres
703	Middle Brighton to Blackburn via Bentleigh, Clayton, Monash University (SMARTBUS Service)	High Street Road / Blackburn Road	70 metres

Source: ptv.vic.gov.au

Figure 2.4 presents the public transport services operating within convenient proximity of the site:

Figure 2.4: Monash Public Transport Map



Source: Public Transport Victoria

The subject site is also a part of the land identified as being within the Principal Public Transport Network Area (State Government of Victoria, 2018) as shown graphically in Figure 2.5. This is reflective of the site's good access to public transport services.

Figure 2.5: Monash Principal Public Transport Area

Source: https://transport.vic.gov.au/about/planning/principal-public-transport-network

2.5 Crash Analysis

A review has been conducted of VicRoads 'Crashstats' database for the most recent period of available data from 1 January 2012 to 29 December 2017 for any reported casualty crashes within the following search area:

- High Street Road, between Blackburn Road and Lee Avenue;
- St Clair Crescent, between Blackburn Road and Prince Avenue;
- The Council car park; and
- The respective intersections.

The crash search revealed that 14 casualty crashes occurred at the intersection of High Street Road and Blackburn Road, summarised as follows:

— Nine 'right through' type crashes resulting in four 'serious' type and 16 other type injuries.
— Three 'rear end (vehicles in same lane)' type crashes resulting in one 'serious' and two 'other' type injuries.
— One 'other accidents – off straight not included in DCAs 170-175' type crash resulting in one 'other' type injury.
— One 'cross traffic (intersection only)' type crash resulting in one 'other' type injury.
— No crashes were recorded mid-block along High Street Road or St Clair Crescent.

— No crashes were recorded within the Council car park or at its junctions with High Street Road or St Clair Crescent.

3 The Proposal:

It is proposed to demolish the existing buildings on-site and construct a seven-storey mixed use development on the site located at 554-556 High Street Road, Mount Waverley. More specifically, the development comprises the following:

— Retirement village of 83 units, comprising:
  - 19 x one-bedroom units;
  - 64 x two-bedroom units; and
  - Associated communal amenities (gym, pool, library, cinema and yoga studio).
— Food and drinks premises located on the ground floor fronting High Street Road with a floor area of 149 sqm;
— 93 parking spaces (including one DDA space) within a two-level basement car park, accessed via High Street Road. There will also be a dedicated drop-off / pick-up bay located within the basement car park.

Vehicular access to the site will be provided via a new double-width crossover connecting to/from High Street Road, located centrally along the site frontage. All other existing crossovers to High Street Road will be reinstated with kerb, channel and nature strip to the satisfaction of the Responsible Authority.

Primary pedestrian access to the proposed units will be via an entrance located on the ground floor connecting to/from High Street Road. A separate entrance will be provided to/from the food and drinks premises.

A total of 63 bicycle parking spaces are proposed, located on ground floor and within the two basement levels.

Refuse and storage areas are provided within the basement car park.

4.1 Planning Scheme Assessment

Clause 52.06 - Parking Assessment

Parking requirements for new developments are set out under in Clause 52.06 of the Monash Planning Scheme. The purpose of Clause 52.06 is defined in the Scheme as follows:

- To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local Planning Policy Framework.
- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
- To support sustainable transport alternatives to the motor car.
- To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
- To ensure that car parking does not adversely affect the amenity of the locality.
- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

As per Amendment VC148, Column B rates of Table 1 from Clause 52.06 of the Monash Planning Scheme apply if:

- Any part of the land is identified as being within the Principal Public Transport Network Area as shown in the Principal Public Transport Network Area Maps (State Government of Victoria, 2018); or
- A Schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies.

As the subject site falls within the Principle Public Transport Network Area (as discussed in Section 2.4), Column B rates of Table 1 in Clause 52.06 are applicable for the number of car spaces to be provided, which are outlined in Table 4.1 below:

Table 4.1: Statutory Car Parking Requirement

Use	Number / Size	Column B Rates	Requirement
Retirement village	19 x one-bedroom units	1 space per unit	19 spaces
	64 x two-bedroom units		64 spaces
Retirement village visitors	83 units	No Requirement	0 spaces
Food and Drinks Premise	149 sqm	3.5 spaces per 100sqm leasable floor area	5 spaces
Total Statutory Car Parking Requirement			**88 spaces**

Accordingly, the proposed development has a statutory car parking requirement of 88 car parking spaces. It is proposed to provide 93 on-site spaces and allocate car parking as shown in Table 4.2 below:

Table 4.2: Statutory Car Parking Requirement

Use	Parking Requirement	Parking Supply	Statutory Reduction / Surplus
Retirement Village Units	83 spaces	88 spaces	5 space surplus
Food and Drinks Premise	5 spaces	5 spaces (inclusive of one accessible space)	-
Total	**88 spaces**	**93 spaces**	**5 space surplus**

On the basis of the above, the proposed development exceeds the statutory requirements of Clause 52.06 of the Monash Planning Scheme and is therefore considered acceptable.

5.1 Clause 52.06 Design Standard Assessment

The proposed basement car park has been designed in accordance with the objectives and design requirements of Clause 52.06-9 of the Monash Planning Scheme, and in accordance with the relevant sections of AS/NZS 2890.1:2004 and AS/NZS2890.6:2009.

An assessment against the relevant design standards of Clause 52.06-9 of the Planning Scheme is provided below:

Design Standard 1 – Accessways

Vehicular access to the site will be provided via a new double-width crossover connecting to/from High Street Road, located centrally along the site frontage. The new crossover will be designed in accordance with the Responsible Authority.

All other existing crossovers to High Street Road will be reinstated with kerb, channel and nature strip to the satisfaction of the Responsible Authority.

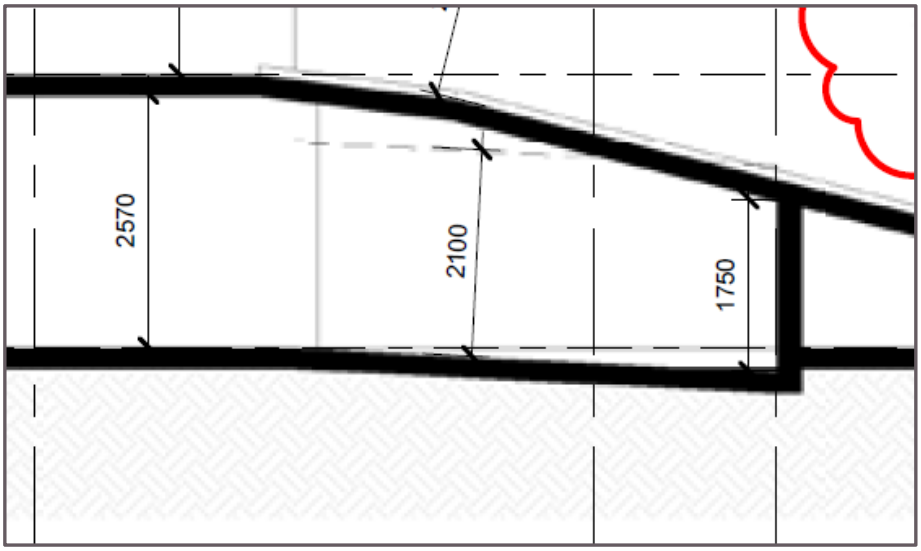
Design Standard 1 of Clause 52.06-9 relates to the design of accessways. The requirements of Design Standard 1 are assessed against the proposal in Table 5.1 below:

Table 5.1: Design Standard 1 Assessment - Accessways

Requirement	Comments
Must be at least 3m wide.	**Satisfied**: The accessway has been designed with a minimum width of 6.05 metres, which exceeds this requirement and Clause 2.5.2 of AS/NZS2890.1:2004 for the width of a two-way roadway.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	**Satisfied**: All vehicles can depart the car park in a forward direction with one manoeuvre.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	**Generally Satisfied**: A minimum headroom clearance of 2.1 metres is provided throughout the basement car park area, with the exception of one car parking space beneath the basement ramp on B2. The minimum headroom clearance for this space is 1.75 metres. The headroom clearance of this space is considered appropriate based on the following: - The minimum headroom clearance is provided at the front of the space (away from the aisle) where the nose of a vehicle will park. - This space will be allocated to a resident who will be familiar with the height constraints. - Approximately half of the space has a height clearance of 2.1 metres or greater in accordance with the Design Standard 1 of Monash Planning Scheme. - The height restrictions associated with this space are no different to the height restrictions that apply due to over bonnet storage or car stacker platforms (which typically apply restrictions of 1.5 metres).

If the accessway serves four or more car spaces or connects to a road in a Road Zone, the accessway must be designed so that cars can exit the site in a forward direction.	**Satisfied**: All cars can enter and exit the site in a forward direction.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Road Zone.	**Satisfied**: The accessway has a width of 6.6 metres (inclusive of 300mm kerbs on both sides) for in excess of the first 7.0 metres, complying with this requirement.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	**Satisfied**: A pedestrian sight triangle is provided adjacent to the exit lane of the accessway (western side), measuring 2.24 metres along the site frontage and extending 2.50 metres into the site in excess of the minimum requirements of Design Standard 1. Any landscaping in this area will be kept below 900mm in height to ensure clear visibility. Given that the ramp is double-width where it meets the property boundary, a sight triangle is not required on the eastern side of the ramp.

Figure 5.1: Minimum Headroom Clearance (for car space beneath ramp on B2)



Design Standard 2 - Car Parking Spaces

It is proposed to provide a total of 93 car parking spaces (including one accessible space) within a two-level basement car park, accessed via High Street Road.

Design Standard 2 of Clause 52.06-9 relates to the design of car parking spaces. The requirements of Design Standard 2 are assessed against the proposal in Table 5.2:

Table 5.2: Design Standard 2 Assessment - Car Parking Spaces

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	**Satisfied**: Car parking spaces are 2.6 metres wide by 4.9 metres long, accessed via a minimum 6.4 metre wide aisle or 2.7 metres wide by 4.9 metres long, accessed via a minimum 6.1 metre wide aisle. These dimensions comply with the requirements of Table 2 of Design Standard 2 of Clause 52.06 of the Monash Planning Scheme.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than: - A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1. - A structure, which may project into the space if it is at least 2.1m above the space.	**Satisfied**: All car parking spaces are provided with clearance as per Diagram 1 of the Design Standard 2.
Car spaces in garages or carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage or carport.	**Not Applicable**: No garages or carports are proposed.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	**Not Applicable**: No car parking spaces are proposed in a tandem arrangement.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	**Satisfied**: All car parking spaces are located within the basement.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	**Satisfied**: One accessible car parking space has been provided in a shared arrangement for the commercial uses. The accessible space has a width of 2.4 metres and a length of 5.4 metres as per the requirements of AS2890.6:2009. An adjacent shared zone is provided with the same dimensions.

Design Standard 3 - Gradients

The basement ramps incorporate the following gradients:

Entry Ramp

- A flat section for 1.61 metres from the property boundary into the site at a RL of 102.95 metres;
- An initial 1:10 gradient for 5.0 metres from a RL of 102.95 metres;
- A transitional gradient of 1:4.5 for 2.0 metres;
- A midblock gradient of 1:4 for 7.69 metres, and
- A final 1:8 gradient for 2.5 metres to a RL of 99.77 metres.

Internal Ramp

- An initial 1:8 gradient for 2.0 metres from a RL of 99.77 metres,

— A midblock gradient of 1:4 for 8.83 metres, and
— A final 1:8 gradient for 2.5 metres to a RL of 97.00 metres.

Other Items: Safety

A security gate is proposed to control access and provide security to the basement car park. Resident and staff vehicles will have convenient access via remote control units, with any short-term users able to utilise the intercom system that is positioned centrally within the accessway. The intercom system will be located 4.5 metres from the site boundary, which will allow a vehicle to prop within the site, on the moderate 1:10 grade, whilst using the intercom system.

Other Items: Drop-Off / Pick-Up Bay

A dedicated drop-off / pick-up bay has been provided for the development within Basement 1 which is a shared space proposed to operate as follows:

- Used for short-term drop-off and pick-ups (by Taxis, Ubers, private vehicles etc);
- Service and waste collection vehicles that need to access the site; and
- Emergency vehicles such as an Ambulance Vehicle. The entrance ramp has a minimum headroom clearance of 2.95 metres, which is sufficient to accommodate the typical Ambulance Vehicle within the Victorian Fleet, which has a maximum height of 2.8 metres.

The bay has dimensions of 4.5 metres by 7.2 metres and the swept path assessment undertaken demonstrates that an Ambulance Vehicle and the nominated waste collection vehicle can access the bay in a suitable manner.

5.2 Swept Path Assessment

An assessment (refer to Appendix B) of the accessibility to/from the site using the 'Autodesk Vehicle Tracking' software has been conducted. The B99 (99.8th percentile car) was used in the assessment and it was found that two opposing vehicles could pass at the site access in a suitable manner. Further, all vehicles will be able to enter / exit the site in a forwards direction.

An assessment of the accessibility to/from the critical parking bays was also undertaken using the B85 (85th percentile car) and it was found that each parking space could be accessed (ingress and egress) in a satisfactory manner.

The assessment indicates that the access arrangements and car parking layout have been designed appropriately and in accordance with the requirements of the Monash Planning Scheme, AS/NZS2890.6:2009 and/or AS/NZS 2890.1:2004.

6 Bicycle Parking:

Clause 52.34 – Bicycle Parking Spaces

Clause 52.34-3 of the Monash Planning Scheme outlines the requirements for bicycle parking for various uses. The bicycle parking requirements for the proposed development are outlined in Table 6.1 below:

Table 6.1: Bicycle Parking Requirement

Use	Type	Number / Size	Rate	Requirement
Retirement village *(assessed as Dwelling under Table 1 to Clause 52.34)*	Resident	83 dwellings	1 space per five units	17 spaces
	Visitor		1 space per ten units	8 spaces
Food and Drink Premise *(Retail premises other than specified under Table 1 to Clause 52.34)*	Staff	149sqm	1 space per 300sqm of leasable floor area	0 spaces
	Customers		1 space per 500sqm of leasable floor area	0 spaces
Total				**25 spaces**

It is noted that retirement village is not a listed land use under Clause 52.34-3 of the Monash Planning Scheme. To ensure an appropriate provision of bicycle parking is provided for residents and visitors of the retirement village units, the rates specified for a dwelling use under Clause 52.34-3 of the Monash Planning Scheme have been adopted. It is considered that the dwelling rates are conservative, given the anticipated travel patterns of residents and visitors of a retirement village.

On the basis of the above assessment, the proposed development has a statutory requirement of 25 bicycle parking spaces.

The development proposes a total of 63 parking spaces, arranged as follows:

— 3 'Arc de Triomphe' bicycle rails or similar (6 spaces) on ground floor;
— 10 'Ned Kelly' bicycle racks or similar (10 spaces) on ground floor;
— 5 'Arc de Triomphe' bicycle rails or similar (10 spaces) within Basement 1;
— 25 X 'Ned Kelly' bicycle racks or similar (25 spaces) within Basement 1; and
— 6 'Arc de Triomphe' bicycle rails or similar (12 spaces) within Basement 2

Accordingly, the proposed development greatly exceeds the bicycle parking requirements of the Monash Planning Scheme and is considered acceptable.

AS 2890.3:2015 requires that 20% of bicycle parking be provided via ground level rails. The proposed bicycle parking provides approximately 50% of the bicycle spaces at ground level. The bicycle parking specifications are provided within Appendix C.

7.1 Loading and Unloading Arrangements

Clause 65.01 'Decision Guidelines' of the Monash Planning Scheme outlines the provision of loading requirements, and states the following:

"Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:

— *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."*

Loading and unloading activities associated with the proposed development will primarily be related to the delivery of goods for the food and drink premises. Some vans / small trucks may occasionally seek to access the site for the loading / unloading of furniture and goods into and out of the units. This will largely occur when residents initially move into the units.

As discussed in Section 5.1, it is proposed to provide a dedicated drop-off / pick-up zone within Basement 1, which comprises dimensions of 4.5 metres wide by 7.2 metres long. This zone can be utilised by vans and small trucks that comprise a height clearance of less than 2.9 metres (noting that the minimum height clearance along the entrance ramp is 2.9 metres).

Larger trucks that seek to access the site will need to undertake loading on-street. It is considered that loading and unloading associated with these large vehicles can appropriately be on-street, on the basis of the following:

— The site's location adjacent to High Street Road and available kerbside parallel parking fronting the site (noting that loading associated with larger vehicles will need to occur outside of peak Clearway times).
— The existing commercial tenancies along High Street Road currently operate without on-site loading bays and complete loading activities through on-street parking.
— Smaller trucks and vans will be able to utilise the dedicated drop-off / pick-up zone located on Basement 1.

8 Waste Collection:

8.1 Waste Collection Arrangement

A Waste Management Plan (WMP) has been prepared for the development by Leigh Design.

Dedicated refuse and recyclables rooms (separate rooms for commercial and retirement village waste) are provided within Basement 1 adjacent to the lift core. It is understood that waste will be collected by a private contractor from within the on-site loading bay using the mini rear loader truck, which is 2.08m high, 6.35m long and 1.7m wide. The swept paths shown in Appendix D demonstrate the ability for the mini rear loader truck to enter and exit the site in a suitable manner.

This is considered to be an acceptable arrangement from a traffic engineering perspective.

9.1 Traffic Generation and Distribution

Retirement Village Generation

The Transport Road and Maritime Services (previously RTA) Guide to Traffic Generating Developments (Update August 2013) indicates a daily traffic generation of 2.1 vehicle movements per day per dwelling for housing for seniors. The Transport Road and Maritime Services rates outline a weekday peak hour rate of 0.4 vehicle movements per dwelling. Peak activity for independent living units typically occurs outside of commuter peak hours.

Reference is also made to traffic generation surveys undertaken by traffic engineering consultancy One Mile Grid at Hunters Green Retirement Village in Cranbourne. The results of the surveys showed an AM peak hour rate of 0.34 trips per dwelling and a PM peak hourly rate of 0.21 trips per dwelling.

To provide a conservative assessment of the traffic generation of the retirement village component of the proposal, a peak rate of 0.4 vehicle movements has been adopted in the morning and afternoon peak hour periods, consistent with the rate outlined by the Transport Road and Maritime Services.

It is anticipated that there will be a slightly higher proportion of departing trips than arriving trips in the morning peak hour period. An even distribution of arriving and departing trips has been assumed in the afternoon peak hour period.

The retirement village traffic generation for the AM and PM peak hours and on a daily basis on a typical weekday are estimated as follows:

Table 9.1 – Retirement Village Traffic Generation

Trips[1]	AM Peak	PM Peak
Arriving trips:	13 vph	17 vph
Departing trips:	20 vph	17 vph
Total trips:	**33 vph**	**33 vph**

Food and Drink Premises

The food and drink premises is expected to generate in the order of seven trips per 100sqm per peak hour for staff and customer trips and in the order of 30 trips per 100sqm per day. On this basis, it is estimated that for the commuter peak hours the 149sqm food and drink premises will generate in the order of 10 trips per hour and in the order of 45 trips per day.

Accordingly, in the AM and PM peak hours on a typical weekday the traffic generation for the shop use will be approximately as shown in Table 9.2:

[1] Anticipated trip rates have been rounded up in where appropriate to provide a conservative estimation of the traffic generation.

Table 9.2: Food and Drink Premises

Trips	AM Peak	PM Peak
Arriving trips:	5 vph	5 vph
Departing trips:	5 vph	5 vph
Total trips:	**10 vph**	**10 vph**

A summary of the overall peak hour traffic generation for the proposed development is presented below in Table 9.3.

Table 9.3: Total Traffic Generation

	AM Peak	PM Peak
Arriving trips:	18 vph	22 vph
Departing trips:	25 vph	22 vph
Total trips:	**43 vph**	**44 vph**

9.2 Traffic Distribution and Impact

The traffic generation for the overall development is anticipated to be up to 44 vehicle movements per hour during the commuter peak hour periods (one movement every one to two minutes on average).

The additional traffic generated by the proposed development will flow directly onto High Street Road and the surrounding road network.

The traffic signals at the nearby High Street Road / Blackburn Road intersection create regular gaps in westbound traffic along High Street Road which will facilitate the ability for vehicles to enter and exit the site even during peak times.

The surrounding road network has the ability to accommodate the expected increase in traffic volume associated with the proposed development.

10 Conclusion:

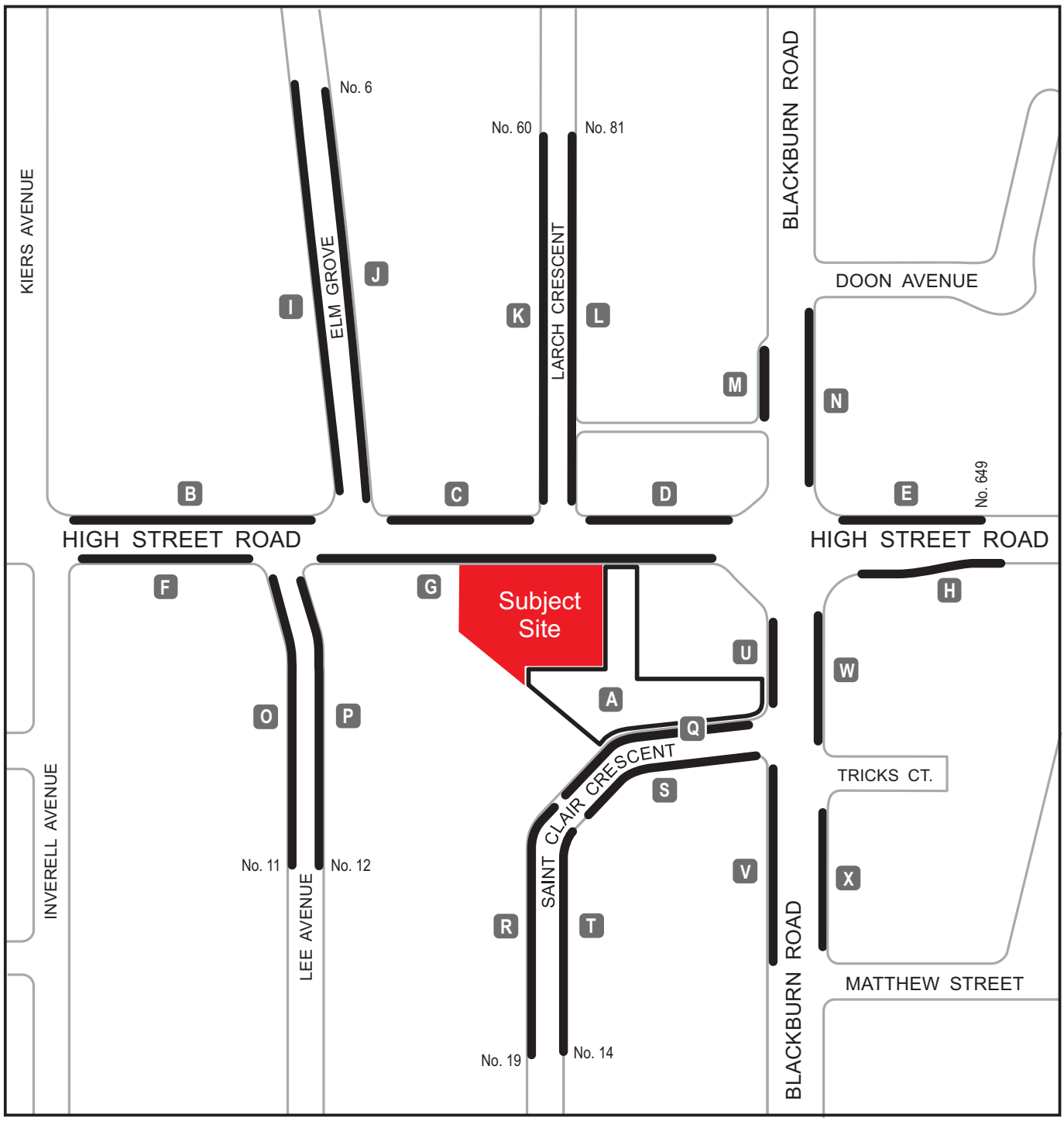
The proposed seven-storey mixed use development at 554-556 High Street Road, Mount Waverley, comprises 83 dwellings, and a food and drink premises with a floor area of 149 sqm. Car parking for the site is provided via a two-level basement car park, accessed via High Street Road.

Based on the above assessment, it is considered that:

— The proposed on-site parking provision exceeds the statutory requirements of the Monash Planning Scheme and is considered acceptable.
— The proposed car park has been designed in accordance with the dimensional requirements of the Monash Planning Scheme, AS/NZS2890.6:2009 and/or AS/NZS 2890.1:2004. Swept path assessments demonstrate that access to/from all parking spaces is satisfactory.
— The volume of peak hour traffic generated by the development is predicted to be up to 60 vehicle movements in the commuter peak hour periods (one movement every minute on average). This level of traffic can be accommodated by the surrounding road network.
— The proposed bicycle parking provision is satisfactory and greatly exceeds the Monash Planning Scheme requirement.
— Refuse and recycling areas are provided within the basement car park. Waste will be collected on-site by a private waste contractor.

Overall, the proposed development is not expected to create adverse traffic or parking impacts in the precinct.

Appendix A **Survey Results**



Project : 15674T October 2018

FIGURE 2.1
PARKING SURVEY AREAS

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Parking Occupancy Survey

Date:	Friday, 7 October 2016
Location:	554 High Street Road and Blackburn Rd, Mount Waverley
Weather:	Fine
Customer:	Ratio

Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy									
							11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
A	High St Rd	Off Street Carpark	S	Unrestricted		88	65	70	74	70	65	62	60	50	39	31
B		From Inverell Ave To Lee Ave	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	9	1	0	1	0	0	0	0	0	0	0
				Bus Zone		1	0	0	0	0	0	0	0	0	0	0
		From Lee Ave To Elm Grv		No Standing		0	0	0	0	0	0	0	0	0	0	0
C		From Elm Grv To Larch Cres	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	7	0	0	0	0	0	0	0	0	0	0
D		From Larch Cres To Blackburn Rd	N	1P 8:00am-6:00pm Mon-Fri; 8:00am-12:30pm Sat		4	3	4	4	3	2	4	2	3	3	3
E		From Blackburn Rd To No.650	N	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
F		From Inverell Ave To Lee Ave	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	9	0	1	1	0	0	0	0	0	0	0
G		From Lee Ave To Elm Grv	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	1	0	0	0	0	0	0	0	0	0	0
		From Elm Grv To Larch Cres		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	8	0	0	0	0	0	0	0	0	0	0
		From Larch Cres To Blackburn Rd		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	4	0	0	0	0	0	0	0	0	0	0
H		From Blackburn Rd To No.649	S	No Standing		0	0	0	0	0	0	0	0	0	0	0
I	Elm Grv	From No.10/No.12 To High St Rd	W	Unrestricted		20	3	3	3	2	2	2	1	1	1	1
J			E	Unrestricted		11	4	4	3	3	2	2	3	5	5	5
K	Larch Cres	From High St Rd To No.62/No.60	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0	0	0	0	0
				Unrestricted		10	6	6	6	5	4	3	4	5	4	3
L			E	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0	0	0	0	0
				Unrestricted	No Parking 8:30am-5:30pm Mon-Fri; 8:30am-12:30pm Sat	11	0	0	0	0	0	0	0	0	0	0
M	Blackburn Rd	From High St Rd To Doon Ave	W	2P 8:00am-6:00pm Mon-Fri; 8:00am-1:00pm Sat		6	4	3	4	3	4	3	4	3	3	3
				Unrestricted		3	0	0	0	0	0	0	0	0	0	0
N			E	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
O	Lee Ave	From High St Rd To No.12	W	Unrestricted		12	4	5	5	3	3	4	4	5	5	4
P			E	Unrestricted		12	5	5	4	6	4	3	3	5	5	4
Q	St Clair Cres	From Blackburn Rd To No.7	N	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	9	0	0	0	0	0	0	0	0	0	0
R		From No.7 To No.19	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	2	0	0	0	0	0	0	0	0	0	0
				Unrestricted		7	3	3	2	2	1	1	2	2	2	2
S		From Blackburn Rd To No.7	S	Unrestricted		3	3	3	3	3	3	2	2	1	1	1
T		From No.7 To No.19	E	Unrestricted		10	4	5	5	4	4	3	2	3	3	3
U	Blackburn Rd	From High St Rd To Trick Ct	W	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
V		From Trick Ct To Matthew St	W	No Standing		0	0	0	0	0	0	0	0	0	0	0
W		From High St Rd To Trick Ct	E	1P 8:00am-6:00pm		6	3	4	5	3	4	5	3	4	3	3
				1P 8:00am-6:00pm; 1/2P 6:00pm-10:00pm		7	6	6	4	4	3	4	6	5	5	5
X		From Trick Ct To Matthew St	E	1P 8:00am-6:00pm		9	7	8	8	7	5	7	8	7	7	5
				Mail Zone 12:30pm-1:30pm; 4:30pm-5:30pm Mon-Fri		1	1	1	0	1	1	0	0	1	1	1
				1P 8:00am-6:00pm		7	5	6	6	4	3	6	5	4	4	4
PUBLIC CAPACITY							**254**	**254**	**254**	**254**	**254**	**238**	**238**	**249**	**284**	**284**
PUBLIC OCCUPANCIES							**127**	**137**	**138**	**123**	**110**	**111**	**109**	**104**	**91**	**78**
PUBLIC VACANCIES							**127**	**117**	**116**	**131**	**144**	**127**	**129**	**145**	**193**	**206**
PUBLIC % OCCUPANCIES							**50%**	**54%**	**54%**	**48%**	**43%**	**47%**	**46%**	**42%**	**32%**	**27%**

not available for public parking

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

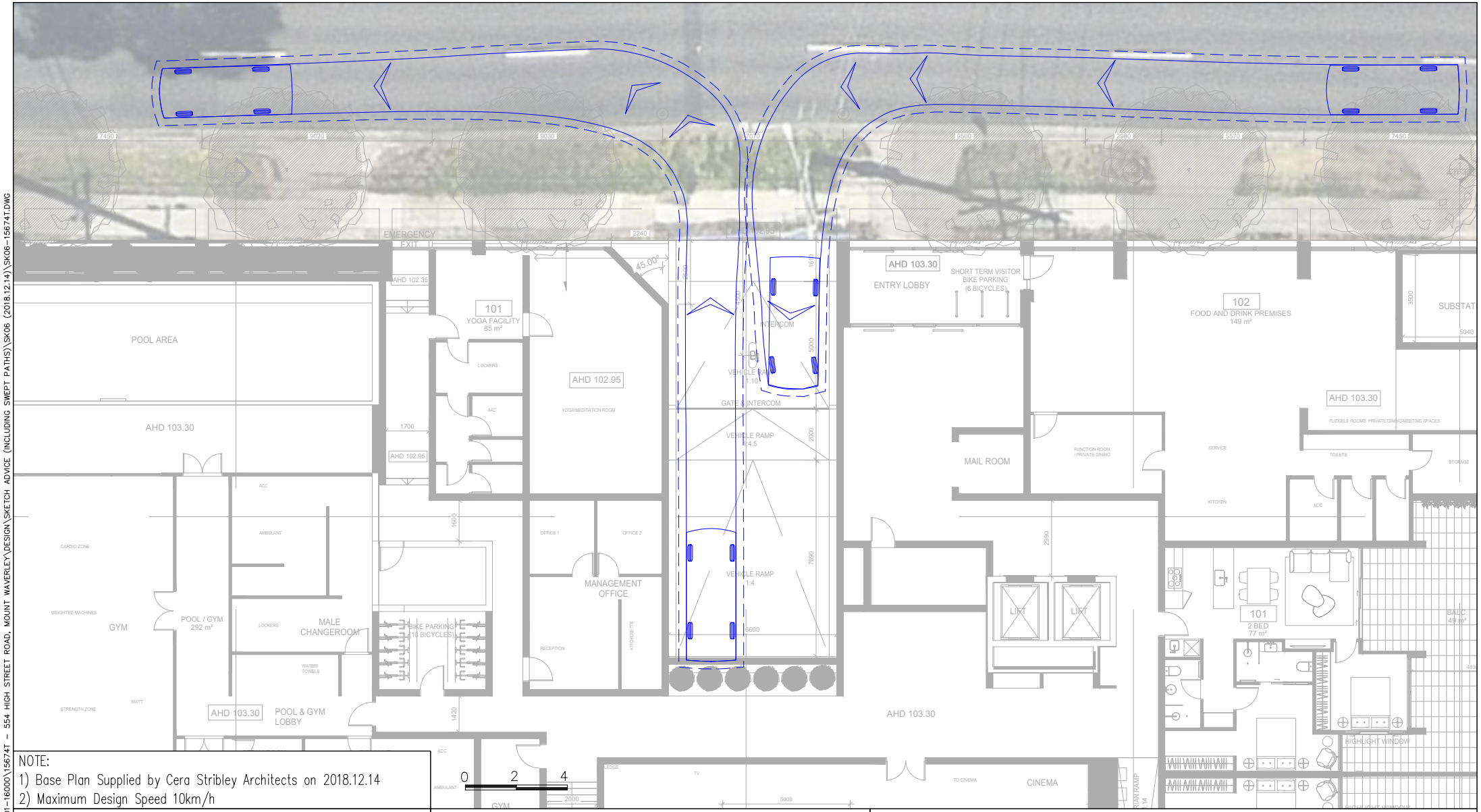
Parking Occupancy Survey

Date:	Saturday, 8 October 2016
Location:	554 High Street Road and Blackburn Rd, Mount Waverley
Weather:	Fine
Customer:	Ratio

Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy					
							11:00	12:00	13:00	14:00	15:00	16:00
A	High St Rd	Off Street Carpark	S	Unrestricted		88	60	78	75	62	50	38
B		From Inverell Ave To Lee Ave	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	9	0	0	0	0	0	0
				Bus Zone		1	0	0	0	0	0	0
		From Lee Ave To Elm Grv		No Standing		0	0	0	0	0	0	0
C		From Elm Grv To Larch Cres	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	7	0	0	0	0	0	0
D		From Larch Cres To Blackburn Rd	N	1P 8:00am-6:00pm Mon-Fri; 8:00am-12:30pm Sat		4	3	3	2	3	2	2
E		From Blackburn Rd To No.650	N	Bus Zone		1	0	0	0	0	0	0
F		From Inverell Ave To Lee Ave	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	9	0	0	0	0	0	0
G		From Lee Ave To Elm Grv	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	1	0	0	0	0	0	0
		From Elm Grv To Larch Cres		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	8	0	0	0	0	0	0
		From Larch Cres To Blackburn Rd		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	4	0	0	0	0	0	0
H		From Blackburn Rd To No.649	S	No Standing		0	0	0	0	0	0	0
I	Elm Grv	From No.10/No.12 To High St Rd	W	Unrestricted		20	2	2	3	3	1	1
J			E	Unrestricted		11	3	3	4	4	2	2
K	Larch Cres	From High St Rd To No.62/No.60	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0
				Unrestricted		10	6	7	6	6	5	5
L			E	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0
				Unrestricted	No Parking 8:30am-5:30pm Mon-Fri; 8:30am-12:30pm Sat	11	0	0	0	0	0	0
M	Blackburn Rd	From High St Rd To Doon Ave	W	2P 8:00am-6:00pm Mon-Fri; 8:00am-1:00pm Sat		6	4	5	5	4	3	3
				Unrestricted		3	0	0	0	0	0	0
N			E	Bus Zone		1	0	0	0	0	0	0
O	Lee Ave	From High St Rd To No.12	W	Unrestricted		12	4	4	5	5	4	4
P			E	Unrestricted		12	6	7	7	6	6	5
Q	St Clair Cres	From Blackburn Rd To No.7	N	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	9	5	5	5	3	2	2
R		From No.7 To No.19	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	2	0	0	0	0	0	0
				Unrestricted		7	3	3	3	2	1	1
S		From Blackburn Rd To No.7	S	Unrestricted		3	2	2	2	2	1	1
T		From No.7 To No.19	E	Unrestricted		10	4	4	3	3	2	2
U	Blackburn Rd	From High St Rd To Trick Ct	W	Bus Zone		1	0	0	0	0	0	0
V		From Trick Ct To Matthew St	W	No Standing		0	0	0	0	0	0	0
W		From High St Rd To Trick Ct	E	1P 8:00am-6:00pm		6	5	5	5	4	3	3
				1P 8:00am-6:00pm; 1/2P 6:00pm-10:00pm		7	6	6	7	6	5	4
X		From Trick Ct To Matthew St	E	1P 8:00am-6:00pm		9	7	9	8	8	7	7
				Mail Zone 12:30pm-1:30pm; 4:30pm-5:30pm Mon-Fri		1	1	1	1	1	0	0
				1P 8:00am-6:00pm		7	6	7	7	6	5	4
PUBLIC CAPACITY							**273**	**273**	**284**	**284**	**284**	**284**
PUBLIC OCCUPANCIES							**127**	**151**	**148**	**128**	**99**	**84**
PUBLIC VACANCIES							**146**	**122**	**136**	**156**	**185**	**200**
PUBLIC % OCCUPANCIES							**47%**	**55%**	**52%**	**45%**	**35%**	**30%**

not available for public parking

Appendix B Swept Path Assessment

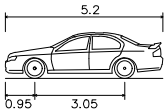


NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B99 Vehicle (AS/NZS2890.1:2004)

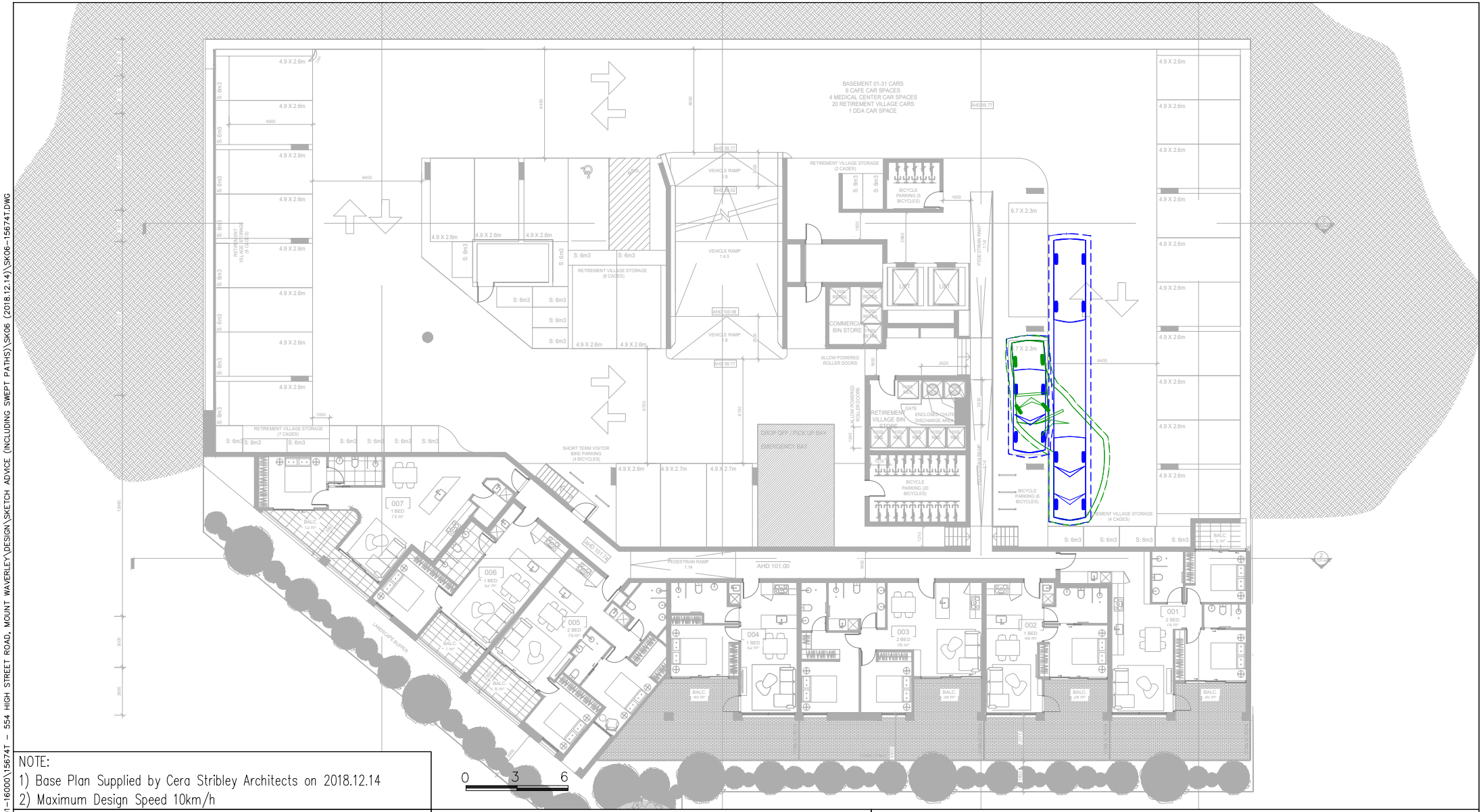


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Ground Floor

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	1	1:200@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

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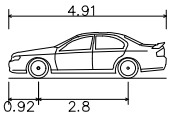
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)

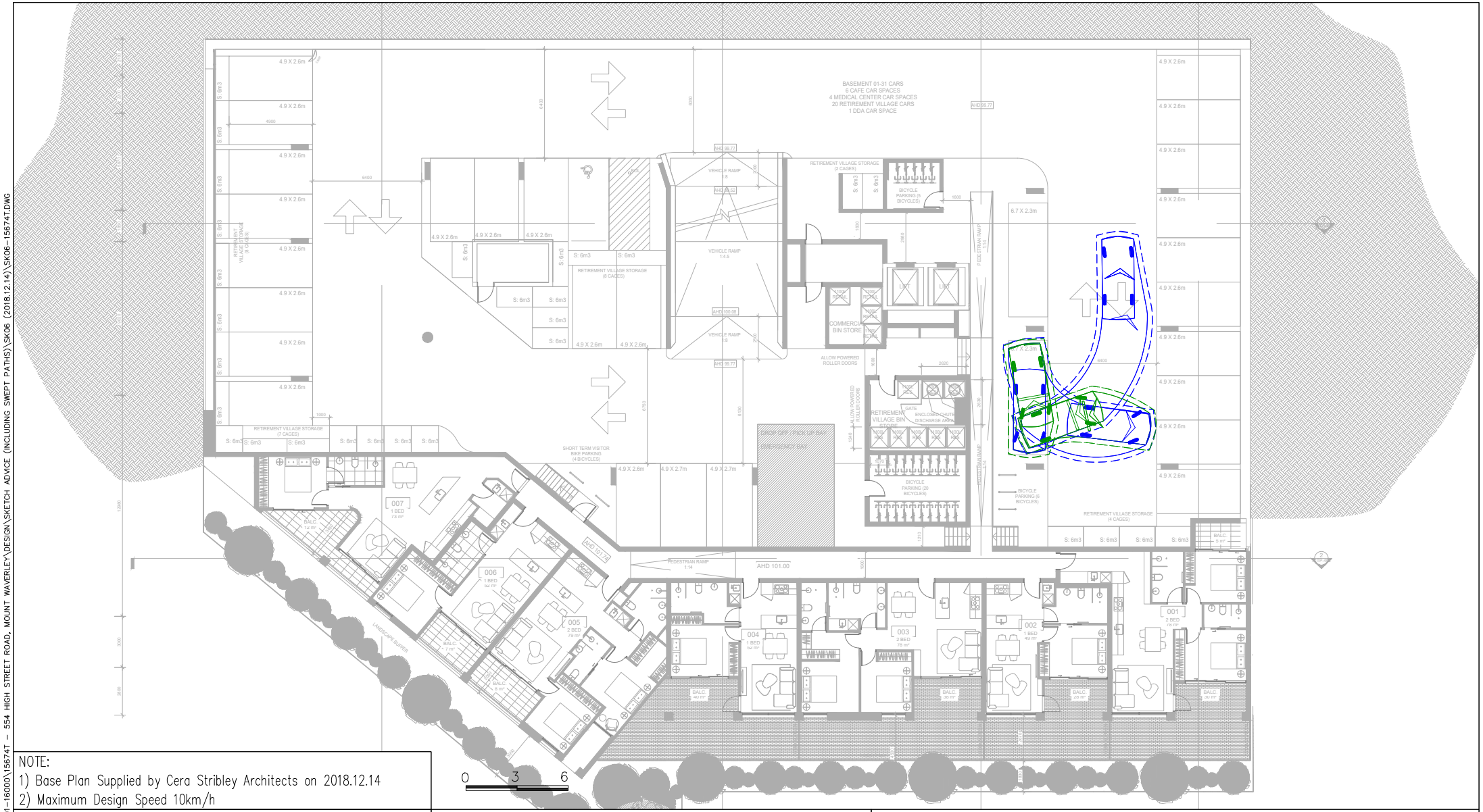


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

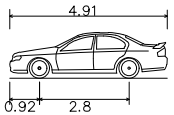
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	2	1:300@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

B85 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

ratio:
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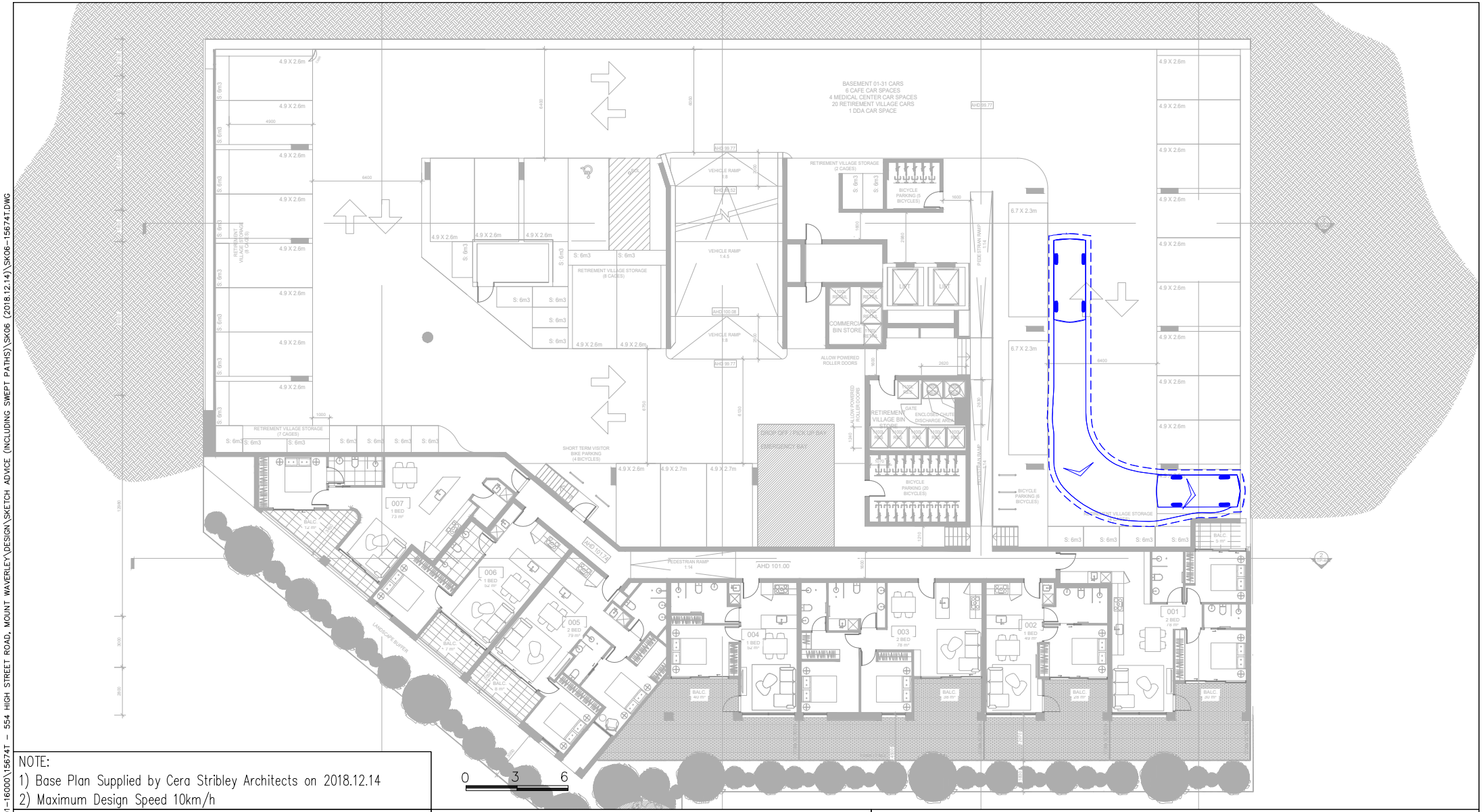
FACSIMILE (03)9429 3011

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	3	1:300@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

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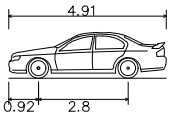
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)



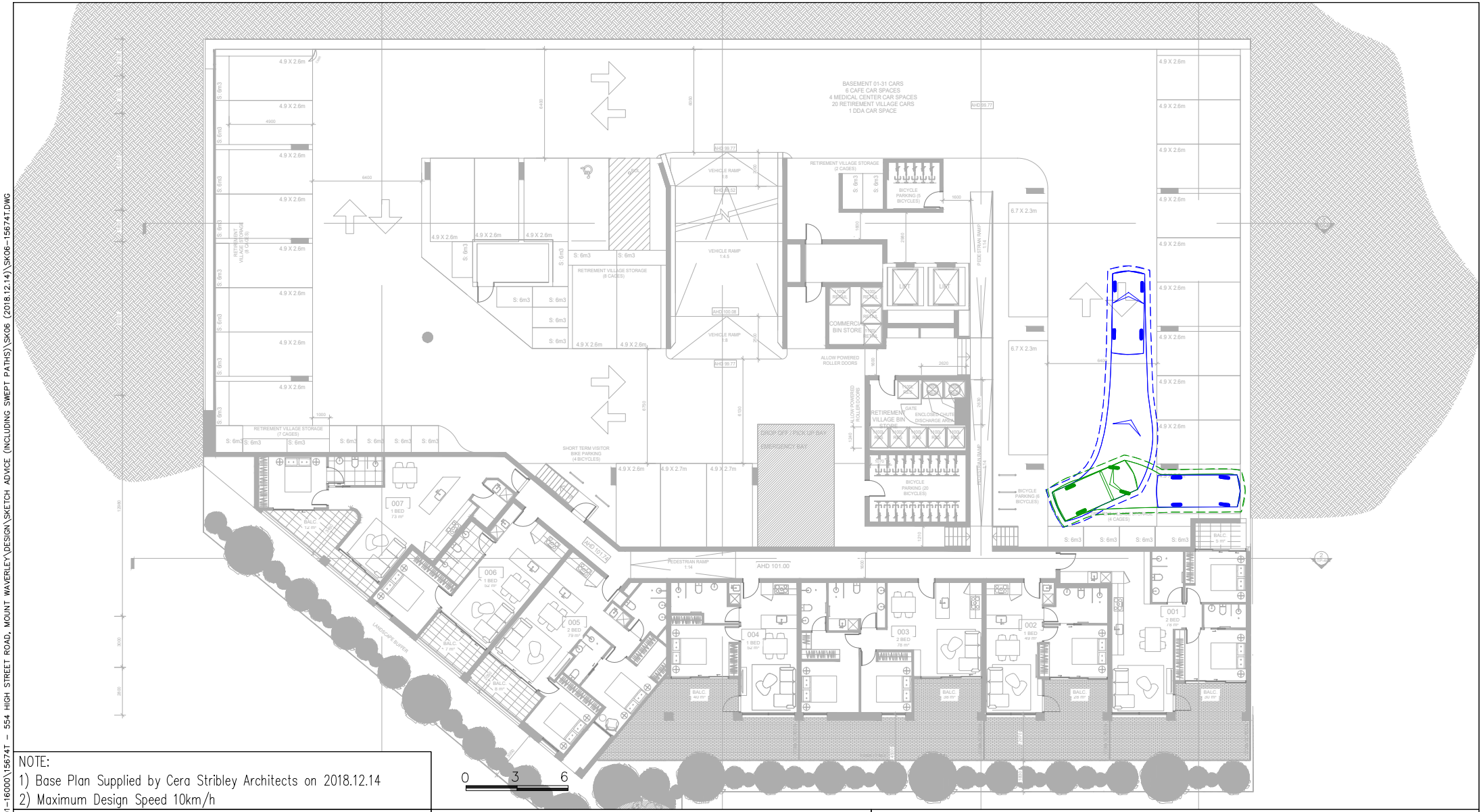
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	4	1:300@A4	15/12/2018

15/12/2018 11:44:42 AM Y:\15501-16000\15674T - 554 HIGH STREET ROAD, MOUNT WAVERLEY\DESIGN\SKETCH ADVICE (INCLUDING SWEPT PATHS)\SK06 (2018.12.14)\SK06-15674T.DWG

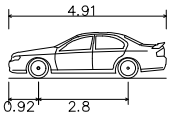


NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)

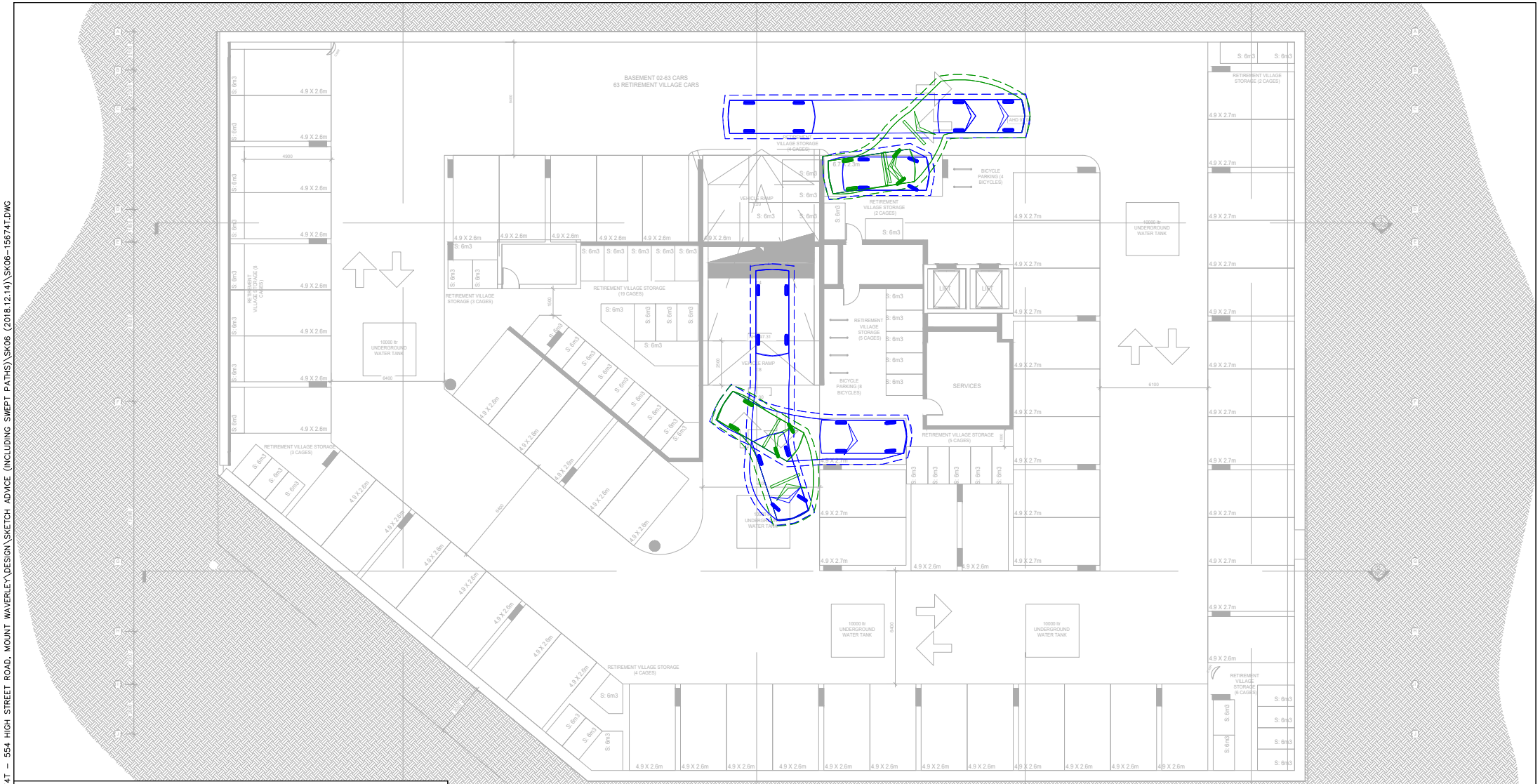


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	5	1:300@A4	15/12/2018

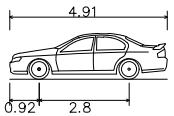


NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)

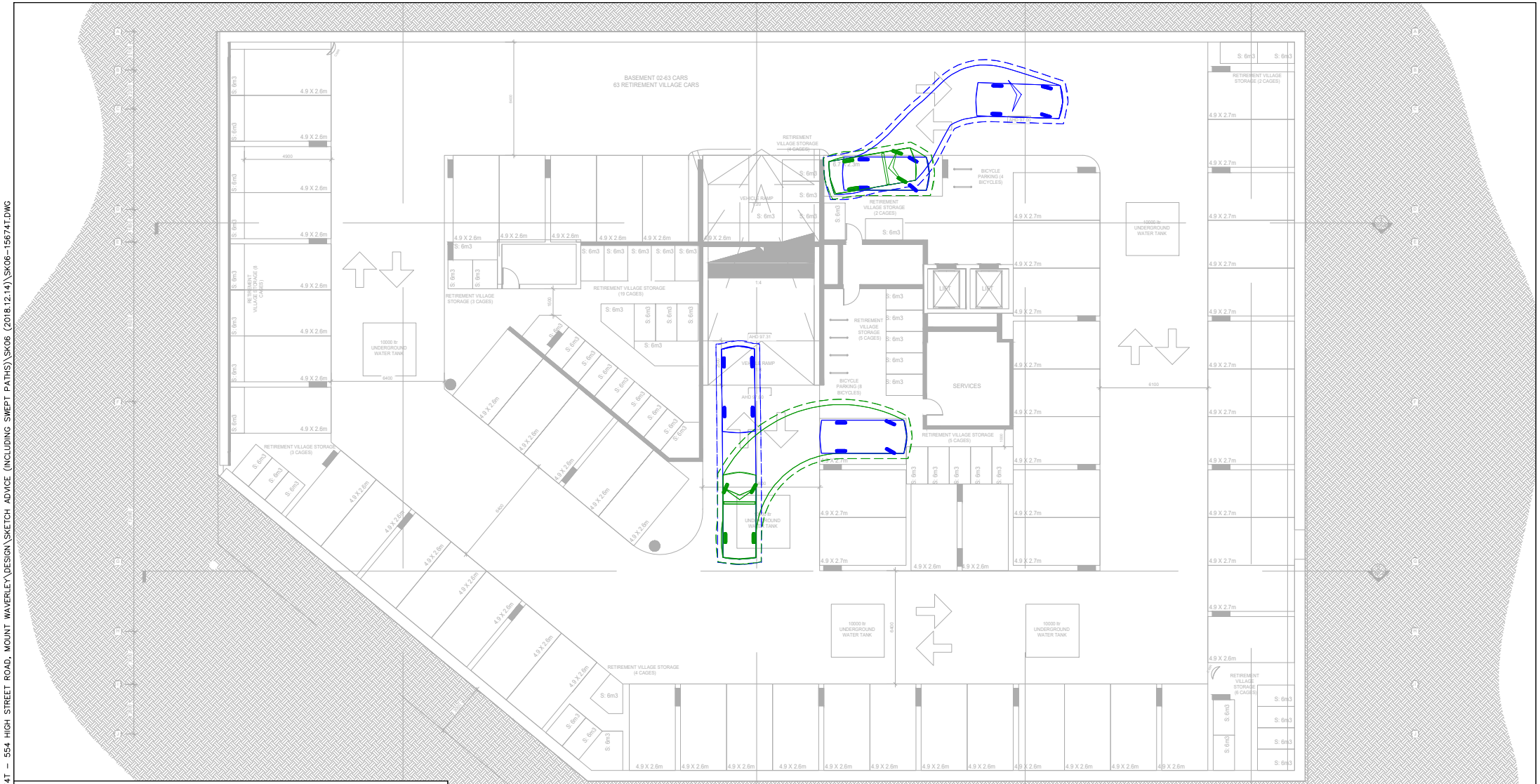


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

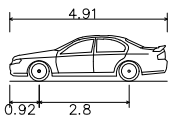
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	6	1:300@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

0 3 6

B85 Vehicle (AS/NZS2890.1: 2004)



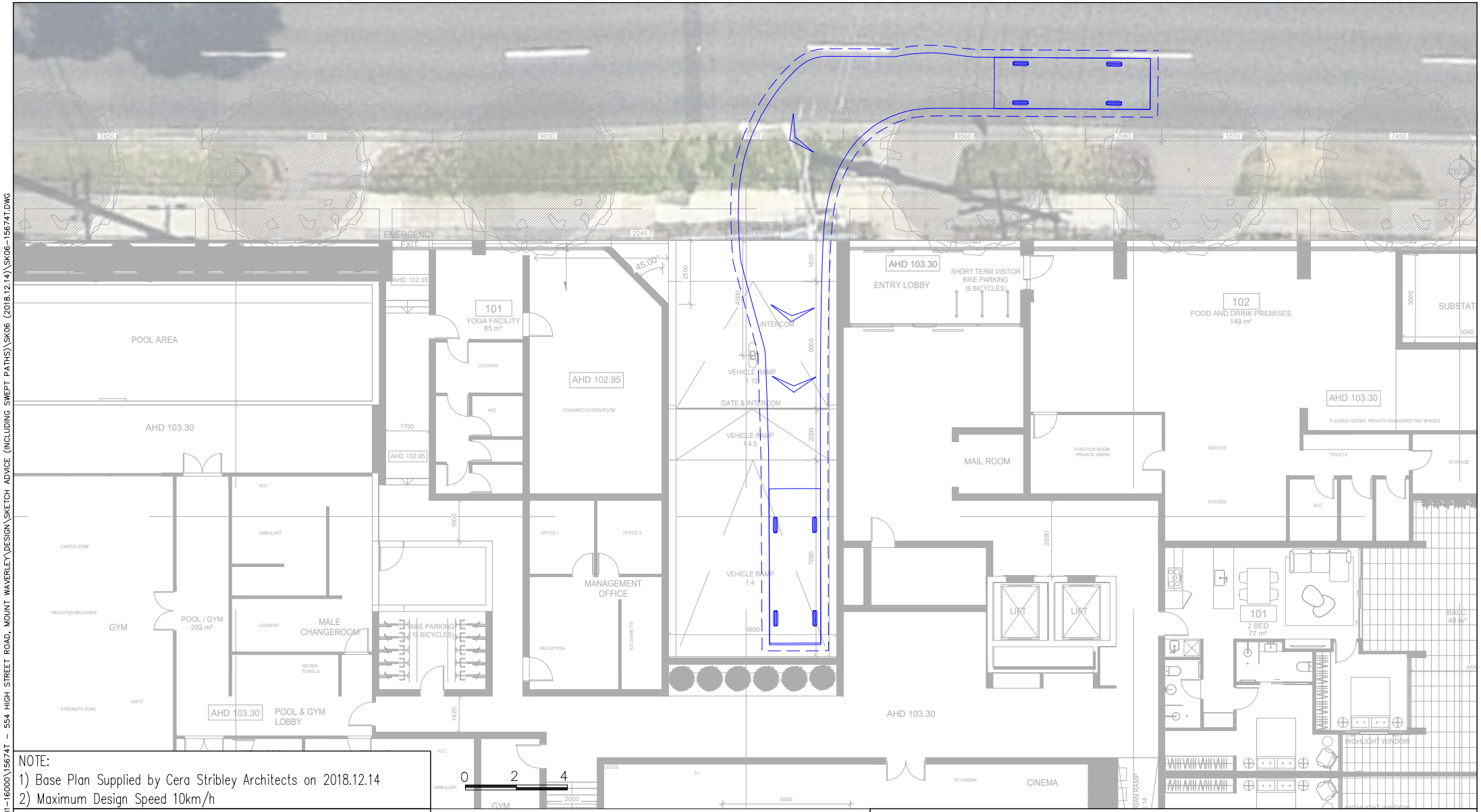
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

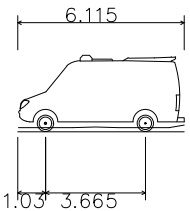
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	7	1: 300@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

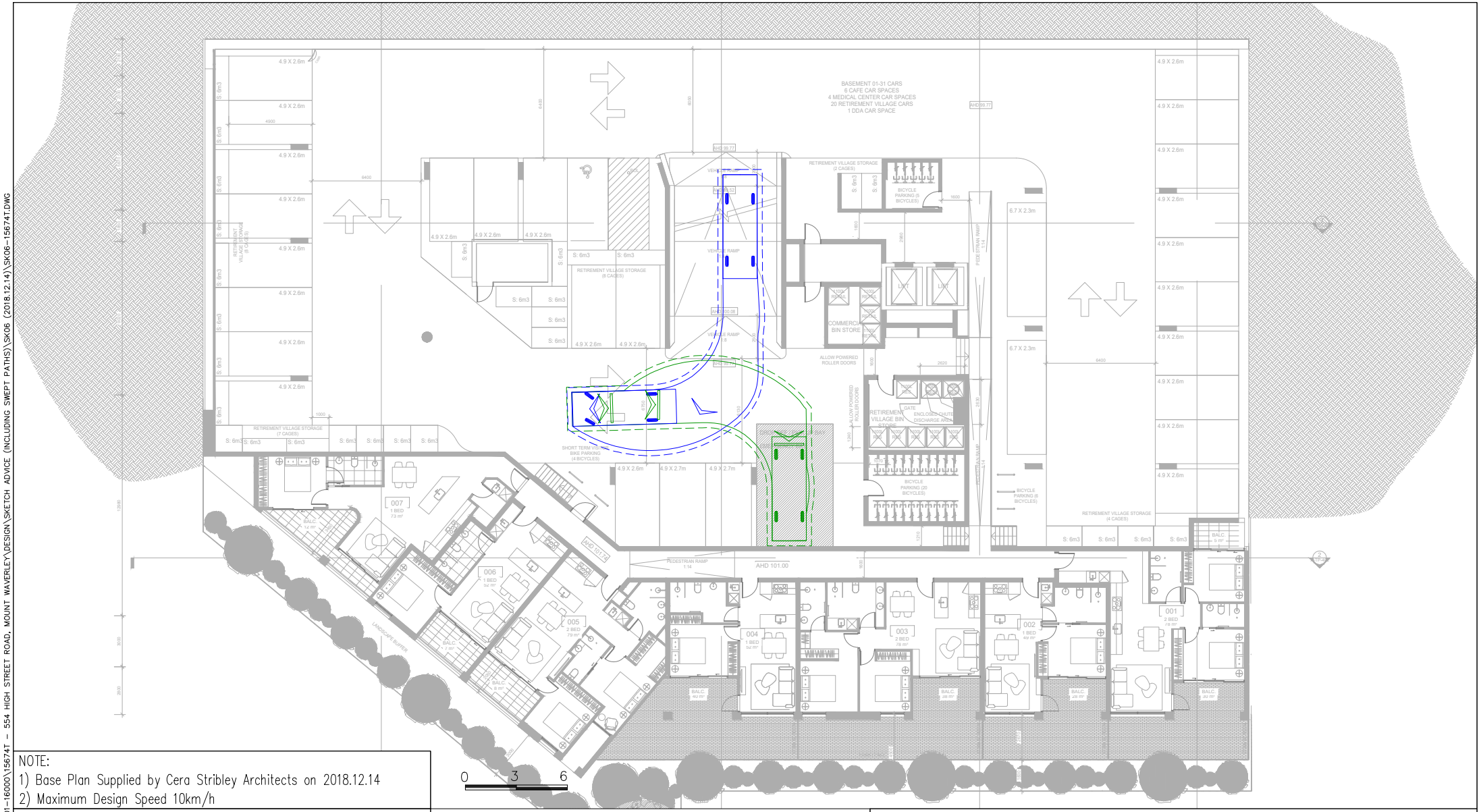


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ambulance Access Arrangements

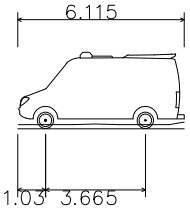
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	12	1:200@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011



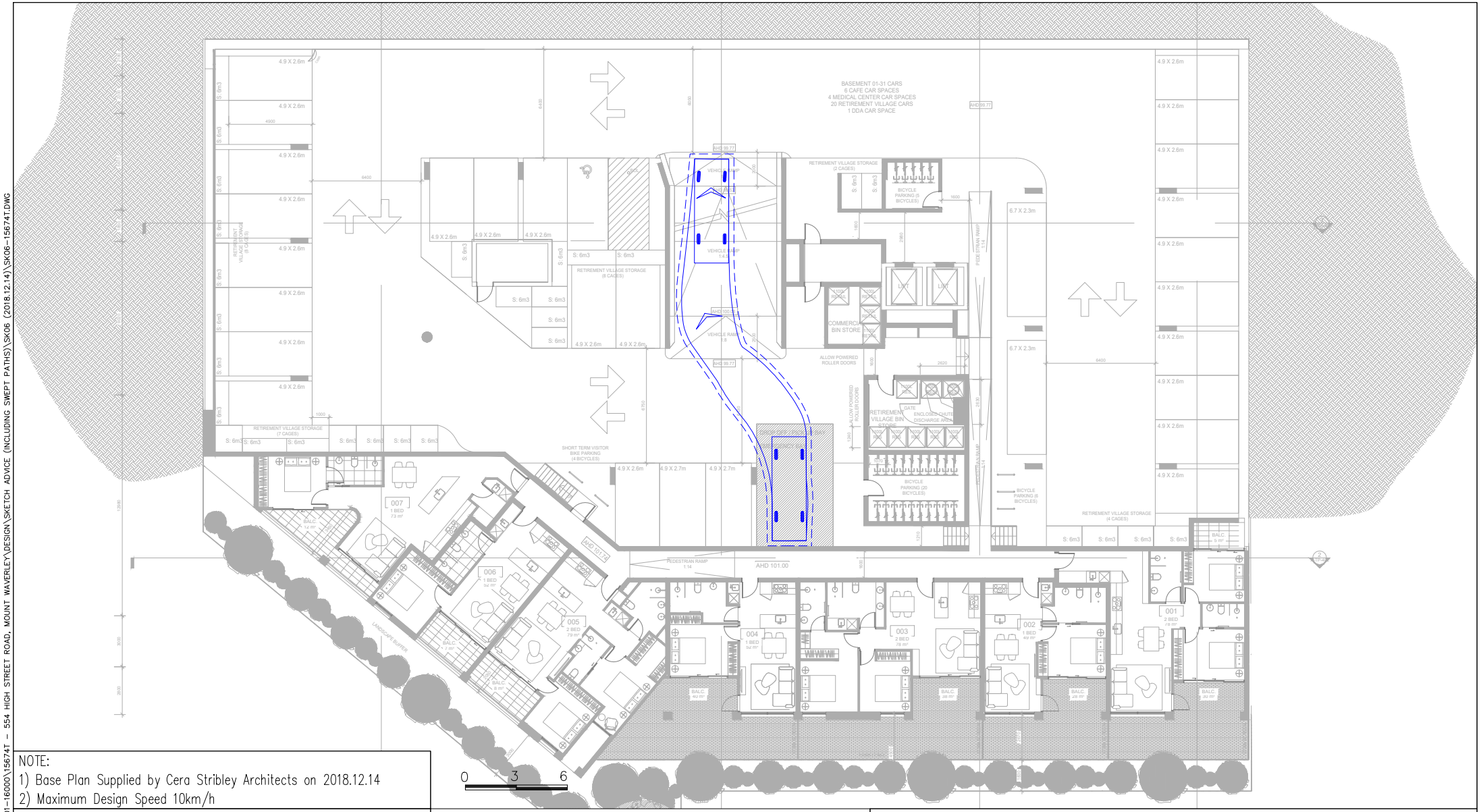
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ambulance Access Arrangements

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	13	1:300@A4	15/12/2018

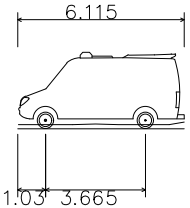
15/12/2018 11:44:55 AM Y:\15501-16000\15674T - 554 HIGH STREET ROAD, MOUNT WAVERLEY\DESIGN\SKETCH ADVICE (INCLUDING SWEPT PATHS)\SK06 (2018.12.14)\SK06-15674T.DWG



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

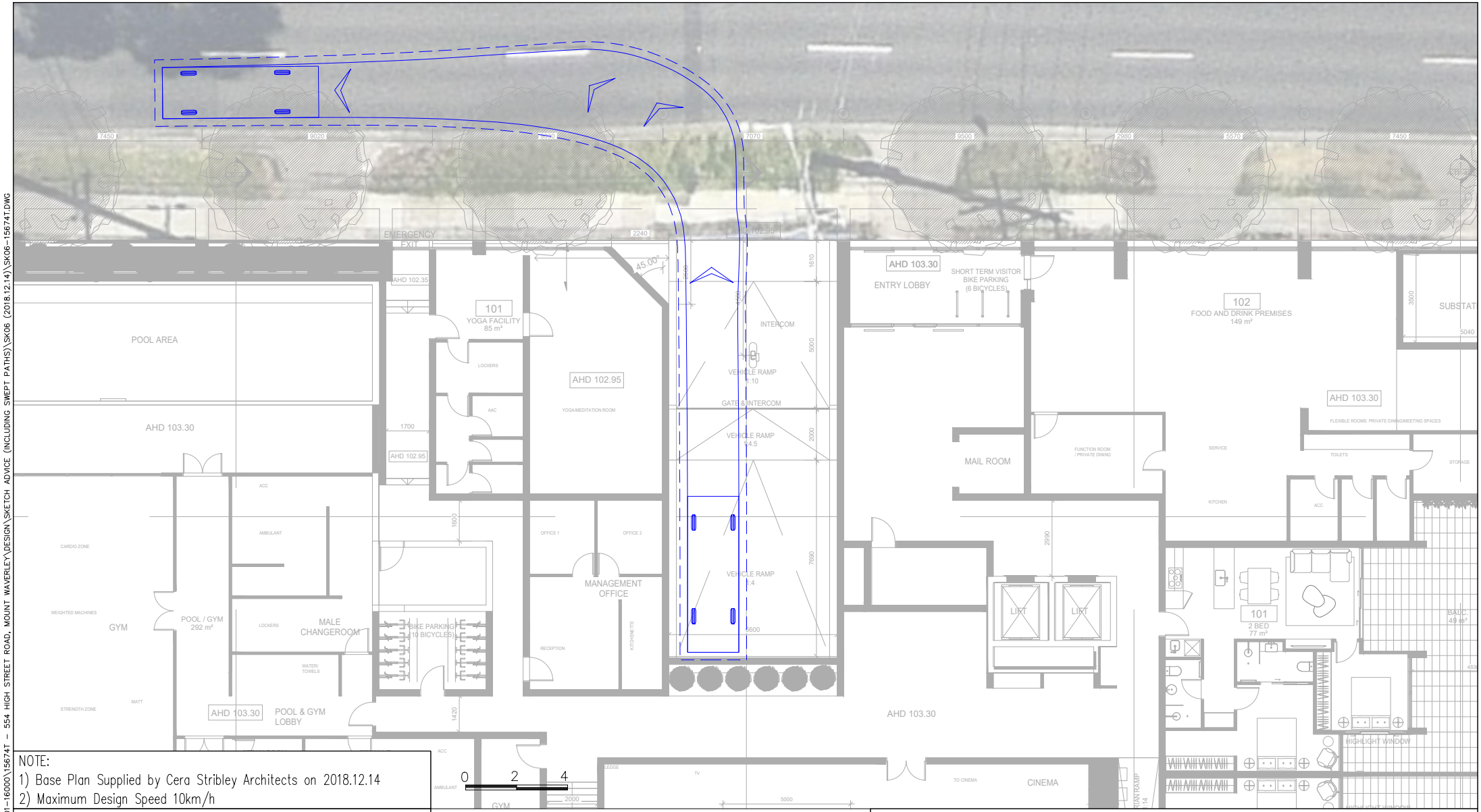


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ambulance Access Arrangements

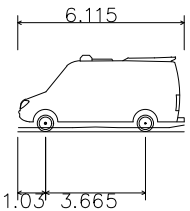
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	14	1:300@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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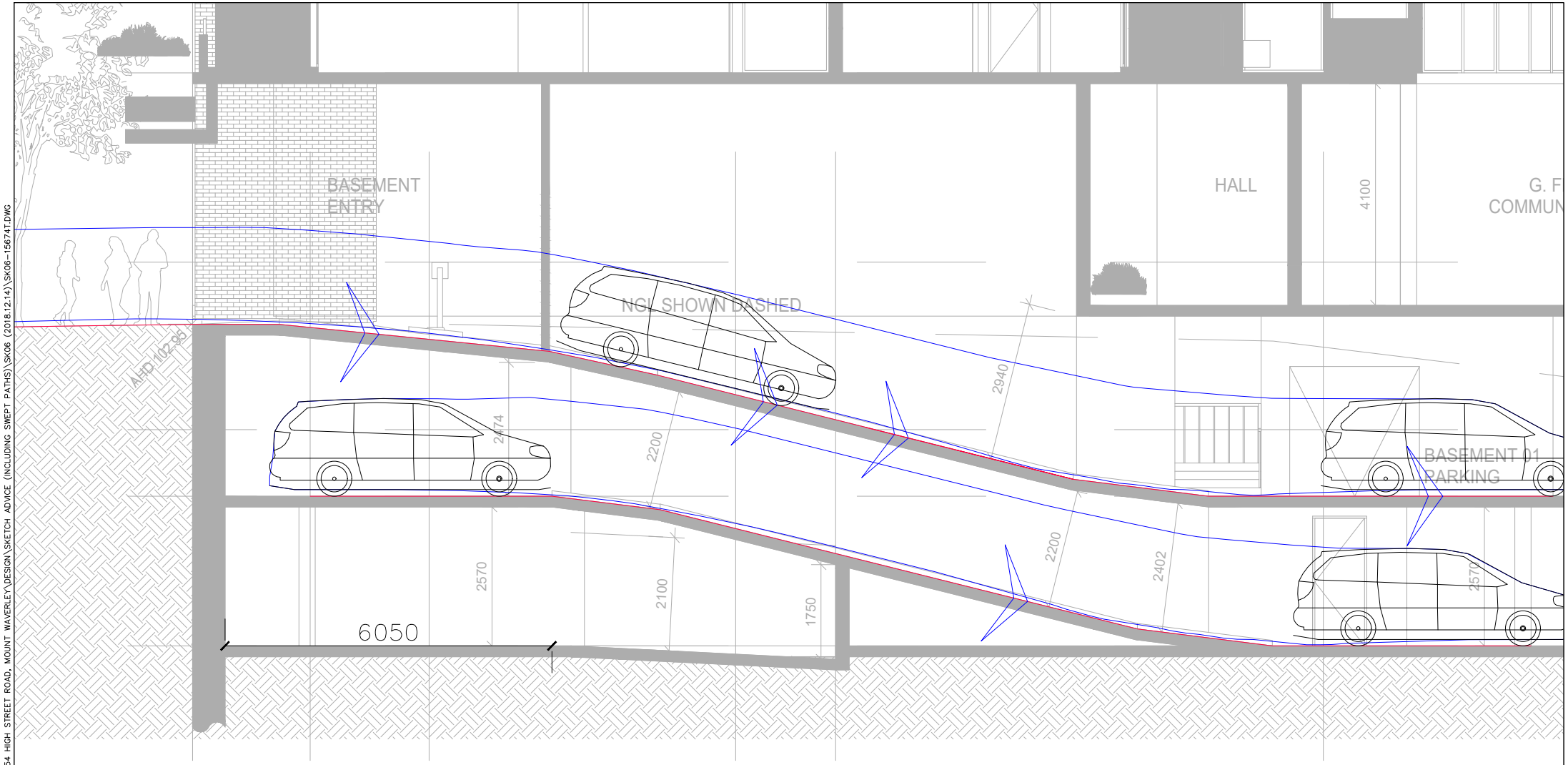
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ambulance Access Arrangements

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	15	1:200@A4	15/12/2018

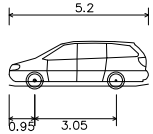
15/12/2018 11:44:58 AM Y:\15501-16000\15674T - 554 HIGH STREET ROAD, MOUNT WAVERLEY\DESIGN\SKETCH ADVICE (INCLUDING SWEPT PATHS)\SK06 (2018.12.14)\SK06-15674T.DWG



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

0 1 2

B99 Ground Clearance Model (AS/NZS2890.1:2004)

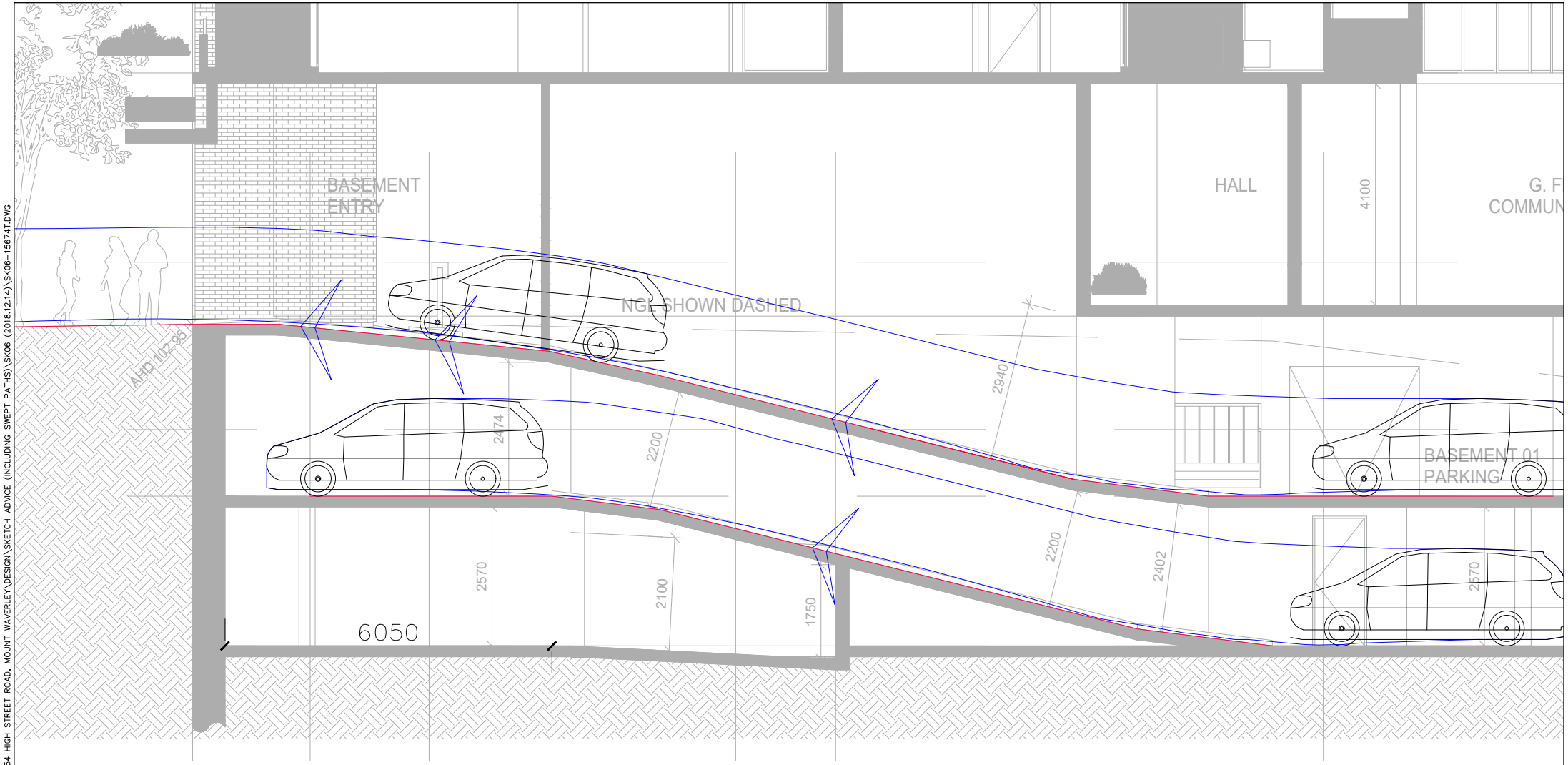


Overall Length	5.200m
Overall Width	1.940m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	8.000m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ground Clearance Assessment

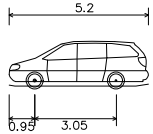
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	16	1:100@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

0 1 2

B99 Ground Clearance Model (AS/NZS2890.1:2004)

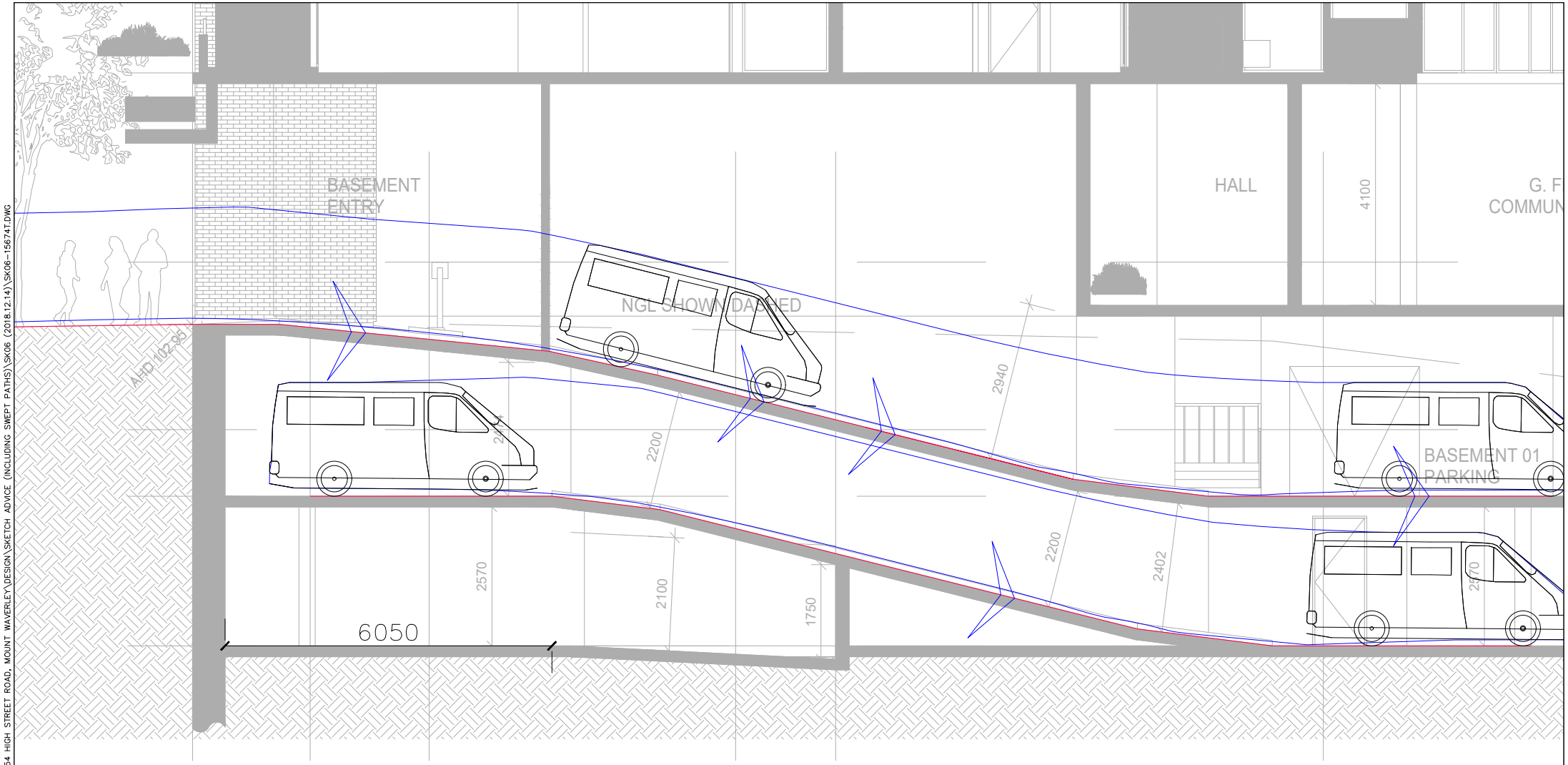


Overall Length	5.200m
Overall Width	1.940m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	8.000m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ground Clearance Assessment

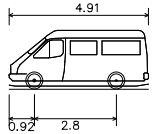
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	17	1:100@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

0 1 2

B85 Vertical Model (Planning Scheme)

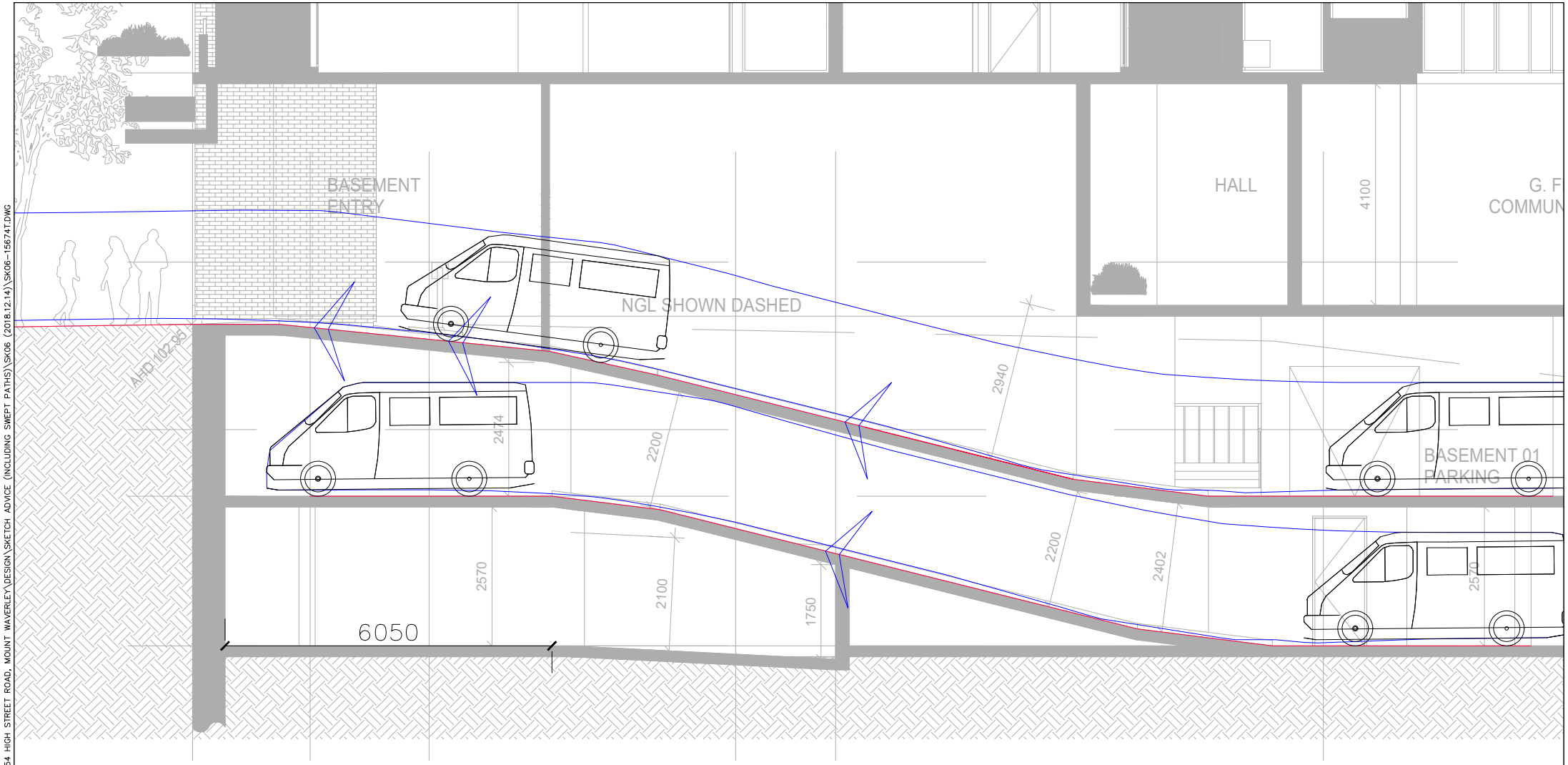


Overall Length	4.910
Overall Width	1.870
Overall Body Height	2.100m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	8.000m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Vertical Clearance Assessment

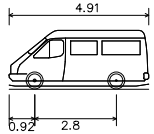
RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	18	1:100@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

0 1 2

B85 Vertical Model (Planning Scheme)



Overall Length	4.910
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Overall Body Height	2.100m
Min Body Ground Clearance	0.120m
Track Width	1.770m
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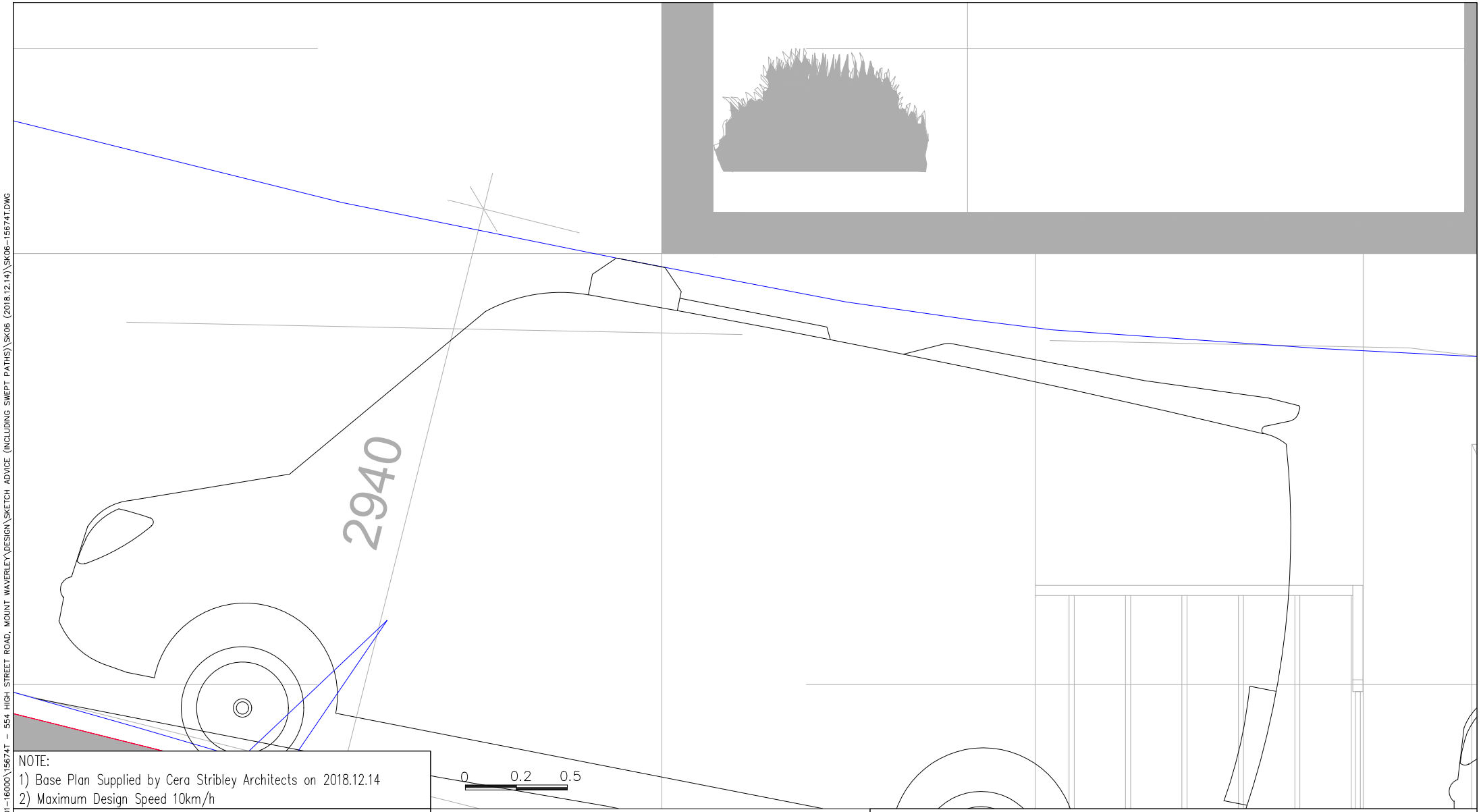
ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

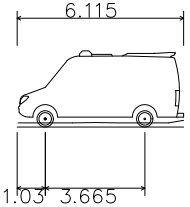
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Vertical Clearance Assessment

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	19	1:100@A4	15/12/2018



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Vertical Clearance Assessment

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	20	Custom@A4	15/12/2018

Appendix C **Bicycle Parking Specifications**

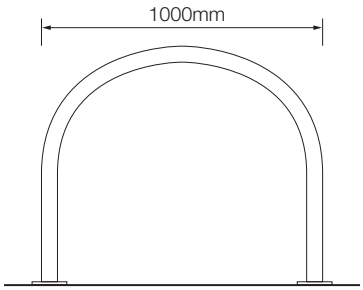
Arc de Triomphe™

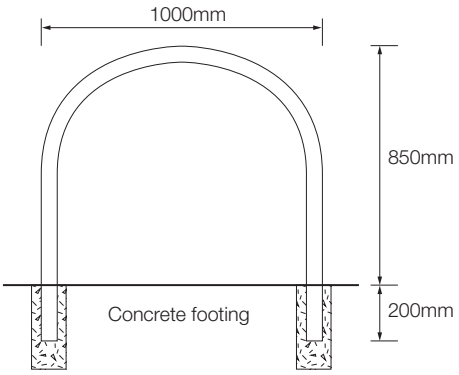
Galvanised finish / Stainless Steel finish

Features

- Each rail supports two adult bikes in an upright position
- Can be either bolted to a concrete slab or concreted in situ
- Available in stainless steel or galvanised steel
- Provides the ability to lock both wheels and frame
- Suitable for foyers and entry areas

Dimensions





Specifications

Material options

- Galvanised (Duragal)
- 316 Marine grade stainless steel

Fixing options

- Welded flange - Bolt on
- In situ

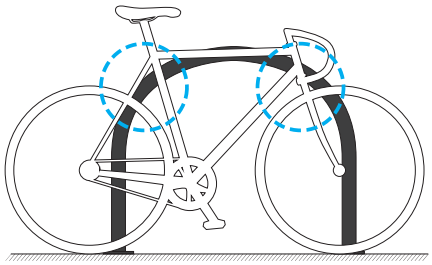
Recommended fasteners

- Galvanised Dynabolts (M10 x 65mm)
- Stainless Dynabolts (M10 x 65mm)
- Shear Nut security fasteners

Dimensions

1000mm [w] x 850mm [h]

Locking Points



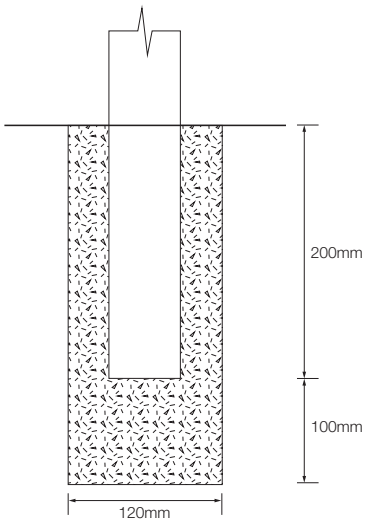
BICYCLE NETWORK BIKE PARKING

DESIGN. SUPPLY. INSTALL.

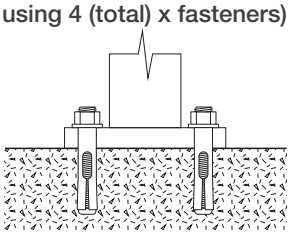
Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Fixing options

In situ (Concrete footing)

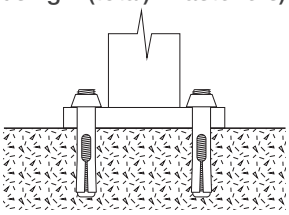


Welded flange (Bolt on) using 4 (total) x fasteners)



Shown with M10 x 65mm fastener

Welded flange (Security heads) using 4 (total) x fasteners)

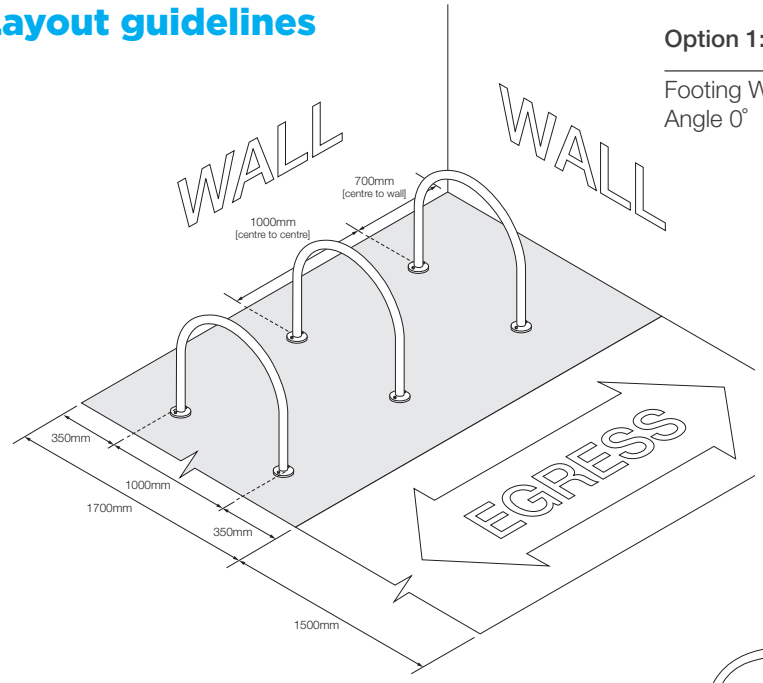


Shown with M10 x 65mm Shear Nuts

Layout guidelines

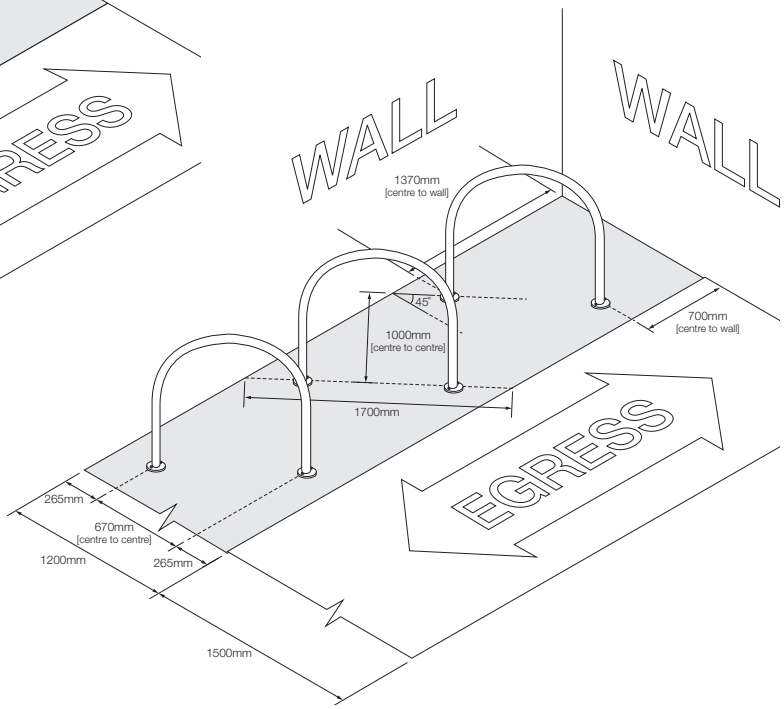
Option 1:

Footing Width 1700mm
Angle 0˚

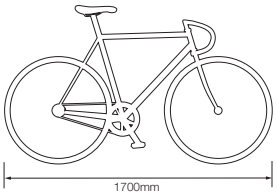


Option 2:

Footing Width 1200mm
Angle 45˚



Typical Bicycle Length



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Ned Kelly™

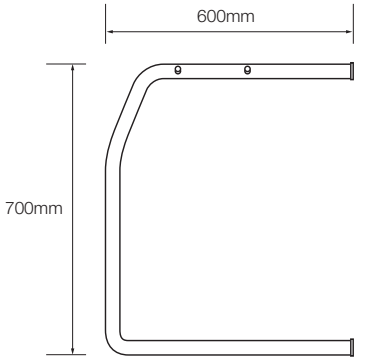
Zinc finish

Black powder coat finish

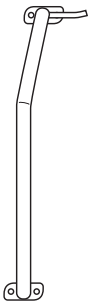
Features

- Each rail provides storage for a single bike
- Suits bikes with full length mud guards
- Available in Zinc finish or Black powder coat over mild steel
- Provides the ability to lock the main frame and one wheel
- Support prongs with protective coating prevent damage to rim
- Can be used with custom framing – no wall needed

Dimensions



SIDE



FRONT

Specifications

Material options

- Zinc finish
- Black powder coat over mild steel
- Stainless steel - *Pre-order only*

Fixing options

- Bolt on to wall
- Fixed to support framing

Recommended fasteners – wall

- Dynabolts (M8 x 40mm)
- Shear Nut security fasteners

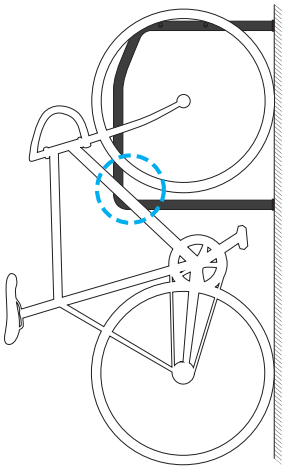
Recommended fasteners – framing

- Bolt and nut (M10 x 60mm)
- Tek screws

Dimensions

125mm [w] x 700mm [h] x 600mm [d]

Locking Points



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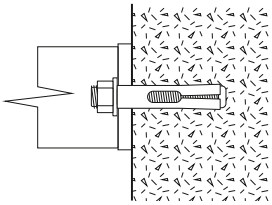
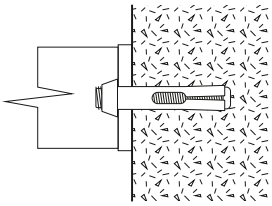
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Fixing options

Fix to a wall using 4x fasteners or Shear Nuts

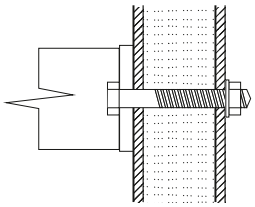


Shown with M8 x 40mm fastener

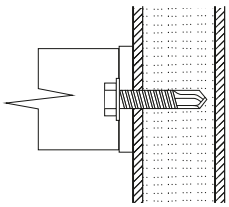


Shown with M8 x 40mm Shear Nuts

Fix to a frame using 4x bolts or Tek Screws

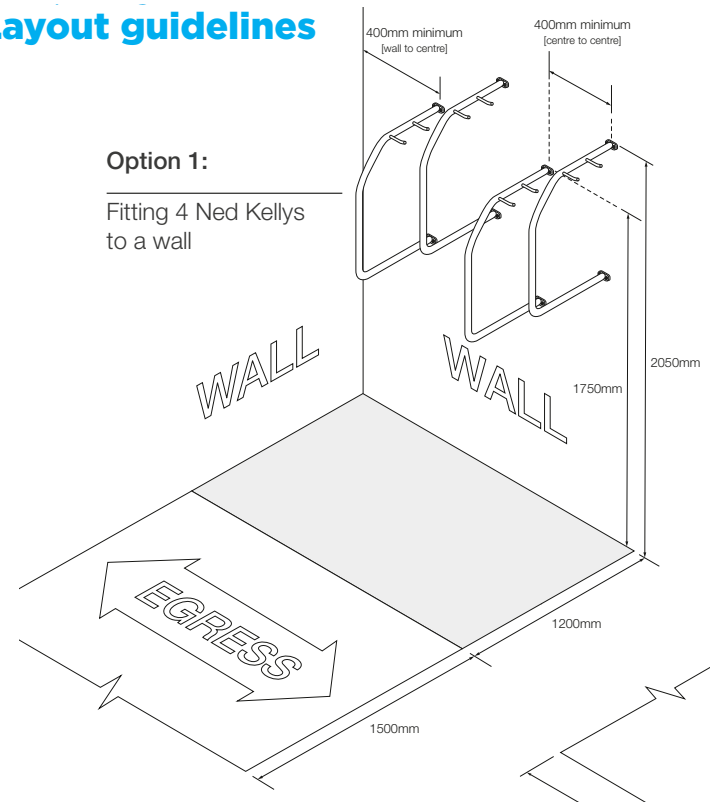


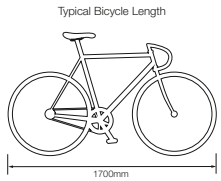
Shown with M10 x 60mm Bolt, Washer & Nut

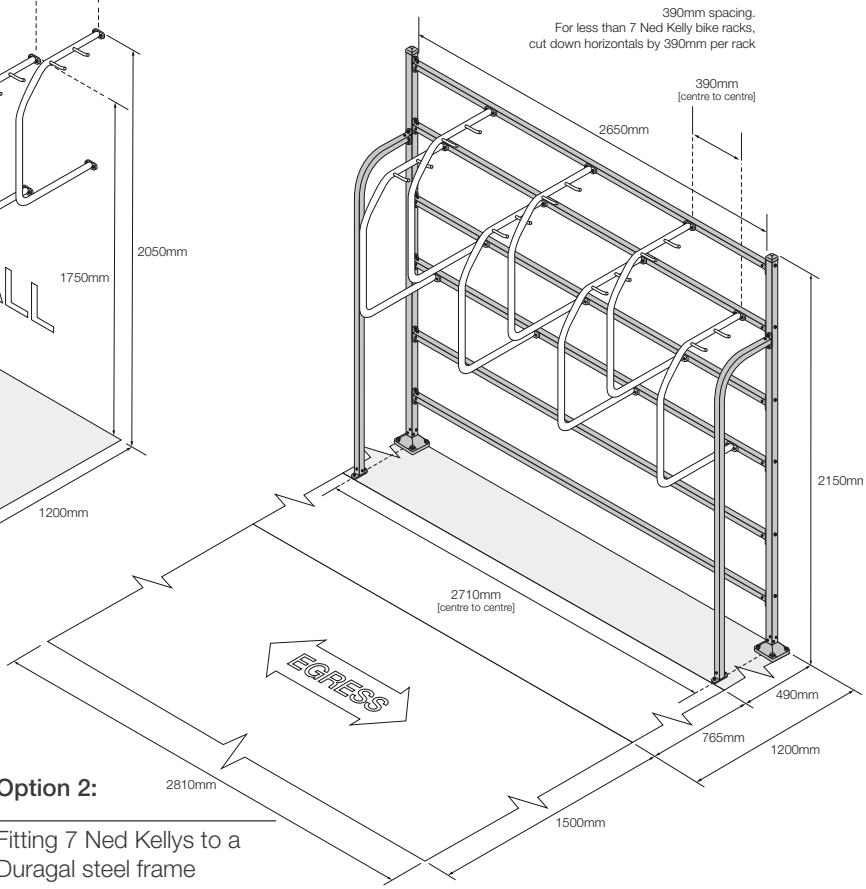


Shown with Tek Screw

Layout guidelines



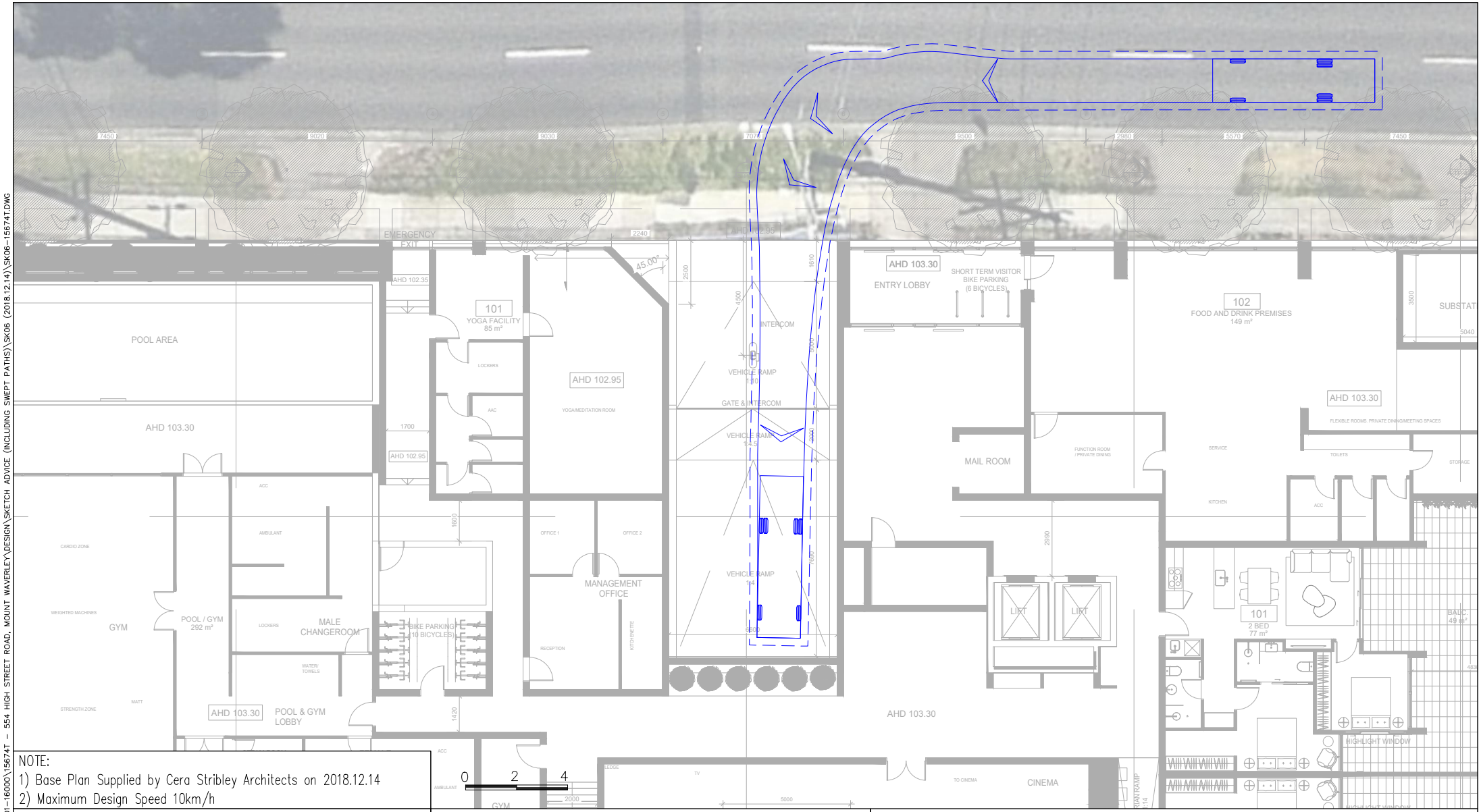




BICYCLE NETWORK BIKE PARKING

DESIGN. SUPPLY. INSTALL.
Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

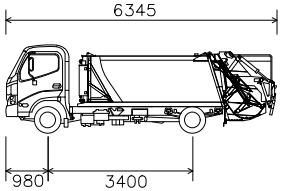
Appendix D **Waste Collection Swept Path**



NOTE:
1) Base Plan Supplied by Cera Stribley Architects on 2018.12.14
2) Maximum Design Speed 10km/h

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3111

Mini-Rear Loader Waste Collection Vehicle

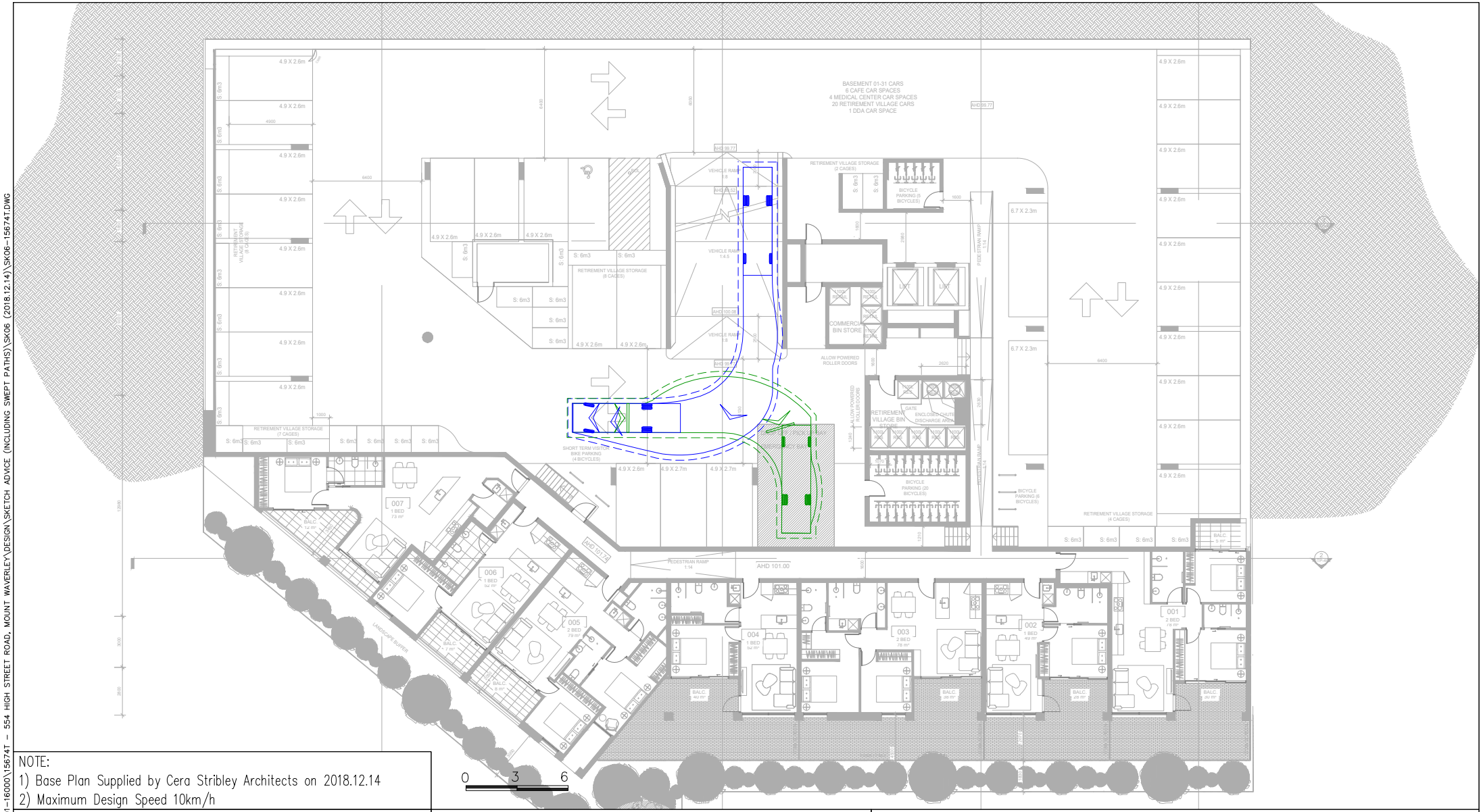


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	6.345m
Body Width	1.700m
Overall Body Height	2.080m
Min Body Ground Clearance	0.205m
Track Width	1.670m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.450m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Waste Collection Arrangement

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	8	1:200@A4	15/12/2018



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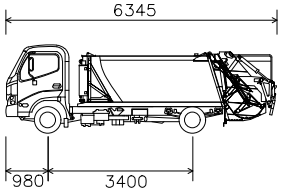

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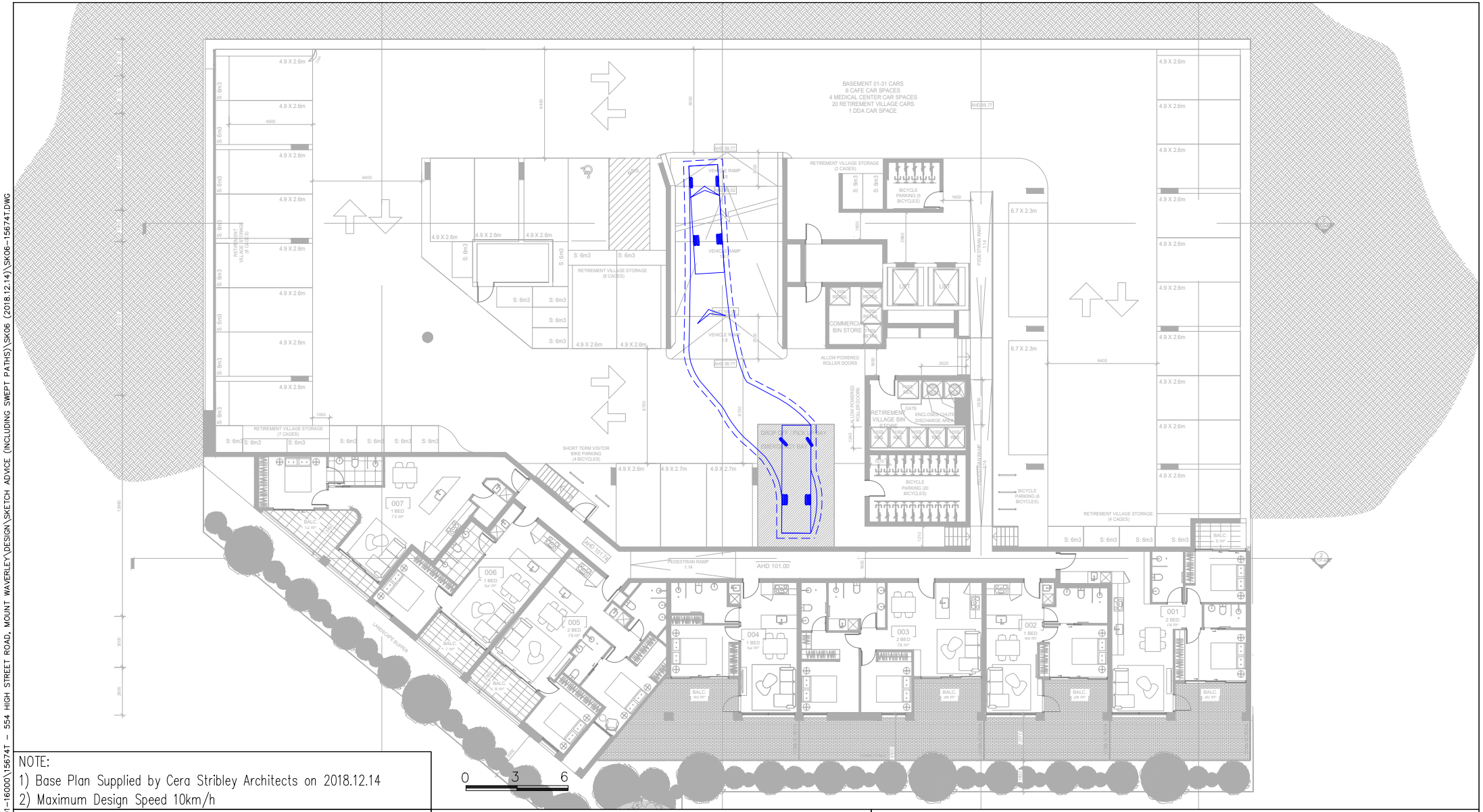
Waste Collection Arrangement

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	9	1:300@A4	15/12/2018



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ratio:

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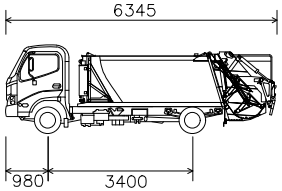

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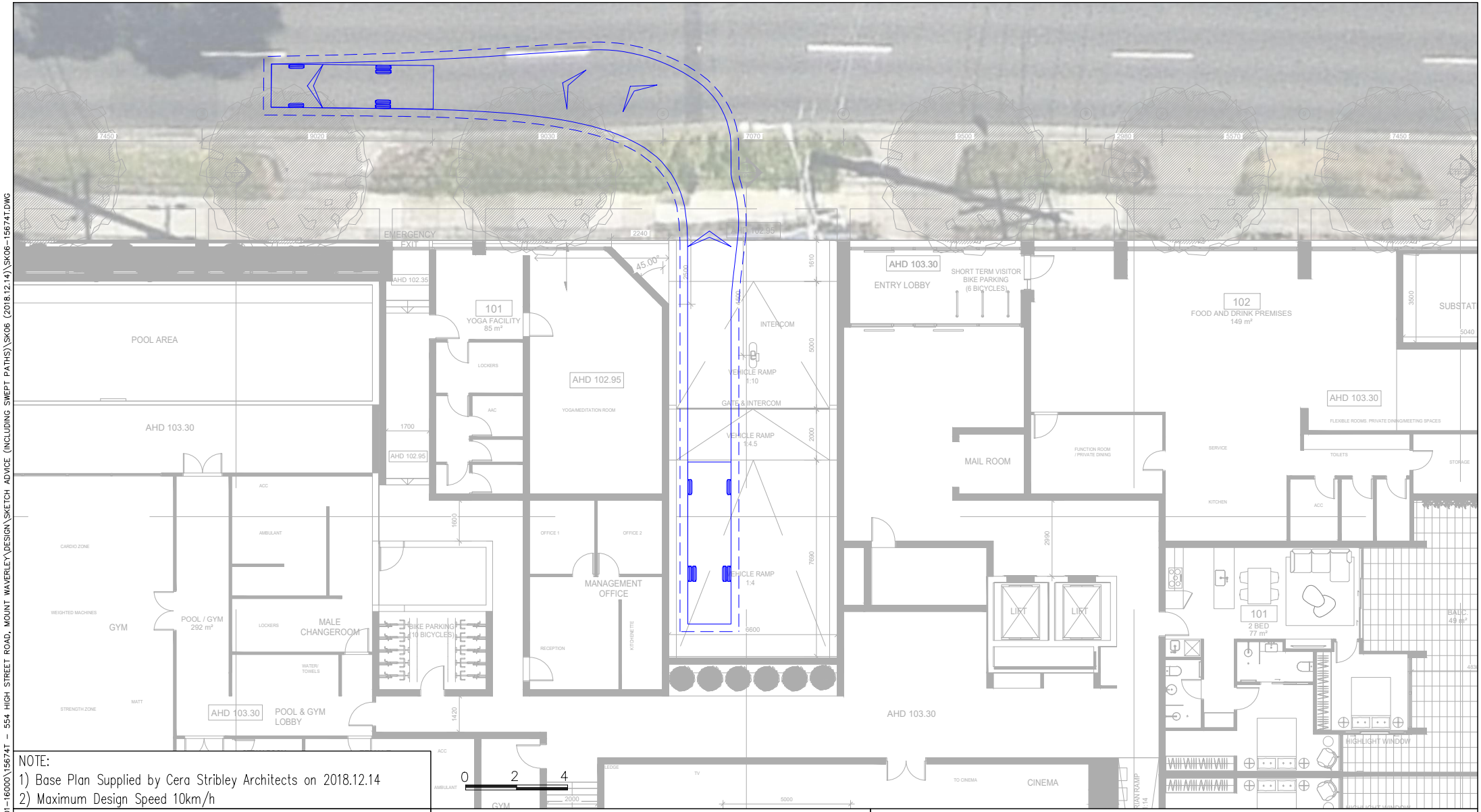
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Waste Collection Arrangement

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	10	1:300@A4	15/12/2018



NOTE:
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ratio:

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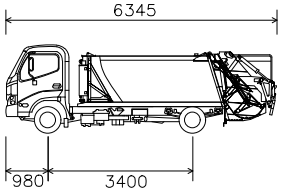

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Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Waste Collection Arrangement

RATIO REFERENCE	SHEET No.	SCALE	DATE
SK06-15674T/SN	11	1:200@A4	15/12/2018

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