
Colston Budd Rogers & Kafes Pty Ltd

as Trustee for C & B Unit Trust
ABN 27 623 918 759

Our Ref: TR/10857/jj

Transport Planning
Traffic Studies
Parking Studies

25 March 2020

Invesco Asset Management Australia (Holdings) Limited
c/- Point Polaris
L25, Tower III - International Towers
300 Barangaroo Avenue
BARANGAROO NSW 2000

Attention: Rob Hain

Email: rob.hain@pointpolaris.com.au

Dear Sir,

**RE: FORESTWAY SHOPPING CENTRE AMENDED REDEVELOPMENT
REVIEW OF TRAFFIC MATTERS RAISED IN SUBMISSIONS**

1. As requested, we have reviewed the traffic matters raised in submissions to the DA for the amended redevelopment of Forestway shopping centre. The traffic matters raised in submissions are summarised below:
 - increase in traffic on local streets to the south west of the centre;
 - impact of increased traffic on Grace Avenue; and
 - matters raised by TfNSW in its letter dated 19 December 2019.
2. We prepared the traffic report for the amended redevelopment (Traffic Report for Proposed Amended Expansion of Forestway Shopping Centre, Frenchs Forest, December 2018 - Modified October 2019):

Increase in Traffic on Local Streets (including Grace Avenue)
3. Many of the submissions relate to existing traffic issues in the local streets adjoining and to the south west of Forestway Shopping Centre (such as the rat run via Grace Avenue, noting that in the southbound direction this route is banned in the weekday morning peak period). These are historical issues that relate to congestion during peak periods, where traffic uses these local streets to avoid congestion at the intersection of Forest Way and Warringah Road. This has been exacerbated by the roadworks associated with construction of the upgrade of this intersection to improve capacity.
4. The purpose of this upgrade is to cater for regional traffic, traffic from additional development (such as the Northern Beaches Hospital) and to reduce

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traffic on local roads (such as the above rat run). Once these works are completed and additional capacity is provided with the grade separation of this intersection, traffic flows on local streets should be reduced.

5. With regards to the redevelopment of the shopping centre, following advice from TfNSW, the proposed right turn onto Forest Way has been removed as part of the amended scheme. This, combined with the closure of the Russell Street access, has resulted in a redistribution of existing and additional vehicle trips to the road network.
6. As noted in our traffic report flows on Grace Avenue, north of Russell Avenue and south of the site access, would increase by some 165 to 205 vehicles per hour two-way during the weekday afternoon and Saturday midday peak hours. In the short section between the site access and Russell Avenue, the increase in traffic flows would be higher at some 390 to 505 vehicles per hour two-way. We note that the car park access to Grace Avenue is located as close as practical to the intersection with Russell Avenue, in order to minimise traffic increases in Grace Avenue.
7. These additional vehicles are generally local traffic travelling to/from the shopping centre from the adjacent residential areas that cannot access the site via Forest Way.

Matters Raised by TfNSW

8. The matters raised by TfNSW in its letter dated 19 December 2019 and our response is set out below:
 1. *Timing of the parking surveys.*
9. The parking surveys were undertaken on Friday 16 November 2018 and Saturday 17 November between 9am and 4pm. The surveys found that peak parking demand occurred at 12.30pm on Friday and 11.00am on Saturday
 2. *Confirmation that only left turn ingress/egress only is proposed from/to Forest Way.*
10. Section 3.35 of the traffic report should have stated that the new access on Forest Way would allow left turns out onto Forest Way (not right turns) as well as left turns from Forest Way
 3. *Further information is requested on how the trip distribution was determined.*
11. As noted in the report the additional traffic has been assigned to road network based on existing travel patterns and adjustments for changes in access arrangements. Traffic travelling south on Forest Way accesses the centre via

Colston Budd Rogers & Kafes Pty Ltd

Russell Avenue. We note that most traffic travelling from the north would arrive via Grace Avenue. With regard to traffic turning right onto Warringah Road, some customers who have a destination to the west, will travel north along Grace Avenue, then use Adams Road to turn right onto Forest Way and then right onto Warringah Road

4. *further information is requested regarding the proposed phasing of the site access at the existing mid-block signals on Forest Way.*
12. The crossing on the site exit to Forest Way would operate on an alternate phase to the crossing on Forest Way. The crossing on the entry has been changed to a marked crossing (not signalised)
5. *Consideration of pedestrian safety of the proposed site access at the existing mid-block signals on Forest Way.*
6. *Request for a road safety audit of the proposed site access at the existing mid-block signals on Forest Way.*
13. Items 5 and 6 have been addressed by a safety review undertaken by TTW (copy attached). Design changes to the access (relocation of the pedestrian crossing on the entry lane, additional pedestrian fencing and a crash barrier) have been recommended.
14. We trust the above provides the information you require. Finally, if you should have any queries, please do not hesitate to contact us.

Yours faithfully,

COLSTON BUDD ROGERS & KAFES PTY LTD

A handwritten signature in black ink, appearing to read 'Tim Rogers', with a large, stylized 'R'.

Tim Rogers
Director

ATTACHMENT

ROAD SAFETY REVIEW

25 March 2020

181210 TAAA

Point Polaris
Level 25, Tower 3, International Towers
300 Barangaroo Avenue
Barangaroo NSW 2000

Attention: Rob Hain

Forestway Shopping Centre Redevelopment Road Safety Review

Dear Rob,

This document outlines the findings of an independent road safety review, including a design assessment and site visits, for a proposed intersection at the Forestway Shopping Centre, as illustrated in Figure 1 below.

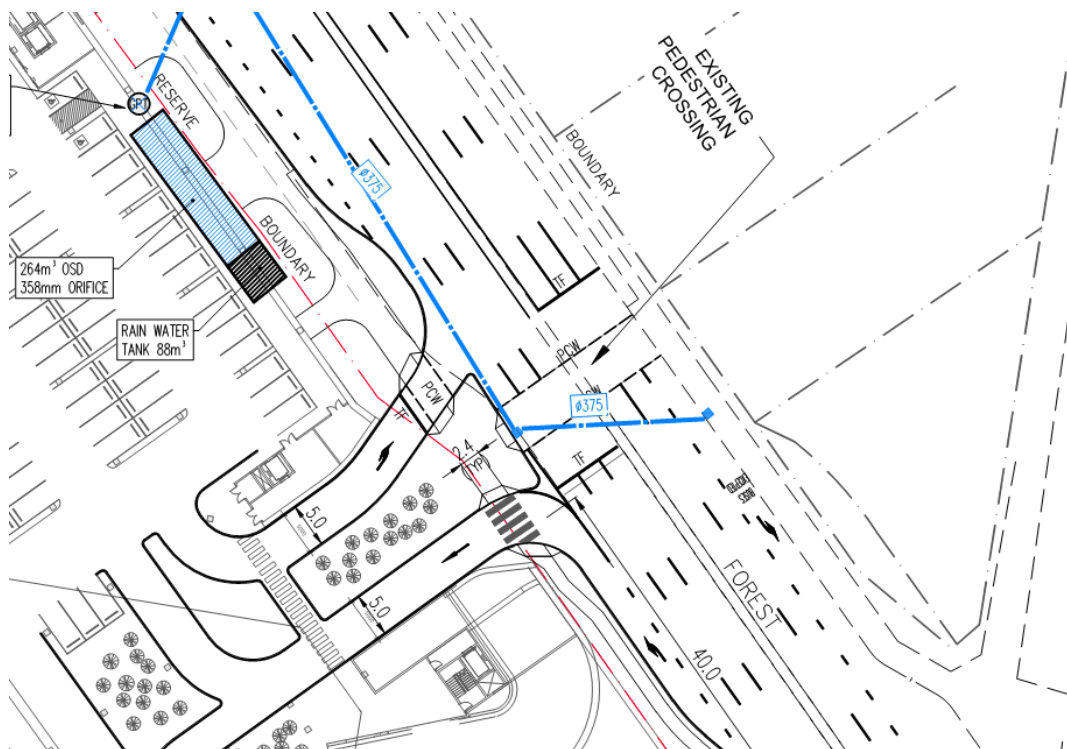


Figure 1: Proposed entry/exit intersection (note – signalised pedestrian crossing is existing)

This Road Safety Review provides design recommendations for consultation with the design team. We seek to proactively ameliorate the safety issues which have been independently identified.

The civil engineering drawings which have been reviewed as part of this assessment include:

- SKC06 [P6] – 21/02/2020 – Siteworks Plan Level B1
- SKC22 [P7] – 21/02/2020 – B99 Turning Path Plan Exit Ramps to Forest Way

Site Observations

The extent of site observations included the existing signalised pedestrian crossing on Forest Way, and the Forest Way frontage generally between Russell Avenue and Warringah Road.

Site inspections were undertaken during the following periods:

- Tuesday 3rd March 2020, between approximately 4:30pm and 5:30pm (evening peak)
- Wednesday 18th March 2020, between approximately 2:45pm and 3:45pm (afternoon peak)
- Thursday 19th March 2020, between approximately 8:00am and 9:00am (morning peak)

The site inspections were undertaken by two traffic engineers independent of the design team, Michael Babbage and Grace Carpp, who are also road safety auditors.

Pedestrian activity along the site frontage was mostly based on the arrival of buses and the drop-off of passengers. After each bus arrival, up to approximately 10 pedestrians would typically walk to the signalised crossing, with some others walking directly into the shopping centre. For dedicated school bus services, passengers were roughly split between those who would cross the road, enter the shopping centre, or wait to catch another bus. The frequency of bus arrivals was low enough for pedestrian queues to clear the signalised crossing prior to any additional arrivals.

Additional pedestrian activity was generated by the shopping centre, with movements directly into the existing car park. Movements between the shopping centre and the bus stop on the east side were notable, including relatively high numbers of school children. This demand also included people rushing from the shopping centre to make the end of a flashing red pedestrian signal.

Volumes of pedestrians walking along the site frontage (not associated with the shopping centre or buses) were low in both directions, but some were observed.

Some pedestrians took shortcuts diagonally across the intersection, toward the bus stops downstream from the crossing on both sides of the road. These shortcuts were typically minor, however some significant shortcuts (such as directly from the indented northbound bus bay) were observed. Shortcuts at the north-east and south-west occasionally involved pedestrians moving between stopped vehicles. On a small number of occasions, the overlap of pedestrian movements at the centre of the road resulted in a crowd width greater than the available opening in the median island.

For the morning and afternoon peak periods, pedestrian volumes were recorded as follows:

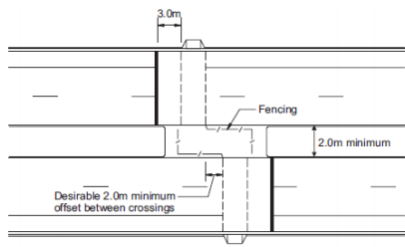
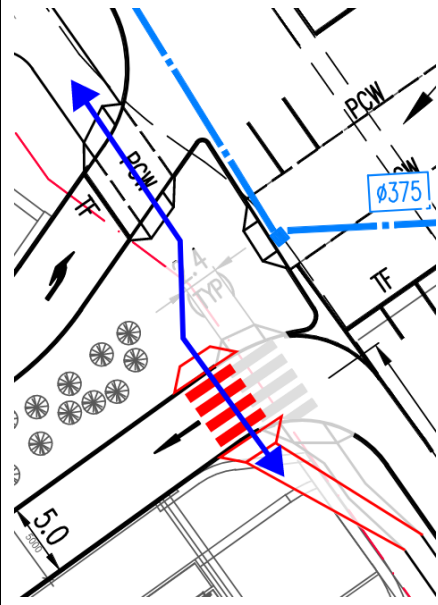
- **AM (8:15am – 9:15am)**
 - 106 movements across Forest Way
 - 103 movements north of the crossing
 - 9 movements south of the crossing
- **PM (3:00pm – 4:00pm)**
 - 195 movements across Forest Way
 - 181 movements north of the crossing
 - 18 movements south of the crossing

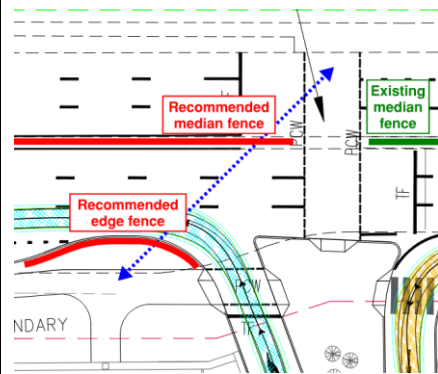
Southbound vehicle flows (toward Warringah Road) would frequently queue up to and beyond the signalised crossing. Drivers generally adhered to road rules and stopped clear of the crossing, however some minor volumes of queuing across the crossing were observed. It is noted that the intersection of Forest Way and Warringah Road is currently undergoing road works and will experience major changes to traffic flows on completion of the Northern Beaches Hospital Road Upgrade project.

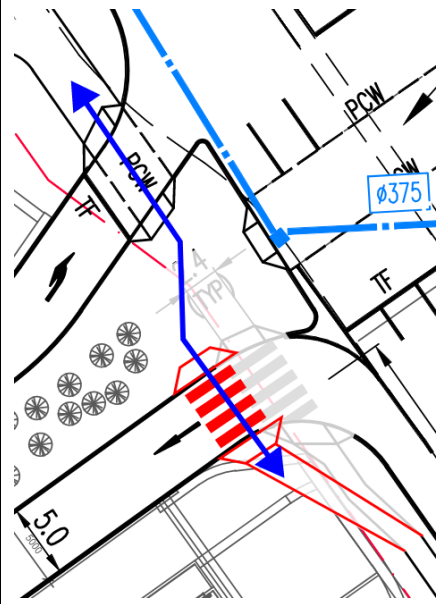
Key Findings & Recommendations

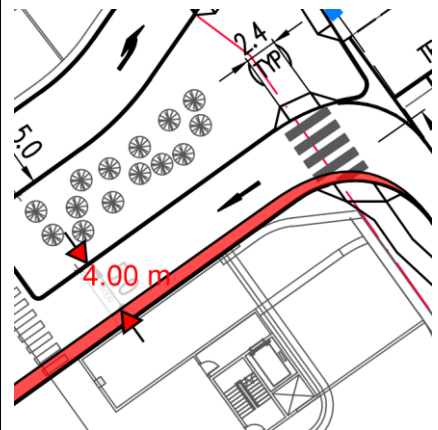
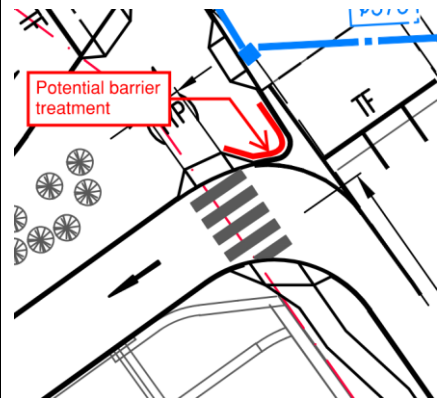
On review of the proposed design (as per the list of drawings given above) and the current site, the table below details the potential road safety issues identified, along with recommended solutions.

A draft copy of these findings and recommendations were provided to the civil engineer. Review and consultation has resulted in the outcomes for the design as listed below. These outcomes have been incorporated into a draft design update as attached to this document.

Findings	Recommendations	Suggested Layout	Outcomes (+ see attached)
<u>1. Inconsistent Crossing Treatments</u> For pedestrians walking northbound along the frontage of the site, the proposed works would provide a marked pedestrian zebra crossing (at the vehicle entry lane) followed by a signalised pedestrian crossing (at the vehicle exit lane). The differing treatments may be confused by users, – if a pedestrian has right-of-way across one lane, they could assume they have right-of-way across an additional lane immediately following and proceed into an active vehicle lane. This is particularly the case where there is no significant change in road function between the two driveways, in contrast to pedestrians continuing to the crossing at Forest Way where there is a major change in road function	Provide an offset between the two driveway crossings to alert pedestrians to the change in environment and require an active change in behaviour between the two crossings. An example for a mid-block crossing (from the Queensland Department of Transport and Main Roads Supplement to Austroads Guide to Road Design Part 4) is shown below. 		The pedestrian footpath route will be required to be within the road reserve. Movement of the zebra crossing within the site would be outside the road reserve and would interfere with a proposed plant room for the development. As an alternative, an inverse solution is proposed – the zebra crossing can be moved slightly closer to the road, and the signalised crossing further within the site. This proposal also has the added benefit of providing additional pedestrian storage space on the island by increasing the distance between the Forest Way crossing and the driveway crossing.

Findings	Recommendations	Suggested Layout	Outcomes (+ see attached)
and pedestrians may be more alert. It is acknowledged that volumes of pedestrians along the frontage are relatively low and the main development desire line does not follow these crossings, however this risk item carries a high consequence due to potential pedestrian-vehicle collisions.			
<u>2. Diagonal Shortcuts</u> Pedestrians cutting diagonally across the road, or rushing for a flashing signal, has been observed at the current site. The provision of the new signalised exit lane on an alternating signal cycle would increase safety risks around this space. Pedestrians cutting diagonally from the crossing westbound toward the northbound bus stop (under a green pedestrian signal) would be crossing the vehicle exit lane (which would also have a green signal). Vehicle volumes exiting the site are likely to be low enough to create inconsistent streams and gaps in traffic, which could give a false impression of a safe gap for pedestrians.	Provide pedestrian fencing along the edge of road reserve (north of the exit driveway lane) to deter pedestrian shortcuts in this area. Provide pedestrian fencing along the road median (consistent with the existing treatment south of the crossing) to further deter pedestrian shortcuts.		An additional pedestrian fence can be incorporated into the design, subject to Transport for NSW concurrence for works on the median of the state road. Completion of these works may also require confirmation of any works related to Northern Beaches Hospital Road Upgrade, which involved replacement of the existing median fence.

Findings	Recommendations	Suggested Layout	Outcomes (+ see attached)
<u>3. Visibility of Pedestrians at Entry Driveway</u> The entry driveway requires drivers to give way to pedestrians at a marked pedestrian zebra crossing. Pedestrians travelling northbound would be immediately to the left of approaching vehicles, on the passenger side, at the point of decision for the driver. Visibility to an approaching pedestrian may be difficult and poor, with a potential risk of collision.	Move the zebra crossing further within the site, to provide a more head-on approach to the crossing and a more typical arrangement for all users. Following any changes, ensure pedestrian visibility is maintained around the plant room area such as by a splay or chamfer. This change would also satisfy the recommended offset of crossings.		Due to the proposed offset crossing in Item 1, and other site restrictions, the zebra crossing could not be moved further within the site. It is proposed that zig-zag line marking be provided within the turning lane to alert drivers, plus advance warning signage.

Findings	Recommendations	Suggested Layout	Outcomes (+ see attached)
<u>4. Width of Entry and Exit Driveways</u> The entry and exit driveways are each 5 metres wide. This is much wider than would typically be required for single lane car movements, particularly as demonstrated by the swept path analysis for B99 vehicles. The excess width may encourage higher-than-normal vehicle speeds through these spaces, which could pose a hazard for pedestrians. Requirement for larger vehicles such as delivery and service vehicles is not shown in the swept path drawings.	Reduce the lane width at both the entry and exit driveway to act as a traffic calming measure and slow vehicles in areas with pedestrian interaction. This change would also increase physical clearances to walls adjacent to each driveway.		The lane width can be reduced within the site. The lane width at the corners is suggested to be retained at the current design width. Lane width within the deceleration is also already low (3.0m) which should assist in traffic calming.
<u>5. Pedestrian Vulnerability to Errant Vehicles</u> The deceleration lane at the entry driveway ends in a tight left-hand turn into the site. In the event of an errant vehicle being unable to make this turn, the vehicle would travel directly onto the pedestrian island in front of the signalised crossing, which is a designated waiting and queuing space for pedestrians.	Provide a vehicle crash barrier at the pedestrian island, to protect pedestrians waiting at the signalised crossing. Reduction in lane width (as recommended above) would act as a traffic calming measure which would also help to improve pedestrian vulnerability risks.		An F-type concrete barrier could be provided at this location, subject to detailed design and finalisation of the pedestrian crossing location.

Conclusion

On the basis of the above design changes, we believe that the road safety risks which have been identified to date have been considered and addressed.

This assessment shall not be construed as relieving any other party of their responsibilities or liabilities, and the need for continued Safety in Design considerations throughout the detailed design and construction of this site.

Should you require anything further please contact the undersigned.

Yours faithfully,
TAYLOR THOMSON WHITTING (NSW) PTY LTD
in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST

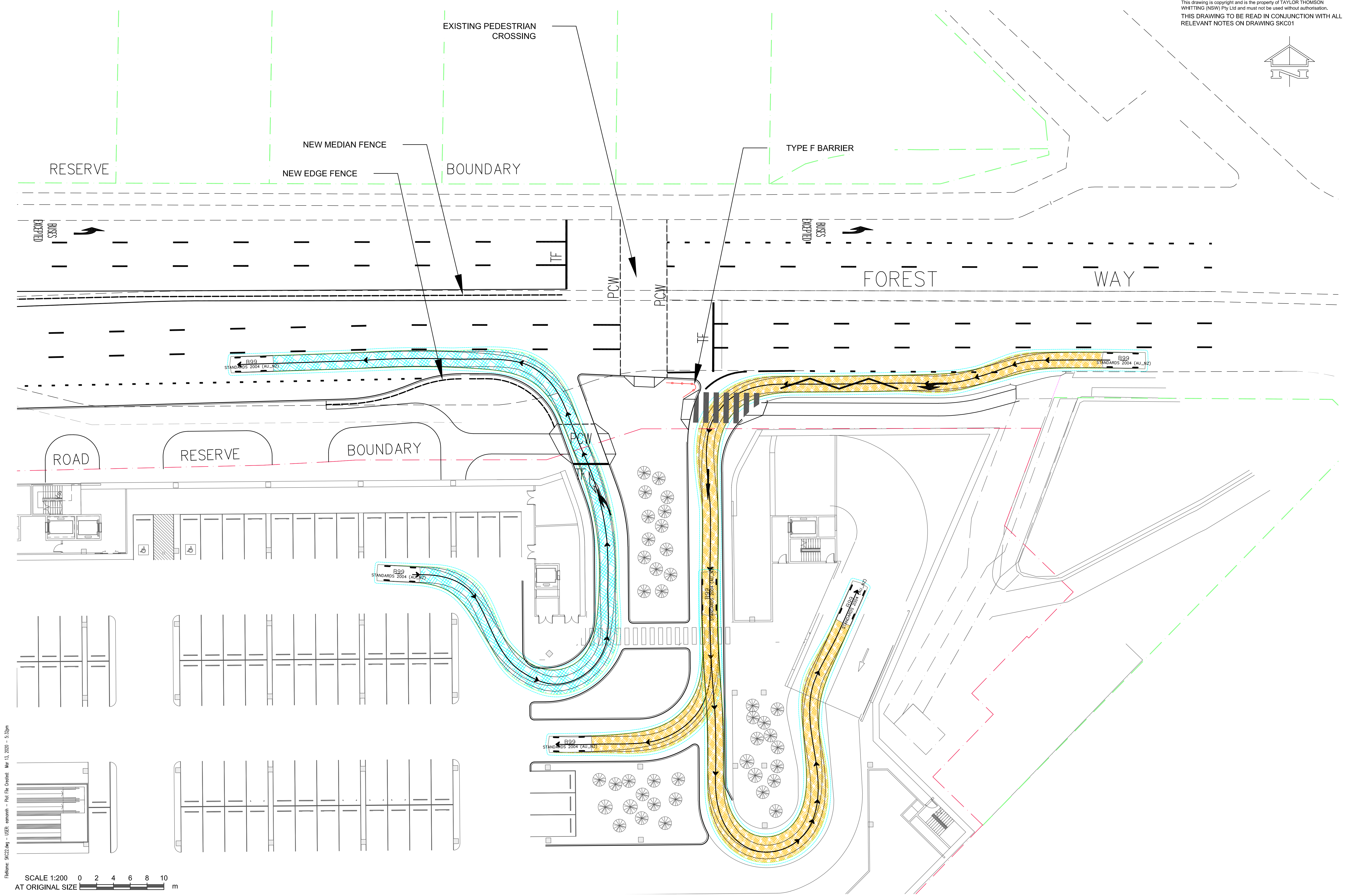
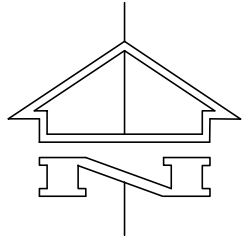


MICHAEL BABBAGE
Senior Traffic Engineer

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Attachments

- SKC22 [P8] – B99 Turning Paths Plan Exit Ramps to Forest Way



Filename: SKC22.dwg - USER: emonah - Plot File Created: Mar 13, 2020 - 5:32pm

SCALE 1:200
AT ORIGINAL SIZE

P6	ISSUED FOR DA	SB	GG	25.10.19					
P5	PRELIMINARY	SB	GG	22.10.19					
P4	PRELIMINARY	SB	AI	15.10.19					
P3	PRELIMINARY	SB	GG	14.09.18					
P2	PRELIMINARY	SB	GG	12.09.18	P8	AMENDED FOR SAFETY REVIEW	SB	EH	13.03.20
P1	PRELIMINARY	SB	GG	17.08.18	P7	ISSUED FOR REVIEW	SB	SP	21.02.20
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

Architect
THE BUCHAN GROUP
LEVEL 1, 7 KELLY STREET, ULTIMO, NSW, 2007

Civil Engineer
TTW Taylor Thomson Whitting
612 9439 7288 | 48 Chandos Street St Leonards NSW 2065

Project
FORESTWAY SHOPPING CENTRE REDEVELOPMENT

Sheet Subject
**B99 TURNING PATHS PLAN
EXIT RAMP TO FOREST WAY**

Scale : A1 1:200	Drawn AS	Authorised
Job No 181210	Drawing No SKC22	Revision P8
Plot File Created: Mar 13, 2020 - 5:32pm		