



Department of Education

Picton High School Redevelopment

Traffic and Accessibility Impact Assessment

August 2018

Department of Education

Picton High School Redevelopment

Traffic and Accessibility Impact Assessment Quality Assurance Statement

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1. Executive Summary

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) and assesses the traffic and parking implications of the proposed school redevelopment.

TDG has been engaged to advise on the traffic and parking matters and contribute to the overall design of the proposed redevelopment of Picton High School. The NSW Department of Education proposes to increase the capacity of Picton High School in order to meet the growing demand for public education in South West Sydney. The redevelopment will increase the capacity of the school to 1,580 students and 125 staff, and will involve a major upgrade to the existing core facilities.

The planned redevelopment will see replacement of a significant portion of the existing building stock, with any retained buildings to be re-purposed and refurbishment. It is to include the following:

- The existing bus drop-off/pick-up facility adjacent to Argyle Street will be redesigned to improve safety and efficiency, separate different movement modes, and will continue to accommodate up to six buses;
- The site boundary adjacent to Argyle Street will be realigned so that the bus drop-off/pick-up area will be located within the road reserve;
- A right turn bay will be provided along Argyle Street to assist vehicles turning into the site, resulting in the relocation of the existing pedestrian refuge facility;
- Entrance to the south-western staff parking area will be discontinued from the bus area and a new entry-only access will be provided from Argyle Street;
- A new access will be provided via Wonga Road, which will connect with the south-western staff parking area;
- A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to four buses, including a turning facility to enable buses to turn around;
- A total of 141 parking spaces are proposed on-site, including four accessible spaces; and
- A loading area is provided at the southern end of the site adjacent to Building O, with service vehicles to access the site via the new Wonga Road access.

Based on the assessment provided within this report, it is concluded that:

- The proposed car park layout and access arrangements have been designed in accordance with the relevant standards and guidelines;
- The increased in on-street parking demand generated by students and parent drop-off / pick-up can readily be accommodated within the available parking within the vicinity of the school;
- The Argyle Street / Wonga Road intersection and the school access locations are expected to continue to operate with acceptable delays and queue lengths;
- It is recommended that a Green Travel Plan be prepared for the school to reduce the reliance on private vehicle use;

- It is also recommended that a Construction Traffic Management Plan be prepared to assess and manage the potential effects arising from the operation of the school during construction.

Overall, it is concluded that the proposed redevelopment of the school can be accommodated within the surrounding traffic and parking environments.

2. Introduction

TDG has been engaged to advise on the traffic and parking matters for the proposed redevelopment of Picton High School. The redevelopment will increase the capacity of the school to 1,580 students and 125 staff and will involve a major upgrade to the existing core facilities.

The redevelopment will incorporate the following key changes to the traffic and parking features of the school:

- The existing bus drop-off/pick-up facility adjacent to Argyle Street will be redesigned, and provision of a right turn lane from Argyle Street provided, in order to improve safety and efficiency;
- A new entry-only access from Argyle Street will be provided to allow access to the south-western staff parking area, which will have access to/from the bus area discontinued;
- A new access will be provided via Wonga Road, which will accommodate additional bus parking, and provide access to the south-western staff parking area and loading area;
- Changes to the parking layout will result in the provision of 11 visitor and 130 staff parking spaces, including four accessible spaces.

This report has been prepared to address the Secretary's Environmental Assessment Requirements and assesses the traffic and parking implications of the proposed school redevelopment.

3. Response to Secretary's Environmental Assessment Requirements

The SEARs required the preparation of a transport and accessibility impact assessment, which details, but is not limited to the following:

Council Comments	Response
Accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development	Traffic and parking surveys have been undertaken in the vicinity of the site and are presented within Section 4.3. In addition, a travel mode survey has been undertaken for the existing student and staff population to determine the use of alternative transport modes to access the site. The results are presented in Section 4.5.
An assessment of the operation of existing and future transport networks including the bus network and their ability to accommodate the forecast number of trips to and from the development.	A detailed assessment of the road network has been provided within Section 8. This has included a SIDRA analysis of the intersection of Argyle Street with Wonga Road.
Details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area.	An assessment of the traffic impacts generated by the redevelopment of the school is provided within Section 8. Based on the travel mode survey presented in Section 4.5, the school currently generates a minimal number of walking and cycling trips, with the majority of students and staff arriving to school by bus or private vehicles. The walking and cycling trips generated by the school are therefore expected to continue to be minimal.
The adequacy of public transport, pedestrian and bicycle networks and associated infrastructure within Argyle Street to meet the likely future demand of the proposed development.	As discussed above, the number of walking and cycling trips generated by the school is minimal and will remain relatively unchanged following the redevelopment. As such, the existing cycling and pedestrian infrastructure is adequate. Notwithstanding this, it is proposed to provide a pedestrian footpath along the western side of Argyle Street to facilitate pedestrian movements between the proposed pedestrian crossing facilities along Argyle Street.
The impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site in consultation with Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network.	No public bus facilities are provided within the vicinity of the site. Picton Buslines has been informed of the project and a meeting was held to discuss the impacts to the existing bus routes. The company has confirmed that they will provide additional services as required in the future. In addition, the comments from Picton Buslines have been accommodated into the design of the school.
The identification of suitable infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections (including the potential for traffic signals and/or a round-a-bout at the Wonga Road, Remembrance Driveway and Argyle Street intersection) and the	The traffic assessment presented in Section 8 for the road network indicates that the road network will continue to operate in a suitable manner. It is proposed to provide a right turn bay for vehicles turning into the school from Argyle Street. The design is in accordance with the relevant guidelines and standards and is discussed within Section 9.

Council Comments	Response
provision of supporting plans that demonstrate compliance with Austroads Guide to Road Design, Australian Standards and Roads and Maritime Services guidelines.	
Details of travel demand management measures to minimise the impact on general traffic and bus operations and to encourage sustainable travel choices and details programs for implementation.	A Green Travel Plan is recommended as part of this assessment to assist in reducing the parking and traffic impacts of the proposal.
The impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works, if required. Traffic modelling is to be undertaken using SIDRA network modelling for current and future years.	A detailed assessment of the road network has been provided within Section 8. This has included a SIDRA analysis of the intersection of Argyle Street with Wonga Road.
The proposed active transport access arrangements and connections to public transport services.	The school currently has one student who cycles to school and 14 students and staff who walk to school. The use of alternative modes is expected to remain low. The proposed design provides a clear entrance to the school by these modes.
Details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5 m minimum) and infrastructure (bus stops, bus layovers etc.)	Bus operations are managed by Picton Buslines, who have indicated that bus routes will be amended based on future demands on an ongoing basis.
The proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones.	The proposed design provides a number of amendments to the layout of the Argyle Street bus stop for the school in order to improve safety and efficiency. In addition, another bus stop will be provided at the rear of the site via Wonga Road. A detailed description of the design and its operation is provided within the report.
Measures to maintain road and personal safety in line with CPTED principles.	This is discussed by other consultants.
Proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance.	As discussed, only one student currently cycles to school. The required facilities for alternative travel modes is minimal. A Green Travel Plan is recommended to be prepared at a later date to detail the required bicycle facilities.
Proposed number of on-site car parking spaces for teaching staff, students and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site.	The parking requirement, expected parking demand, and the impact on the surrounding on-street parking supply is discussed within Section 11. A Green Travel Plan will be prepared to reduce the reliance on private vehicle use and the impact of the school on the available on-street parking supply.
Details of emergency vehicle access arrangements.	All emergency vehicles will be directed to the northern crossover on Argyle Street. This will be for: <ul style="list-style-type: none"> • Fire: Fire Booster assembly location; • Ambulance and Police: Direct access to the administration building.

Council Comments	Response
An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures.	The identified safety hazards identified as part of the initial assessment of the school, and the proposed amendments to the existing layout to address these issues, is discussed within this report.
Service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times), including consideration of the access off Wonga Road (east) for such movements.	Access by service vehicles will be provided via Wonga Road. An assessment of the accessibility off the site by these vehicles is provided within Section 13.
<p>In relation to construction traffic:</p> <ul style="list-style-type: none"> • Assessment of cumulative impacts associated with other construction activities (if any); • An assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; • Details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process; • Details of anticipated peak hour and daily construction vehicle movements to and from the site; • Details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle; • details of temporary cycling and pedestrian access during construction; • Traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and • How these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact. 	An outline of the proposed construction program is provided within Section 15. A detailed Construction Traffic Management Plan will be prepared at a later stage.

Table 1: SEARs Key Issues and Relative Comments

4. Transport Environment

4.1 Site Location

Figure 1 shows the location of the site in relation to Picton and the surrounding transport network.



Figure 1: Site Location (Intramaps: <http://maps.wollondilly.nsw.gov.au/intramaps80public/>)

The school is located on the eastern side of Argyle Street, approximately 100 metres north of Wonga Road. The site has an area of 5.69 hectares. Vehicular access to the site is provided via separate entry and exit driveways that connect to Argyle Street, with the northern access accommodating entry movements and the southern access accommodating exit movements. The site also has frontage to Wonga Road and a partially formed paper road across the eastern site boundary.

Key features of the site and its surrounds are as follows:

- Established residential use occupies the land to the north of the site;
- Land to the west, south and east is predominantly un-developed at present;
- Some commercial / industrial uses are located on Wonga Road, including the Picton Bus depot which is the company operating the school services;
- A paper road extension of Wonga Road extends about half way across the rear (eastern) boundary of the site.

An aerial photo view of the site in relation to the local road network is shown in **Figure 2**.



Figure 2: Aerial Photo of the Site

The site carries a R2 Low Density Residential zoning control, with the objectives of the zone including; *to enable other land uses that provide facilities or services to meet the day to day needs of residents*. Educational establishments are permitted with consent in the zone.

4.2 Road Environment

Argyle Street is identified as a Regional Classified Road in the vicinity of the site and is managed by Wollondilly Shire Council. It runs in a north-south alignment and has a carriageway width of 13.0 metres kerb to kerb, accommodating one lane of traffic in each direction and parallel parking on both sides of the road.

Continuous double white centreline markings are established across the whole of the site frontage. In effect, these impose a no right turning restriction either to or from the driveway crossings. These current controls are somewhat impractical as established and evidence from site observations are that the control is ignored in the present environment.

A school speed zone control is imposed along Argyle Street that reduces the permissible speed limit to 40km/h between 8:00-9:30am and 2:30-4:00pm on school days, which extends from Wood Street in the north to a location about 90 metres north of Wonga Road. This covers the entire school frontage area and extends north over the marked kerbside parking environment.

The on-street parking controls on Argyle Street comprise the following elements:

- On the western side of Argyle Street, five spaces with a P2: 8:00-9:30am and 2:30-4:00pm control;

- On the immediate school frontage, a P2 drop-off zone of about 50 metres in length, catering for up to about eight vehicles at a time;
- A bus layover area is established about 20 metres north of the school's northern driveway crossing on the east side of Argyle Street. Its defined operating times are: 8:30-9:30am and 3:00-4:00pm on school days;
- Otherwise, generally time un-restricted parking controls are provided.

Wonga Road is a local road that runs in an east-west alignment extending from Argyle Street and runs in a north-south alignment to abut the eastern boundary of the site. It has a carriageway width of 13.0 metres kerb to kerb and accommodates one lane of traffic in each direction. Unrestricted parking is provided on both sides of the road.

Wonga Road intersects Argyle Street at a Stop controlled intersection. Argyle Street has a painted right turn bay and left turn deceleration lane established to facilitate access to Wonga Road.

Cycling is currently provided for within the carriageway of Argyle Street, under the school speed zone controlled environment, with no cycle facilities provided along Wonga Road.

A continuous concrete footpath is established along Argyle Street on the school side of the road. It extends north from the southern school boundary connecting the school with the Picton town centre. No pedestrian facilities are provided along Wonga Road.

Existing sight distances have been measured on-site. These are summarised in **Table 2**.




Site Location	Sight Distance to the South (m)	Sight Distance to the North (m)	Austrroads ASD / DSD (m) 60km/h Speed Zone with 40km/h School Zoning	Comment
Wonga Road	267 	220 	ASD for 70km/h Design Speed: 95m DSD for 70km/h Design Speed: 165m	Complies with DSD
Southern School Driveway Crossing	225 	142 		Complies with DSD
Existing School Pedestrian Crossing Islands	220 	290 		Significantly exceeds DSD, measured to top of kerb on median islands

Table 2: Existing Measured Sight Distances

4.3 Existing Traffic Environment

Turning movement surveys were commissioned on Thursday 26 July 2018, between 7:30-10:00am and 2:00-5:30pm, at the intersection of Argyle Street and Wonga Road. The results of the survey are presented below in **Figure 3**.

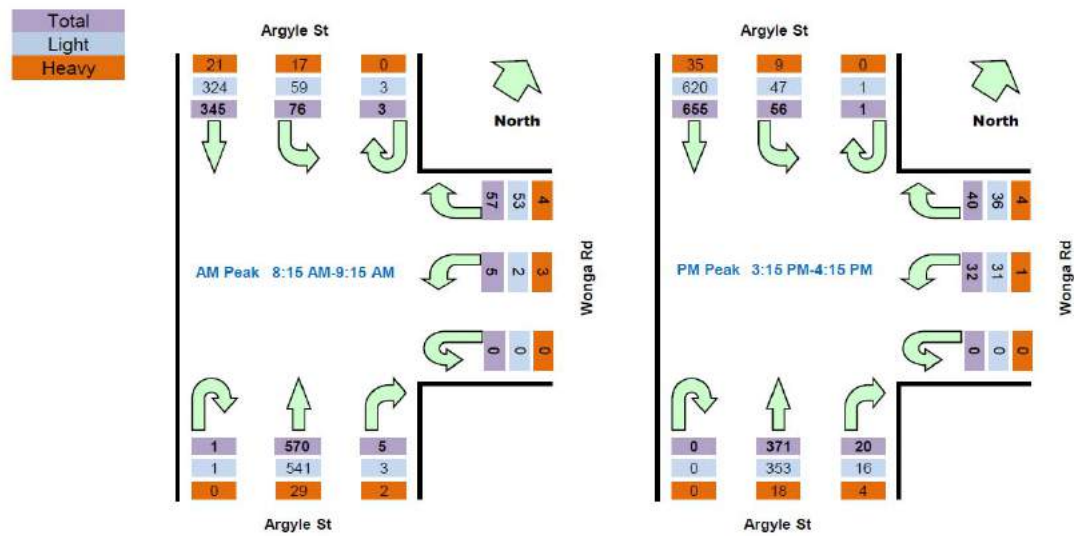


Figure 3: Peak Wonga Road Turning Movements (AM and PM Peak)

The survey results indicate that Wonga Road currently carries a low level of traffic, with 143 and 148 vehicle movements recorded in the AM and PM peak periods, respectively.

Turning movement count surveys were also commissioned at the school driveways. The peak hour survey results are presented in **Figure 4**. The left image shows the peak movement counts for the northern access, and the right image shows the movement counts for the southern access.

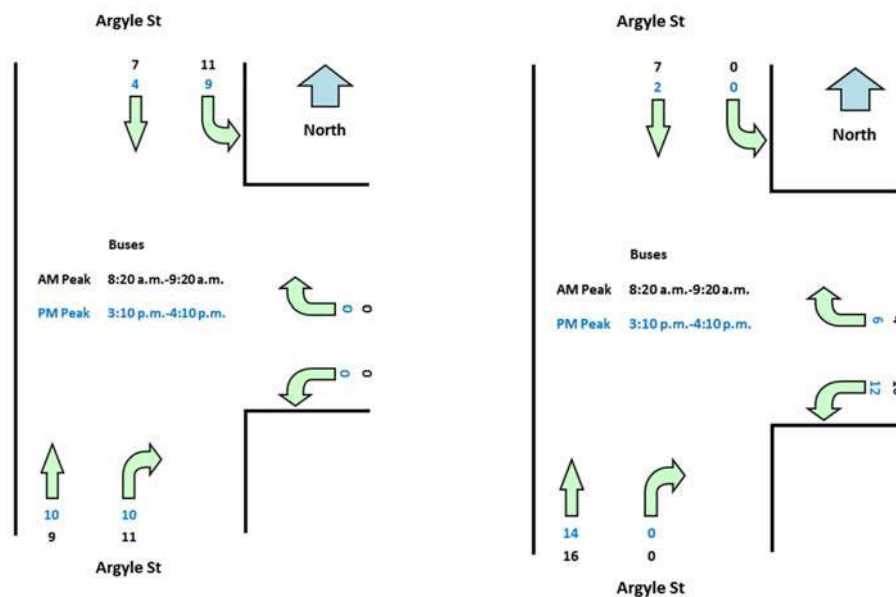


Figure 4: Peak Driveway Turning Movements (Buses)

Mode of Travel	Student Totals	Student Mode Split %	Staff Totals	Staff Mode Split %
Walk	13	6.2%	1	1.6%
Bus	140	66.7%	0	0.0%
Train	1	0.5%	0	0.0%
Bicycle	1	0.5%	0	0.0%
By car - dropped off in the morning	46	21.9%	0	0.0%
Passengers in another student's car	2	1.0%	0	0.0%
Passengers in a car driven by a member of staff	2	1.0%	2	3.2%
Car as a driver	5*	2.4%	59	95.2%
Other	0	0.0%	0	0.0%
Total respondents (apparent number in class)	210	100.0%	62	100.0%

Table 3: School Travel Mode Splits

Note: The number of students driving has been estimated based on the student parking demand due to Year 12 students not being surveyed on the survey date.

Table 3 is relatively self-explanatory. The following characteristics are of particular note:

- About 68% of all student arrivals were by bus;
- Student drop-off by car accounted for 22% of arrivals;
- Accessible (walking/cycling) modes accounted for 6.2% of student arrivals, noting that cycling represents a very low (0.5%) utilisation. This is perhaps a function of the wide and rural nature of the area serviced; and
- By contrast, 98.4% of the staff arrived by car, either as the driver or passenger.

5. Road Safety

A search of the Road Safety Crash and Casualty Statistics Portal has been undertaken for the most recent four year period 2013 to 2016 inclusive. A search radius of 400m from the school frontage has been assessed. **Figure 5** shows the results of the search.

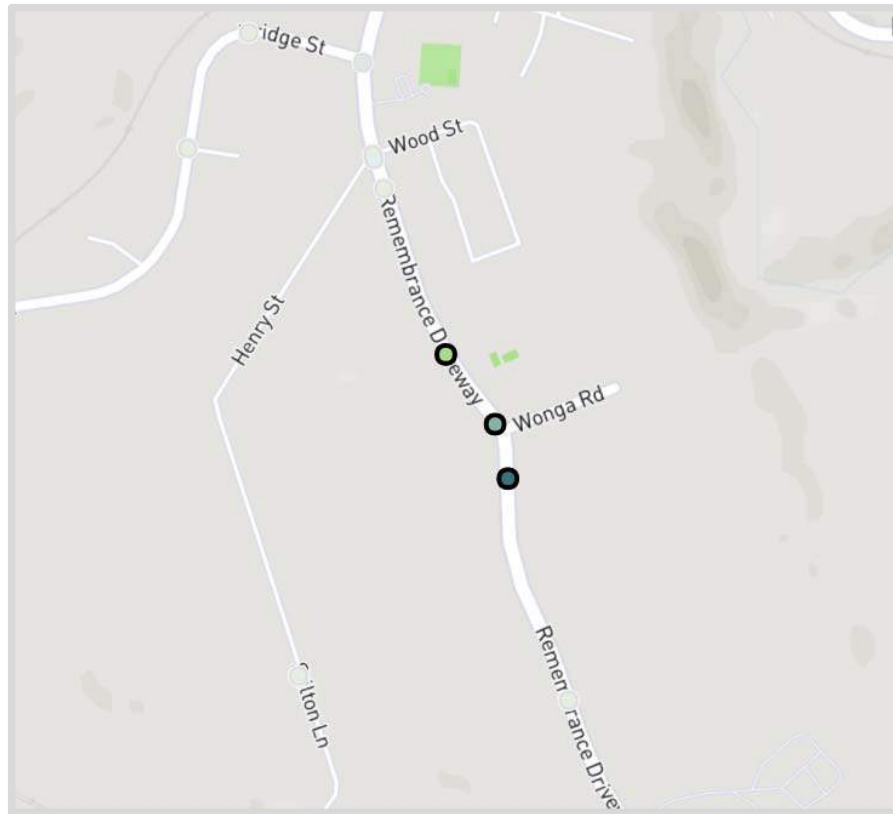


Figure 5: TfNSW Crash and Casualty Statistics Map and Data

Three crashes have been identified over the period. The key characteristics of these are as follows:

- All crashes occurred in 2013, there have been no recorded incidents since;
- Two crashes occurred in darkness, outside of the core school hours;
- Two crashes involved vehicles losing control and leaving the road to the right;
- One crash appeared to have involved a head on collision on or about the corner near Wonga Road, resulting in a moderate injury;
- There have been no crashes recorded on the immediate school frontage, and importantly, none involving pedestrians crossing the road environment.

Overall, there is no evidence of a recurrent, persistent or adverse road crash history that would raise a particular local road safety concern. There have been relatively recent improvements to school frontage traffic and pedestrian management on the road, the evidence indicates this is achieving its road safety purpose.

A taxi drop-off area has been provided within the northern car parking area, which will service the taxi associated with the Special Needs class.

A loading area is provided at the southern end of the site adjacent to the Metals Block, with service vehicles to access the site via the new Wonga Road access.

6.1.1 Argyle Street Layout



Figure 7: Argyle Street Frontage Design

The key traffic and transport features of the proposed changes to the Argyle Street accesses includes the following:

- The bus drop-off / pick-up area will continue to accommodate six buses, and will remain in its current location;
- The bus stop area will be narrowed to prevent parents from choosing to park within the bus stop area;
- The central median between the bus stop area and Argyle Street will be redeveloped to provide clearer sight lines between pedestrians and drivers;
- The school boundary line will be amended so that the bus stop area is under control and ownership of Council. As part of this arrangement, the internal bus stop area and associated crossovers will be designed to Council standards. This will include a right turn lane from Argyle Street;
- In order to accommodate the turning bay, the pedestrian refuge island will be relocated to the south of the existing crossovers to facilitate pedestrian movements between the school and the western side of Argyle Street;
- Parking along the eastern side of Argyle Street, between the two existing crossovers, will be removed to accommodate the turning bay;

- Access to the car parking on the northern side of the school will continue to occur via the existing crossovers; and
- Entrance to the south-western staff parking area will be discontinued from the bus area and a new entry-only access will be provided from Argyle Street, in order to reduce the number of movements within the bus stop area. A new entry only access will be created in order to access the parking area, with no exit movements permitted due to sight distance and gradient constraints at the access. Vehicles will utilise the new Wonga Road access to exit the site.

6.1.2 Wonga Road Layout

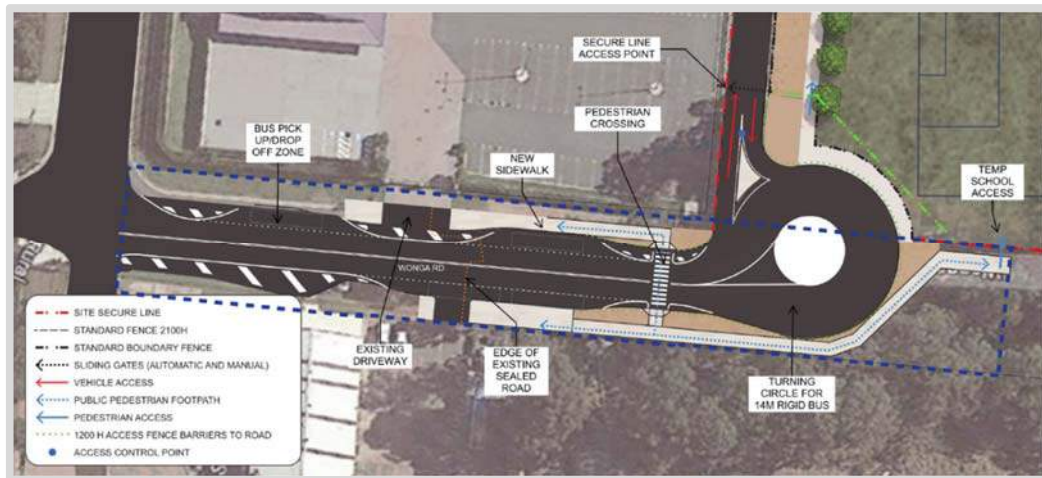


Figure 8: Wonga Road Frontage Design

A new access will be created via Wonga Road, by extending the existing paper road, which will include the following features:

- An access will run along the southern boundary of the site connecting the car park in the south-western corner of the site to Wonga Road, providing for exit and entry movements;
- Bus stops will be provided on both sides of the road near the school entrance, accommodating up to four buses, to allow for any overspill bus parking in the future;
- A turning facility will be provided for buses at the connection with the site, to prevent buses from having to access the site;
- Footpaths and pedestrian crossing facilities are to be provided for pedestrians.

7. Trip Generation and Distribution

The increase in traffic generated by the school has been based on the increased capacity of 380 students and 42 staff. The *RTA Guide to Traffic Generating Developments* does not specify traffic generation rates for schools. As such, the traffic volumes have been based on the traffic and parking surveys, and the travel mode percentages outlined within Section 4, which are summaries below.

7.1 Staff

Based on the travel mode survey 95% of staff drive to work. The turning movement count and parking surveys indicate that 50% of teachers arrive to school during the morning peak period and 75% leave the school during the evening peak periods. It has been assumed that all staff movements will be entering the site during the morning peak and exiting during the evening peak. On this basis the expected increase in traffic generated by staff is provided within **Table 4**.

	Morning Peak	Afternoon Peak
Inbound Trips	20	0
Outbound Trips	0	30
Total Trips	20	30

Table 4: Expected Staff Traffic Generation

7.2 Students

Based on the travel mode survey 3% of students drive to school. It has been assumed that all student movements will be to the site during the morning peak and away from the site during the evening peak. The expected increase in traffic generated by students is provided within **Table 5**.

	Morning Peak	Afternoon Peak
Inbound Trips	11	0
Outbound Trips	0	11
Total Trips	11	11

Table 5: Expected Student Traffic Generation

7.3 Parent Drop-off / Pick-up

The travel mode survey indicates that 22% of students are dropped-off and picked-up. Based on on-site observations and our experience with similar schools, we estimate that the student occupancy for vehicles dropping-off and picking-up is approximately 1.3 students per vehicle. Parent vehicles are expected to generate both a movement to and from the school during both the morning and afternoon peaks. On this basis the expected increase in traffic generated by the development is provided within **Table 6**Table 4.

	Morning Peak	Afternoon Peak
Inbound Trips	64	64
Outbound Trips	64	64
Total Trips	128	128

Table 6: Expected Parent Traffic Generation

7.4 Buses

The traffic survey results undertaken at the school driveways, presented in Section 4.2, show that the school generated 42 and 37 bus movements during the morning and afternoon peak periods. Assuming a linear increase in bus movements associated with the increase in students, the school is expected to generate the following increase in bus movements.

	Morning Peak	Afternoon Peak
Inbound Trips	7	6
Outbound Trips	6	6
Total Trips	13	12

Table 7: Expected Bus Traffic Generation

7.5 Summary

Based on the above traffic calculations, the increased school capacity is expected to generate the following additional traffic movements on the road network.

	Morning Peak	Afternoon Peak
Inbound Trips	109	76
Outbound Trips	78	117
Total Trips	187	193

Table 8: Total Expected Traffic Generation

7.6 Distribution

The traffic distribution of the various users associated with the school are described below:

- It has been assumed that 90% of staff will utilise the new crossover via Argyle Street to access the site, with the remaining 10% accessing the site via Wonga Road. All staff will exit the site via Wonga Road. Staff vehicle distributions have been based on the existing traffic volume distribution at the Argyle Street / Wonga Road intersection;
- The distribution of student traffic has been based on the north-south traffic ratio of vehicles on Argyle Street during the peak periods;

- The parent drop-off and pick-up movements have been based on the north-south traffic ratio of vehicles on Argyle Street during the peak periods. It has been assumed that all parents will utilise Argyle Street for drop-off and pick-up; and
- Bus movements have been distributed based on the existing distribution recorded at the site accesses.

8. Effects on the Transport Network

An analysis of the operation of the Argyle Street / Wonga Road intersection was carried out using the SIDRA computer modelling program and is discussed below.

The concepts of intersection capacity and level of service, as defined in the guidelines published by the RTA (RTA Guidelines for Traffic Generating Developments), are discussed in **Appendix B** together with criteria for their assessment. The assessment of the level of service of sign controlled intersections is based on the average delay (seconds per vehicle) of the critical movement.

8.1 Traffic Modelling Scenarios

TDG has identified two traffic modelling scenarios for the road network and modelled for the morning and evening school peak periods:

- **Scenario 1: Existing Traffic (Base Case)** - This scenario includes the 2018 traffic survey volumes (includes the current school operations) modelled over the existing intersection configuration of Wonga Road and Argyle Street. This analysis has been performed for the morning and evening peak periods;
- **Scenario 2: Year 2021 with the Proposed School Expansion** - This analysis incorporates a 3.0% per annum increase in the background traffic volume up to the year 2021 which is when the school redevelopment is expected to be completed. The school has been assessed as operating at full capacity of 1,580 students and 125 teachers. The layout of the existing intersection configuration of Wonga Road and Argyle Street is used for the assessment.

8.2 Wonga Road and Argyle Street Intersection

The intersection has been modelled based on the existing layout as shown in **Figure 9**.

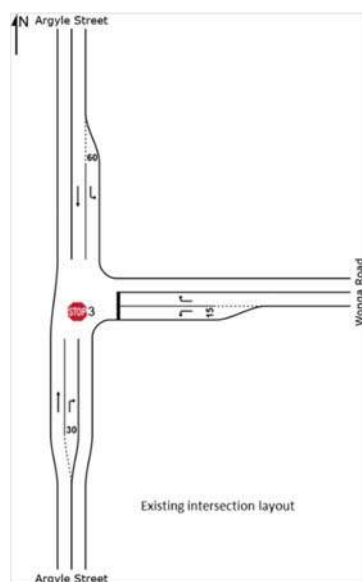


Figure 9: Wonga Road and Argyle Street Intersection – Existing Layout

A summary of the SIDRA results is presented in **Table 9** for the Argyle Street and Wonga Road intersection, with the detailed outputs provided in **Appendix D**.

INTERSECTION	SCENARIOS	MORNING PEAK		EVENING PEAK	
		Average Delay (seconds)	Level of Service (LoS)	Average Delay (seconds)	Level of Service (LoS)
Argyle Street and Wonga Street	Scenario 1	15.8	B	18.4	B
	Scenario 2	19.1	B	23.2	B

Table 9: Wonga Road and Argyle Street – Existing Intersection Layout

Note: For the SIDRA assessment, the gap acceptance values for right turning vehicles from Wonga Road have been reduced to 5.0 seconds and 3.0 seconds for the critical gap and follow-up headway. The reductions are based on on-site observations and traffic surveys to reflect the Austroads values.

The intersection analysis results show that the intersection of Wonga Road and Argyle Street is currently operating at a Level of Service B for both the morning and evening peak periods.

In the year 2021, with the school operating at full capacity of 1,580 students the intersection of Wonga Road and Argyle Street is operating at a Level of Service B for the morning and evening peak periods. In summary, the existing intersection configuration will have ample capacity to accommodate for future traffic growth and the traffic generation from the development of the school.

8.3 Impact on Major Approach Roads

The concepts of carriageway capacity and Level of Service are discussed in **Appendix C** together with criteria for their assessment.

The carriageway traffic volumes along Argyle Street for Scenario 2 (Year 2021 with the school traffic) is summarised in **Table 10**, together with the appropriate level of service. The use of interrupted traffic flows has been adopted to reflect the movement of vehicles to/from the on-street parking spaces associated with drop-off and pick-up movements.

LOCATION	LANES	MORNING PEAK			EVENING PEAK		
		Northbound	Southbound	LoS	Northbound	Southbound	LoS
Interrupted Volumes (refer to Table C1)							
Argyle Street (South of Wonga Road)	2U	585	387	B	446	709	D

Table 10: Future Carriageway Level of Service (Scenario 2)

The assessment indicates that at Year 2021 with the school redevelopment, Argyle Street will operate with a LoS D. The 2 lane undivided carriageway will accommodate for the future traffic volumes when the school is operating at full capacity.

8.4 Wider Road Network

All traffic accessing the site will do so via Argyle Street (Old Hume Highway). Argyle Street is a Regional Road, which generally runs in a north-south alignment from its continuation as Camden Bypass to its connection with the Hume Motorway near Alpine. In the vicinity of the Picton Township, Argyle Street links with Menangle Street to provide access to the Hume Motorway, which forms the primary access route to/from the north. It is noted that drivers using Prince Street to travel between Argyle Street and Menangle Street often experience delays at the one lane bridge.

Vehicles accessing the school will do so via local access roads, which connect to collector roads such as; Thirlmere Way, Bridge Street, and Barkers Lodge Road, and finally Argyle Street.

The school is expected to generate 174 and 181 additional light vehicle movements during the morning and afternoon peaks respectively. An additional 13 and 12 bus movements will also be generated during these times. This equates to a total increase in vehicle movements of 187 and 193 vehicle movements during the morning and afternoon peak hour.

The increase in traffic is equivalent to approximately three additional vehicle movements every minute. Given these movements are distributed on the wider road network, and given the traffic analysis provided within above, it is concluded that the increase in traffic volumes can be accommodated on the surrounding road network.

9. Access and Egress Arrangements

9.1 Argyle Street

Access and egress to the site is proposed to continue to occur via the separate entry and exit driveways that connect to/from Argyle Street. In addition, a new entry-only access will be provided to the existing south-western staff car park, as the connection via the bus parking area is proposed to be removed.

The accesses have been designed by Bonacci Group. An assessment of the proposed Argyle Street access arrangements is provided below.

9.1.1 Northern Access Driveway

The entry driveway located at the northern end of the site provides access to the bus parking area. In addition, it also provides access to the visitor parking area, taxi drop-off area (for the special needs class), and informal parking provided along the northern boundary of the site. The crossover has a width of 10.0 metres.

A right turn bay is proposed to facilitate right turn movements from Argyle Street to the site. The right turn bay has a width of 3.5 metres, and a length of 70 metres, in accordance with the *Austrroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*.

A swept path evaluation of the access has been undertaken using the software package 'AutoTurn'. The evaluation has assessed the ability for a 14.5 metre long coach to access the site, and is provided within **Appendix E**. The evaluation demonstrates that buses are able to enter the site using the right turn bay and access the bus parking area. However, it is noted that if a bus were parked in the northernmost bus parking space the entering bus would be required to wait within the site until the parked bus departed before proceeding further. In order to maintain a narrow crossover width at the northern site access to ensure pedestrian safety, and given the infrequent nature of this event occurring, and the low impact of buses waiting for a short period of time before accessing the bus bay, this arrangement is considered to be acceptable. Buses are able to turn left and access the site from the north even when a bus is parked in the northernmost bus parking space.

9.1.2 Southern Egress Driveway

The southern egress driveway accommodates buses exiting the site, as well as vehicles parking in the northern parking area, and taxis associated with the special needs class. The crossover has a width of 10.0 metres. In order to facilitate right turn movements from the site it is proposed to provide a break in the right turn bay line marking. A swept path evaluation of the access has been undertaken for a 14.5 metre long coach which demonstrates that buses are able to exit the site in either direction.

The sight distances at the driveway location are provided within Section 4.2, and are recorded as 142 metres and 225 metres to the north and south, respectively. The Safe Intersection Sight Distance (SISD) required at an intersection based on a 70km/h speed limit is 151 metres, as outlined within the *Austrroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*. The SISD required for a design speed of 40km/h is 40 metres.

Based on the requirements of the Austroads Guide the access currently falls short of the SISD requirement for a 70km/h speed limit by 9 metres. However, during peak school times when the speed limit is 40km/h the sight distance greatly exceeds the SISD requirement. No crashes have been recorded at the access within the past five years, as outlined within Section 5 of this report. Given the minimal shortfall in the SISD requirement and that there is currently no evident safety issue at the drive, the access is expected to continue to operate in a safe manner.

9.1.3 Southern Car Park Access

In order to limit the number of vehicle movements within the bus parking area, the existing access to the southern staff parking area is proposed to be discontinued and a new access provided from Argyle Street. The driveway is proposed to have a width of 4.0 metres and a vertical alignment comprising of the following gradients:

- 1:50 gradient for 3.03 metres;
- 1:9.8 for 2.00 metres;
- 1:6 for 7.27 metres; and
- 1:10.6 for 2.00 metres.

The proposed access has generally been designed in accordance with AS 2890.1:2004, however the initial sections closest to Argyle Road do not strictly comply with Clause 3.3 (a), which requires a maximum gradient of 1:20 for the first 6.0 metres of the ramp. Notwithstanding this, the access as designed is considered to be appropriated given that the access will operate as an entry only access, and the maximum gradient across the first 6.0 metres is considered to be primarily for the interactions of exiting vehicles. The proposed ramp changes of grade are in accordance with AS 2890.1:2004.

All exiting vehicles proposed to exit the site via Wonga Road, as discussed in Section 9.2 below. The driveway has been located in order to minimise the gradients.

A swept path evaluation of the access has been undertaken to assess the ability for a B99 vehicle (99.8th percentile vehicle as defined within AS/NZS 2890.1:2004) to access the site, and is provided within **Appendix E**. The evaluation demonstrates that suitable access is provided to the car parking area.

In addition, a ground clearance assessment was conducted for the access and ramp as proposed, to assess the ability for a B99 vehicle to enter the site without any conflicts with the ramp. The evaluation demonstrates that the access has been suitably designed, and is also shown in Appendix E.

9.2 Wonga Road

A new access is proposed via Wonga Road at the eastern end of the site. The access will provide egress movements from the southern staff car park, and entry to the informal car parking along the southern boundary of the site. In addition, the access will provide access for all service vehicles. The access has a width of 6.8 metres and accommodates simultaneous two-way vehicle movement.

A roundabout has been provided at the termination of Wonga Road in order to facilitate U-turn movements, including for buses.

A swept path assessment has been provided to assess the ability for vehicles to access the school. It is understood that the largest service will be an 8.8 metre long Medium Rigid Vehicle (MRV as defined within AS 2890.2:2002), which has been used to assess the ability for vehicles to access the site. In addition, an assessment has been undertaken for a 14.5 metre long coach at the roundabout. The assessment is provided within **Appendix E**. The evaluation demonstrates that vehicles are able to enter and exit the site in a forward direction, and that buses are able to turn around at the roundabout.

10. Parking Layout

10.1 Car Parking

Changes to the parking layout will result in the provision of 11 visitor parking spaces and 130 spaces for staff, including four disabled spaces. The 11 visitor parking spaces have been designed in accordance with AS/NZS 2890.1:2004. The spaces have a length of 5.4 metres, a width of 2.6 metres, accessed via a 6.0 metre aisle.

No changes are proposed to the existing staff car parking area, aside from the provision of a new access from Argyle Street, which is expected to continue to operate in a suitable manner. Egress from the car park is now proposed to occur via the Wonga Road access. A one lane accessway is provided along the southern boundary of the site, which has a width of 3.7 metres in accordance with the Australian Standard and widens to a two-way access east of the loading area.

Parking is provided along the southern and northern boundaries, which has been provided with a gravel surface, and will be managed by staff to ensure it operates in an efficient manner.

10.2 Bus Parking

The bus parking along Argyle Street will remain relatively unchanged and will continue to accommodate up to six buses. In order to prevent parents from parking within the bus parking area the width of the roadway has been narrowed to 6.9 metres.

Plans prepared by Bonacci show that allowance for four bus parking spaces is provided along Wonga Road, via two bus parking bays on either side of the road. The western bus bays have lengths of 15.0 metres, and are located on either side of the existing vehicle access of 15 Wonga Road. The eastern bus bay has a length of 30.0 metres, which is sufficient length to accommodate two buses. All bus bays have tapers on either side to allow efficient manoeuvring to/from Wonga Road.

A swept path assessment has been undertaken for all bus parking areas, presented in **Appendix E**, and demonstrates that buses are able to queue within the bus parking areas and manoeuvre to/from the road network in a suitable manner.

10.3 Taxi Drop-Off

A taxi drop-off area is provided along the northern boundary of the site for the special needs class. The taxi service will operate a mini-van. A swept path assessment has been provided in **Appendix E**, which demonstrates that the vehicle can manoeuvre through the drop-off area and exit the site in a forwards manoeuvre.

11. Parking Assessment

11.1 Development Control Plan Parking Requirements

The Wollondilly Development Control Plan, Volume 5 – Commercial and Community Uses, Part 2 – General Requirements for all Commercial and Community uses states at Section 2.10 Parking and Manoeuvring that schools shall provide the following parking:

Education Establishments – Schools (with students over 16 years of age):

- 1 car parking space per full time equivalent staff member; and
- 1 car parking space per 30 students; and
- 1 bicycle and 1 motorcycle space per 25 car parking spaces in excess of the first 25 car parking spaces.

On this basis, the school is to provide the following parking facilities based on a school roll of 1,580 students and 125 staff:

- 125 staff parking spaces;
- 53 student spaces;
- Four spaces for bicycles; and
- Four spaces for motorcycles.

The development proposal shows an intent to establish the following parking supply:

- 11 visitor parking spaces within the northern car park;
- 130 staff spaces in the existing south-western car park, the northern car parking area and along the new accessway accessed via Wonga Road.

Therefore, a total of 141 parking spaces are proposed to be provided on-site for staff and visitors, which exceeds the parking requirement for staff.

No parking is proposed for students which is proposed to be accommodated on-street, and no motorcycle parking is proposed which is expected to be accommodated within informal parking areas.

11.2 Other Policies and Guidelines

The Department of Education has its own set of guidelines, called the Educational Facilities Standards and Guidelines (EFSG). The EFSG are intended to assist those responsible for the management, planning, design, construction and maintenance of new and refurbished school facilities. In relation to the provision of staff parking on-site, the documents state:

‘In order to ensure that the available site area for teaching learning and play is maximised, to enable community use and to encourage the use of sustainable means of transport to and from the school, on school site parking should be kept to a minimum.’

In addition to the EFSG, Clause 4.8 of the Motor Vehicle Policy for NSW Government Agencies (April 2014) states:

'For 100% private use vehicles (whether owned, novated or 100% Departmental or Agency packaged) are not entitled to a parking space on Government leased or owned premises'

Therefore, the provision of no additional car parking on-site for students or parents as part of the proposal is assessed as being in line with these policies and guidelines.

11.3 Future Parking Demand Differential

The increase in parent and student parking will be accommodated on-street. The method for calculating each parking rate is described below, with the associated increase in demand shown within **Table 11**:

- The student parking rate is based on the travel mode survey results presented in Section 4.5;
- The travel mode surveys indicate that 22% of students are dropped off by their parents. Based on the parking survey results and our experience with similar education facilities, we estimate that the student occupancy for vehicles dropping-off and picking-up is approximately 1.3 students per vehicle. It is expected that the peak parking demand will be 20% and 30% of the total parent parking demand during the morning and afternoon peak periods, respectively.

Characteristic	Increase	Parking Rate	Demand
Parents	380 students	0.051 spaces per student	19 spaces
Students		0.024 spaces per student	9 spaces
Total			28 spaces

Table 11: Forecast Parking Demands

Therefore, the redevelopment of the school will result in an increase in the on-street parking demand of 28 spaces. The parking surveys presented in Section 4.4 indicate a low to moderate on-street parking demand, with a minimum of 73 and 33 parking spaces during the morning and afternoon peak periods. Therefore, the increase in parent and student parking demand can be accommodated within the on-street car parking within the immediate vicinity of the school.

11.4 Parking Conclusion

The staff and visitor parking demands are expected to be accommodated on-site. Based on the parking analysis the school will generate an additional on-street parking demand of 28 spaces. This can be accommodated within the surveyed parking area outlined within **Appendix A**. Given the additional access via Wonga Road and its proximity to the front of the school, it is likely/expected that a number of staff and students will choose to park in this area.

11.5 Green Travel Plan

In order to reduce the staff and student parking demand and drive a travel mode change, it is recommended that a Green Travel Plan be prepared for the school to ensure staff are utilising alternative transport modes to access the site.

A Green Travel Plan is a collection of initiatives and actions to encourage travel behaviour change. The plan will provide students, staff and parents with information on sustainable transport and encourages them to make alternative transport choices than the use of a private vehicle. The implementation of the Green Travel Plan will be highly relied upon and will need to contribute to and will need to drive delivery of reduced traffic congestion and parking demands, as the school intends to increase the student population 1,580 students.

11.6 Bus Parking Demand

The bus parking demand was observed to reach five spaces based on on-site observations. Given the school enrolment could increase from the existing 1,200 students to 1,380 students (an increase of 115%), the bus parking demand is likely to increase to approximately six buses.

The bus parking area adjacent to Argyle Street is proposed to accommodate six buses. Therefore, the bus parking area has sufficient capacity to accommodate the number of buses that will service the school. In the event that the bus parking area is full or during special events, the bus parking area via Wonga Road may be utilised.

12. Pedestrians Facilities

12.1 Argyle Street

The primary pedestrian access to the school via Argyle Street and the bus parking area has been redesigned as part of the redevelopment of the school to improve pedestrian access and provide a clear entrance for staff, students, and visitors.

The existing pedestrian crossing facility on Argyle Street has been removed as its previous location required pedestrians to cross the internal bus parking area. In order to accommodate pedestrian movements across Argyle Street, two new pedestrian crossings are proposed to the north of the site and between the two southern crossovers.

The sight distance required at pedestrian crossings is based on the Approach Sight Distance, outlined within *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*. For a 70km/h design speed the sight distance requirement is 92 metres. The available sight distances at the new pedestrian crossing facilities is:

- Northern Location: 150 metres to the north and 140 metres to the south;
- Southern Location: 150 metres to the north and 140 metres to the south.

Accordingly, the sight distance readily complies with the requirements of the Austroads Guide.

A pedestrian footpath is proposed on the western side of Argyle Street in the vicinity of the school in order to facilitate pedestrian movements for staff and students parking on the western side of the road, and the pedestrian crossing facilities.

12.2 Wonga Road

In order to facilitate pedestrian movements from the bus stops proposed along Wonga Road, pedestrian footpaths will be provided on both sides of the road. In addition, pedestrian crossing facilities will be provided across the school access to ensure pedestrians are able to cross in a safe environment.

12.3 Pedestrian Movements

During peak drop-off and pick-up times the school generates a number of pedestrian movements across Argyle Street. This is generated by students parking on Argyle Street, and parents picking up and dropping off their children. During these times Argyle Street typically operates at a low travel speed as a result of the 40km/h school zone speed, movements to/from the school driveway, and drivers stopping to allow pedestrians to cross Argyle Street.

Based on the parking surveys presented in Section 4 and the expected increase in parking demand generated by the redevelopment of the school, it is estimated that the school will generate approximately 12 and 11 additional pedestrian movements at the northern and southern pedestrian crossing, respectively, in the afternoon peak. The additional crossing manoeuvres will be less during the morning peak as parking is more readily available and

parents are more likely to choose to park on the eastern side of Argyle Street adjacent to the school.

The impact generated by these additional pedestrian movements is anticipated to be minimal given the low pedestrian volumes and low travel speed along Argyle Street during peak times.

13. Loading and Servicing

An area has been provided on-site for loading and service vehicles adjacent to Building O. The area has an approximate width of 15 metres and a length of 20 metres.

It is understood that the largest service vehicle to access the loading bay is a 12.5 metre long Heavy Rigid Vehicle (HRV as defined within AS 2890.2:2002). In addition, the loading area will also be accessed by school vehicles for various sporting activities. This includes mini-van with trailers.

In order to assess the ability for these vehicles to access the loading area, a swept path assessment has been undertaken using the software package 'AutoTurn'. The evaluation has assessed the ability for an HRV and a mini-van with a trailer to access the site, and is provided within **Appendix E**. The evaluation demonstrates that vehicles are able to enter and exit the site in a forward direction. As such, the loading area is able to accommodate the vehicles expected to use the facility.

14. Potential Community Use of the School

The table presented within **Appendix F** highlights potential community uses of Picton High School Facilities as guided by the Department of Education regarding Community Use of Schools Implementation Procedures. This table is a guide only and requires consultation with the school regrading which facilities can be used, types of use and hours of operation.

These uses will predominantly operate outside of school hours when the parking demand on-site and on-street will be much lower. Further, the traffic demands on the surrounding road network will also be lower.

The start and finish times for these events will typically not coincide with the school start and finish times and with other activities occurring at the school. Accordingly, it is concluded that the impacts of these activities will be minimal given the proposed operating times. In the event they do coincide with school times or other activities there is additional parking and traffic capacity in the vicinity of the site to accommodate the temporary increase in demand.

15. Construction Program

A detailed Construction Traffic Management Plan will be prepared at a later time for the operation of the temporary school during construction.

A Construction Traffic Management Plan (CTMP) is prepared to ensure that the impacts of the construction activities on the public domain and road network, in particular with respect to temporary interruptions to vehicular and pedestrian traffic are limited and acceptable.

The preparation of the CTMP would focus on the following topic:

- Overall principles of construction traffic management;
- Construction activities;
- Work zones;
- Construction hours of operation;
- Construction vehicle haulage routes;
- Construction traffic volumes;
- Traffic and pedestrian management;
- Traffic and parking impacts;
- Traffic control plan (TCP).

The principles of traffic management during construction activities includes the following:

- Minimising the impact of traffic and pedestrian movements;
- Maintaining appropriate public transport access;
- Minimising the impact to existing traffic and parking;
- Maintaining access to and from any adjacent properties;
- Restricting construction vehicle movements to designated RMS routes to and from the subject site;
- Ensuring construction activities is carried out in accordance with Council requirements.

15.1 Background and Construction Stages

The redevelopment will incorporate the reconfiguration of a new public entry and arrival forecourt, major site infrastructure upgrades and improved outdoor amenity across the school. This will occur in two construction stages:

- **Stage 1:** A temporary school will be established on-site. Wonga Road works will enable school access for the duration of the Stage 1 phase. In addition, all works associated with the redevelopment excluding the Hall refurbishment and associated external works;

- **Stage 2:** Refurbishment of the existing Hall and construction of all associated external works including COLA structures. Decommissioning of the temporary school and reinstatement of green space.

15.2 Construction Period Management

15.2.1 Construction Duration

The construction works (including demolition and deliveries of building materials and equipment) will be between Monday to Friday 7:00am to 5:00pm, and Saturday from 8:00am to 4:00pm. The school will remain in operation during the construction works.

The maximum sized design vehicle for the project is a truck and dog, although various types of trucks will visit the site. At most, typical construction vehicles are expected to generate up to two to three heavy vehicle movements per hour during major excavation works. This is not forecast to occur for extended periods.

15.2.2 Vehicle Movement

It is proposed that construction vehicles during the Construction phase will:

Stage 1:

- Arrive at the existing northern access via Argyle Street;
- Unload and load materials within the site boundary;
- Depart at the existing north west Argyle Street via Argyle Street.

Stage 2:

- Arrive and depart at the rear of the school via Wonga Road;
- Unload and load materials within the site boundary;
- Depart from the site travelling along Wonga Road to Argyle Street.

15.3 Wonga Road Works

During the Wonga Road construction works, students and staff will access the site via the existing access off Argyle Street. Once the Wonga Road construction works has been completed, school access will be from the rear of the site including pedestrian access, bus and car drop off and pick up. Once Stage 1 works are complete, school access will return to Argyle Street.

15.4 Pedestrian Management

During the construction works, pedestrian movements around the site will be maintained as much as possible. Where works require the closure of an existing pedestrian route, a suitable alternative is to be provided.

In the event that this access is used for by heavy vehicle access or egress during major construction works, a Traffic Controller must be present at all times to manage pedestrian movements across the driveway.

16. Summary and Conclusions

TDG NSW Pty Ltd has reviewed the traffic and parking matters of the proposed redevelopment of Picton High School. The redevelopment will increase the capacity of the school to 1,580 students and 125 staff, and will involve a major upgrade to the existing core facilities.

The redevelopment will incorporate a number of key changes to the traffic and parking features of the school. In particular, the existing bus drop-off/pick-up facility adjacent to Argyle Street will be redesigned, and a right turn lane will be provided from Argyle Street. A new access will also be provided via Wonga Road, which will accommodate additional bus parking, and provide access to the south-western staff parking area and loading area. A total of 141 parking spaces will be provided on-site.

Based on the above assessments, it is concluded that:

- The increase in the staff and student car parking demand is expected to be mitigated by the implementation of a Green Travel Plan;
- The proposed car park layout and access arrangements have been designed in accordance with the relevant standards and guidelines, and the swept path assessment demonstrates that suitable access is provided to/from the site and car parking and loading areas;
- The increased in on-street parking demand generated by students and parent drop-off / pick-up can readily be accommodated within the available parking within the vicinity of the school;
- The Argyle Street / Wonga Road intersection and the school access locations are expected to continue to operate with acceptable delays and queue lengths;
- A temporary school will be established on-site during the construction of the new school. During this time all vehicle movements, including buses, will occur via the new rear access. A Construction Traffic Management Plan is proposed to be prepared to assess the traffic and parking impacts of the proposal during construction.

Overall, it is concluded that the proposed redevelopment of the school can be accommodated within the surrounding traffic and parking environments.

TDG

Appendix A

Parking Surveys

Parking Survey



QUALITY ASSURED COMPANY BY AS/NZS ISO 9001:2008
OH&S SYSTEM CERTIFIED TO AS/NZS ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO AS/NZS ISO 14001:2004
JAS-ANZ ISO REGN. Number 3532, cm3 REGN. Number G054

Parking Occupancy Survey

Date:	Thursday, July 26, 2018
Location:	Picton High School
Weather:	Fine
Customer:	TDG

[illegible]

Appendix B

Guidelines for Evaluation of Intersection Capacity

The *RTA Guide to Traffic Generating Developments (October 2002, Issue 2.2)*, details the assessment of intersections. The assessment of the level of service of an intersection is based on the evaluation of the following Measures of Effectiveness:

- (a) Average delay (seconds/veh) (all forms of control)
- (b) Delay to critical movement (seconds/veh) (all forms of control)
- (c) Degree of saturation (traffic signals and roundabouts)
- (d) Cycle length (traffic signals)

SIDRA was used to calculate the relevant intersection parameters. The SIDRA software is an advanced lane-based micro-analytical tool for design and evaluation of individual intersections and networks of intersections including modelling of separate movement classes (light vehicles, heavy vehicles, buses, cyclists, large trucks, light rail / trams and so on). It provides estimates of capacity, level of service and a wide range of performance measures, including; delay, queue length and stops for vehicles and pedestrians, as well as fuel consumption, pollution emissions and operating costs.

It can be used to analyse signalised intersections (fixed-time / pretimed and actuated), signalised and unsignalised pedestrian crossings, roundabouts (unsignalised), roundabouts with metering signals, fully-signalised roundabouts, two-way stop sign and give-way / yield sign control, all-way stop sign control, single point interchanges (signalised), freeway diamond interchanges (signalised, roundabout, sign control), diverging diamond interchanges and other alternative intersections and interchanges. It can also be used for uninterrupted traffic flow conditions and merge analysis.

The best indicator of the level of service at an intersection is the average delay experienced by vehicles at that intersection. For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections (with Stop and Give Way signs or operating under the T-junction rule) the critical movement for level of service assessment should be that with the highest average delay.

With traffic signals, delays per approach tend to be equalised, subject to any over-riding requirements of signal co-ordination as well as to variations within individual movements. With roundabouts and priority - control intersections, the critical criterion for assessment is the movement with the highest delay per vehicle. With this type of control the volume balance might be such that some movements suffer high levels of delay while other movements have minimal delay. An overall average delay for the intersection of 25 seconds might not be satisfactory if the average delay on one movement is 60 seconds.

The average delay for level of service E should be no more than 70 seconds. The accepted maximum practical cycle length for traffic signals under saturated conditions is 120 - 140 seconds. Under these conditions 120 seconds is near maximum for two and three phase intersections and 140 seconds near maximum for more complex phase designs. Drivers and pedestrians expect cycle lengths of these magnitudes and their inherent delays in peak hours. A cycle length of 140 seconds for an intersection which is almost saturated has an average vehicle delay of about 70 seconds, although this can vary. If the average vehicle delay is more than 70 seconds, the intersection is assumed to be at Level of Service F.

Table B1 sets out average delays for different levels of service. There is no consistent correlation between definitions of levels of service for road links as defined elsewhere in this section, and the

ranges set out in Table B1. In assigning a level of service, the average delay to the motoring public needs to be considered, keeping in mind the location of the intersection. For example, drivers in inner urban areas of Sydney have a higher tolerance of delay than drivers in country areas. Table B1 provides a recommended baseline for assessment.

Level of Service	Average Delay per Vehicle (seconds/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 - 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, required other control mode

Table B1: Level of Service Criteria for Intersections

The figures in Table B1 are intended as a guide only. Any particular assessment should take into account site-specific factors including maximum queue lengths (and their effect on lane blocking), the influence of nearby intersections and the sensitivity of the location to delays. In many situations, a comparison of the current and future average delay provides a better appreciation of the impact of a proposal, and not simply the change in the level of service.

Appendix C

Concept of Carriageway Capacity and Level of Service

The capacity of major streets within an urban area can be based on an assessment of their operating Level of Service.

Level of service is defined within the *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis* as:

‘... a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety.’

Levels of service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) as follows:

LEVELS OF SERVICE

- A - Free flow (almost no delays)
- B - Stable flow (slight delays)
- C - Stable flow (acceptable delays)
- D - Approaching unstable flow (tolerable delays)
- E - Unstable flow (congestion; intolerable delays), and
- F - Forced flow (jammed)

A service volume, as defined by Austroads, is the maximum number of vehicles that can pass over a given section of roadway in one direction during one hour while operating conditions are maintained at a specified level of service. It is suggested that ideally arterial and sub-arterial roads should not exceed service volumes at level of service C. At this level, whilst most drivers are restricted in their freedom to manoeuvre, operating speeds are still reasonable and acceptable delays experienced. However, in urban situations, arterial and sub-arterial roads operating at Level of Service D are still considered adequate. Traffic volumes along urban roads with interrupted and uninterrupted flow conditions are included in **Table C1** and **C2** respectively.

	DESCRIPTION	LEVEL OF SERVICE					
		A	B	C	D	E	F
2U	2 Lane Undivided	540	630	720	810	900	-
4UP	4 Lane Undivided with Two Parking Lanes	540	630	720	810	900	-
4U	4 Lane Undivided with Some Parking	900	1050	1200	1350	1500	-
4UC	4 Lane Undivided with Clearways	1080	1260	1440	1620	1800	-
4D	4 Lane Divided with Clearways	1140	1330	1520	1710	1900	-
6U	6 Lane Undivided	1440	1680	1920	2160	2400	-
6D	6 Lane Divided with Clearway	1740	2030	2320	2610	2900	-

Table C1: Level of Service Interrupted Flow Conditions along Urban Roads (One Way Hourly Volumes)

	DESCRIPTION	LEVEL OF SERVICE					
		A	B	C	D	E	F
2U	2 Lane Undivided	760	880	1000	1130	1260	-
4U	4 Lane Undivided with Some Parking	1260	1470	1680	1890	2100	-
4UC	4 Lane Undivided with Clearways	1510	1760	2010	2270	2520	-
4DC	4 Lane Divided with Clearways	1600	1860	2130	2400	2660	-
4DCL	6 Lane Undivided with Clearways	2250	2620	3000	3380	3740	-
6DC	6 Lane Divided with Clearway	2440	2840	3250	3660	4060	-

Table C2: Level of Service Uninterrupted Flow Conditions along Urban Roads (One Way Hourly Volumes)

Appendix D

SIDRA Results

MOVEMENT SUMMARY



Site: 3 [AM 2018 - Base with existing School numbers]

AM 2018 - Base with existing School numbers
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	600	5.1	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	5	40.0	0.008	9.1	LOS A	0.0	0.3	0.50	0.63	49.5
Approach		605	5.4	0.318	0.1	NA	0.0	0.3	0.00	0.01	59.8
East: Wonga Road											
4	L2	5	60.0	0.010	14.2	LOS A	0.0	0.4	0.48	0.91	47.7
6	R2	60	7.0	0.148	15.8	LOS B	0.5	3.6	0.73	1.00	47.2
Approach		65	11.3	0.148	15.7	LOS B	0.5	3.6	0.71	1.00	47.2
North: Argyle Street											
7	L2	80	22.4	0.050	5.8	LOS A	0.0	0.0	0.00	0.57	52.7
8	T1	363	6.1	0.194	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		443	9.0	0.194	1.1	NA	0.0	0.0	0.00	0.10	58.5
All Vehicles		1114	7.2	0.318	1.4	NA	0.5	3.6	0.04	0.10	58.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: \\ausyd1s01\TDG\brSYD\OldData\Australia Business\Australia Jobs\14500 - 14999\14584 - Picton High School Redevelopment NSW - fOR BLP\Supporting Data\SIDRA\SIDRA Rev 02\14584sid01 km.sip7

MOVEMENT SUMMARY



Site: 3 [AM 2021 - plus School Expansion (1,580 students)]

AM 2021 - plus School Expansion (1,580 students)
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	691	5.2	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	7	28.6	0.009	8.4	LOS A	0.0	0.3	0.53	0.63	50.3
Approach		698	5.4	0.366	0.1	NA	0.0	0.3	0.01	0.01	59.8
East: Wonga Road											
4	L2	6	50.0	0.008	12.6	LOS A	0.0	0.3	0.51	0.85	48.9
6	R2	66	6.3	0.208	19.1	LOS B	0.7	5.1	0.80	1.02	45.4
Approach		73	10.1	0.208	18.5	LOS B	0.7	5.1	0.78	1.00	45.7
North: Argyle Street											
7	L2	87	22.9	0.055	5.8	LOS A	0.0	0.0	0.00	0.57	52.7
8	T1	423	6.2	0.226	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		511	9.1	0.226	1.0	NA	0.0	0.0	0.00	0.10	58.6
All Vehicles		1281	7.1	0.366	1.5	NA	0.7	5.1	0.05	0.10	58.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: \\ausyd1s01\TDG\brSYD\OldData\Australia Business\Australia Jobs\14500 - 14999\14584 - Picton High School Redevelopment NSW - fOR BLP\Supporting Data\SIDRA\SIDRA Rev 02\14584sid01 km.sip7

MOVEMENT SUMMARY



Site: 3 [PM 2018 - Base with existing School numbers]

Base with existing School numbers

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	391	4.9	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	21	20.0	0.046	12.1	LOS A	0.2	1.3	0.66	0.83	48.2
Approach		412	5.6	0.207	0.6	NA	0.2	1.3	0.03	0.04	59.2
East: Wonga Road											
4	L2	34	3.1	0.076	14.4	LOS A	0.2	1.8	0.65	1.00	48.2
6	R2	42	10.0	0.132	18.4	LOS B	0.4	3.2	0.78	1.00	45.7
Approach		76	6.9	0.132	16.7	LOS B	0.4	3.2	0.72	1.00	46.8
North: Argyle Street											
7	L2	59	16.1	0.035	5.7	LOS A	0.0	0.0	0.00	0.57	52.9
8	T1	689	5.3	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		748	6.2	0.366	0.5	NA	0.0	0.0	0.00	0.05	59.3
All Vehicles		1236	6.0	0.366	1.5	NA	0.4	3.2	0.06	0.10	58.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY



Site: 3 [PM 2021 - plus School Expansion (1,580 students)]

PM 2021 - plus School Expansion (1,580 students)
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	466	5.0	0.247	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	24	17.4	0.044	11.4	LOS A	0.2	1.3	0.68	0.83	48.6
Approach		491	5.6	0.247	0.6	NA	0.2	1.3	0.03	0.04	59.3
East: Wonga Road											
4	L2	47	6.7	0.073	13.0	LOS A	0.3	2.0	0.64	0.98	49.2
6	R2	54	7.8	0.221	23.2	LOS B	0.7	5.4	0.85	1.02	43.2
Approach		101	7.3	0.221	18.4	LOS B	0.7	5.4	0.75	1.00	45.8
North: Argyle Street											
7	L2	64	16.4	0.039	5.7	LOS A	0.0	0.0	0.00	0.57	52.9
8	T1	780	5.5	0.414	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		844	6.4	0.414	0.5	NA	0.0	0.0	0.00	0.04	59.3
All Vehicles		1436	6.2	0.414	1.8	NA	0.7	5.4	0.06	0.11	58.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

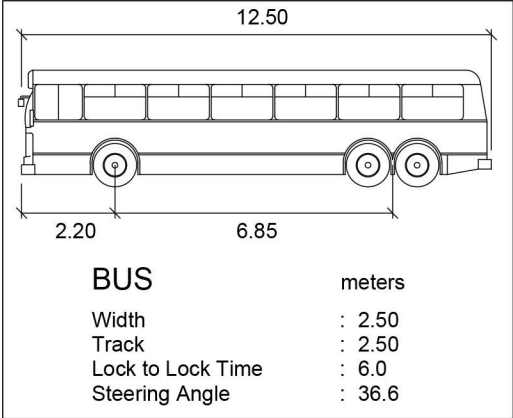
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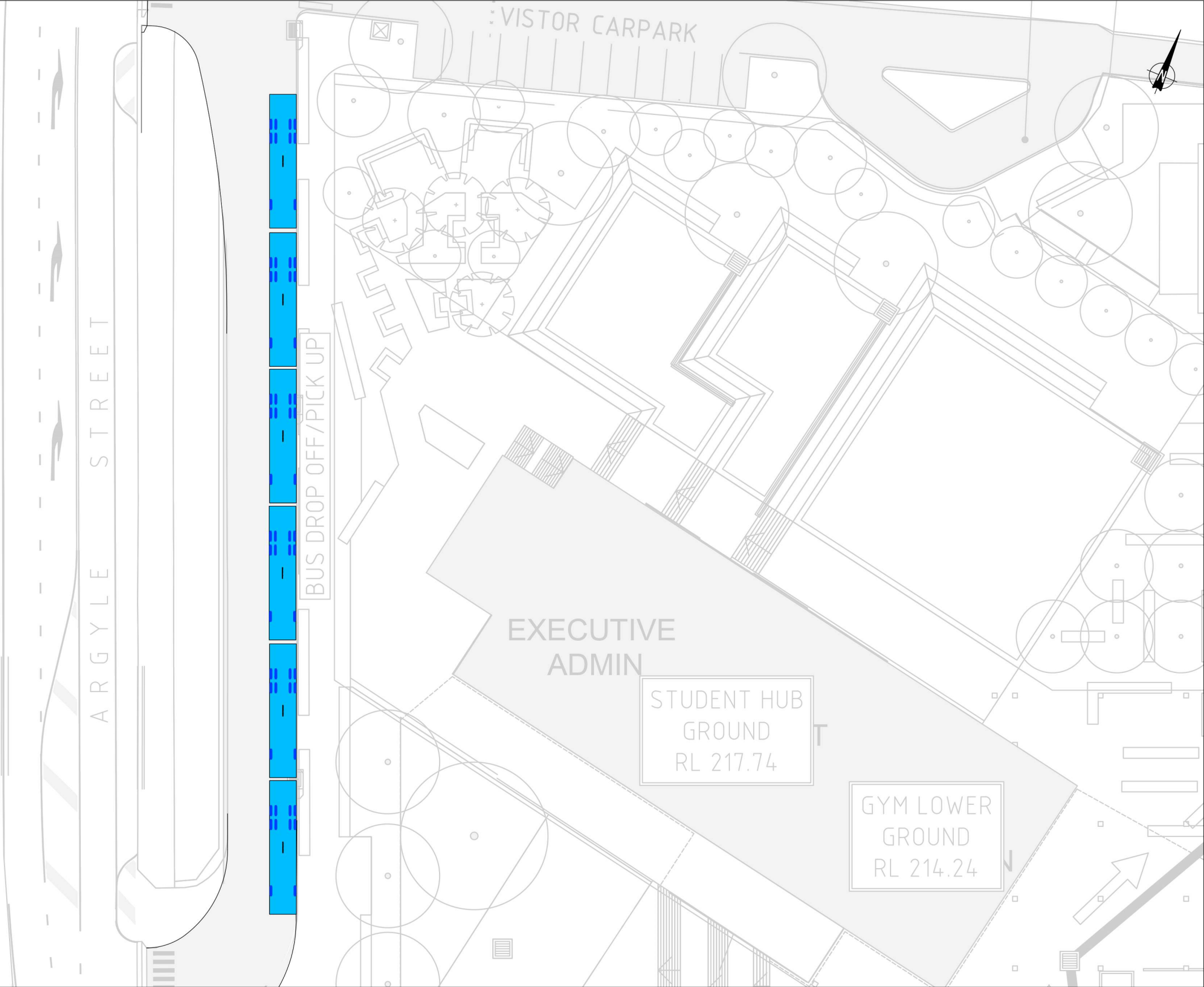
Project: \\ausyd1s01\TDG\brSYD\OldData\Australia Business\Australia Jobs\14500 - 14999\14584 - Picton High School Redevelopment NSW - fOR BLP\Supporting Data\SIDRA\SIDRA Rev 02\14584sid01 km.sip7

Appendix E

Swept Path Assessment



Monday, July 16, 2018 17:02:01

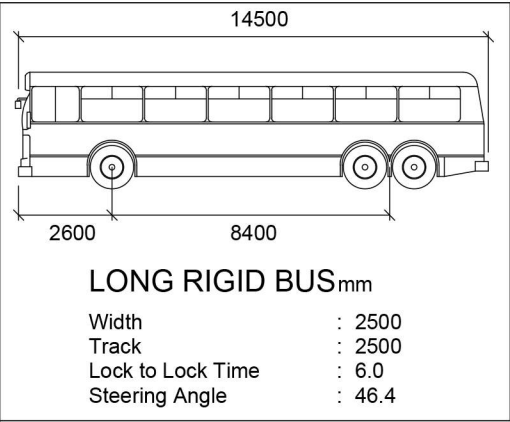


REV	DATE	DRN	CHK	DESCRIPTION
00	16/07/18	TJG	---	---
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---	---	---	---	---
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---	---	---	---	---
---	---	---	---	---

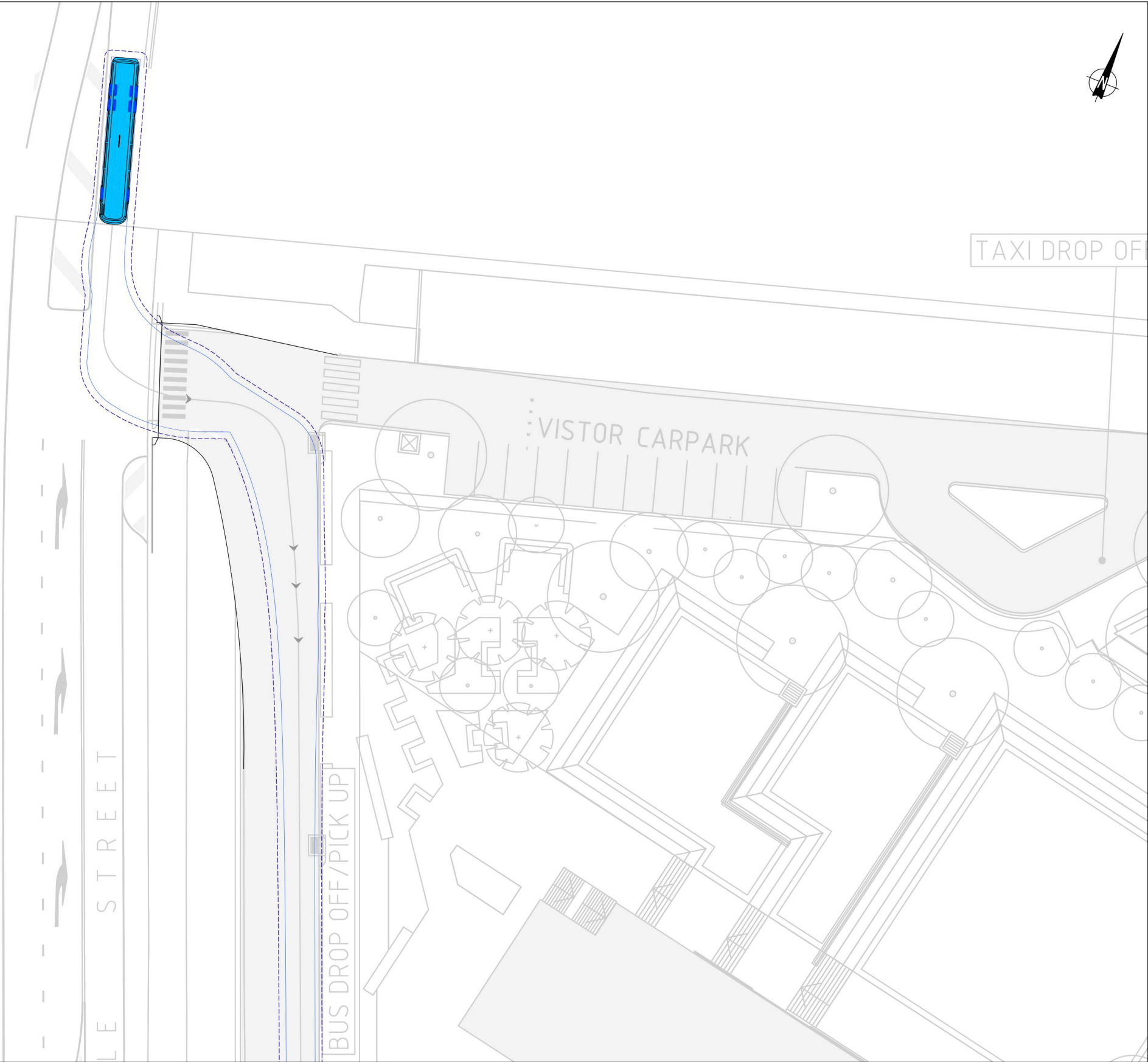
Picton High School
Swept Path Assessment
On-site Bus Parking

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		





TAXI DROP OFF



Monday, July 16, 2018 17:02:01

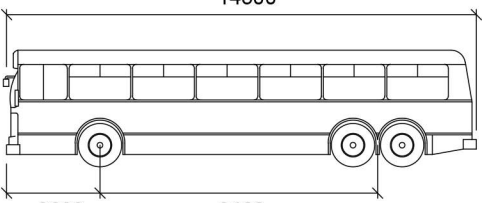
REV	DATE	DRN	CHK	DESCRIPTION
00	16/07/18	TJG	---	---
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---	---	---	---	---
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Picton High School
Swept Path Assessment
14.5m Bus Entry - Left Turn

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		



14500



26008400

LONG RIGID BUS_{mm}

Width

:

2500

Track

:

2500

Lock to Lock Time

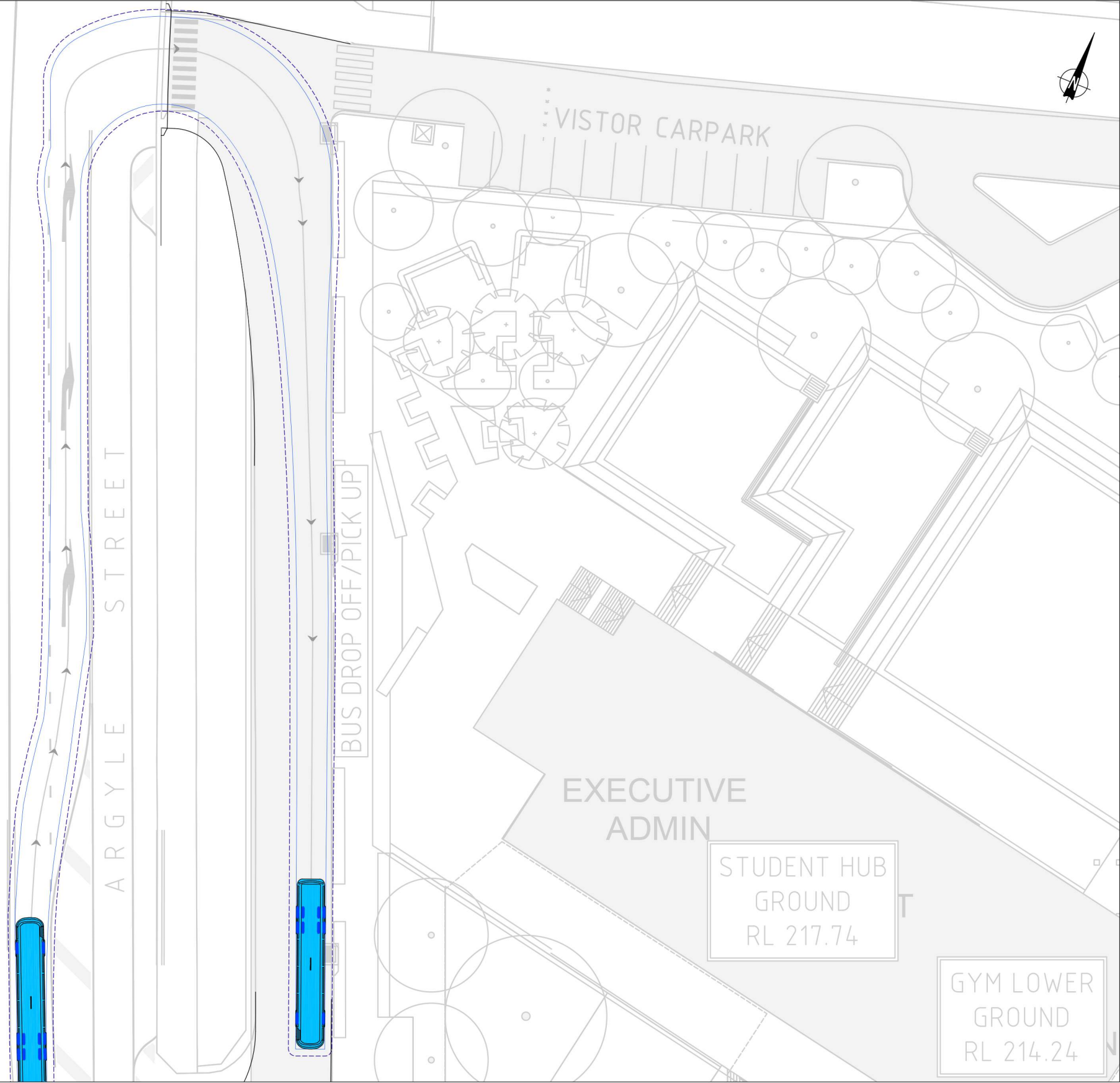
:

6.0

Steering Angle

:

46.4



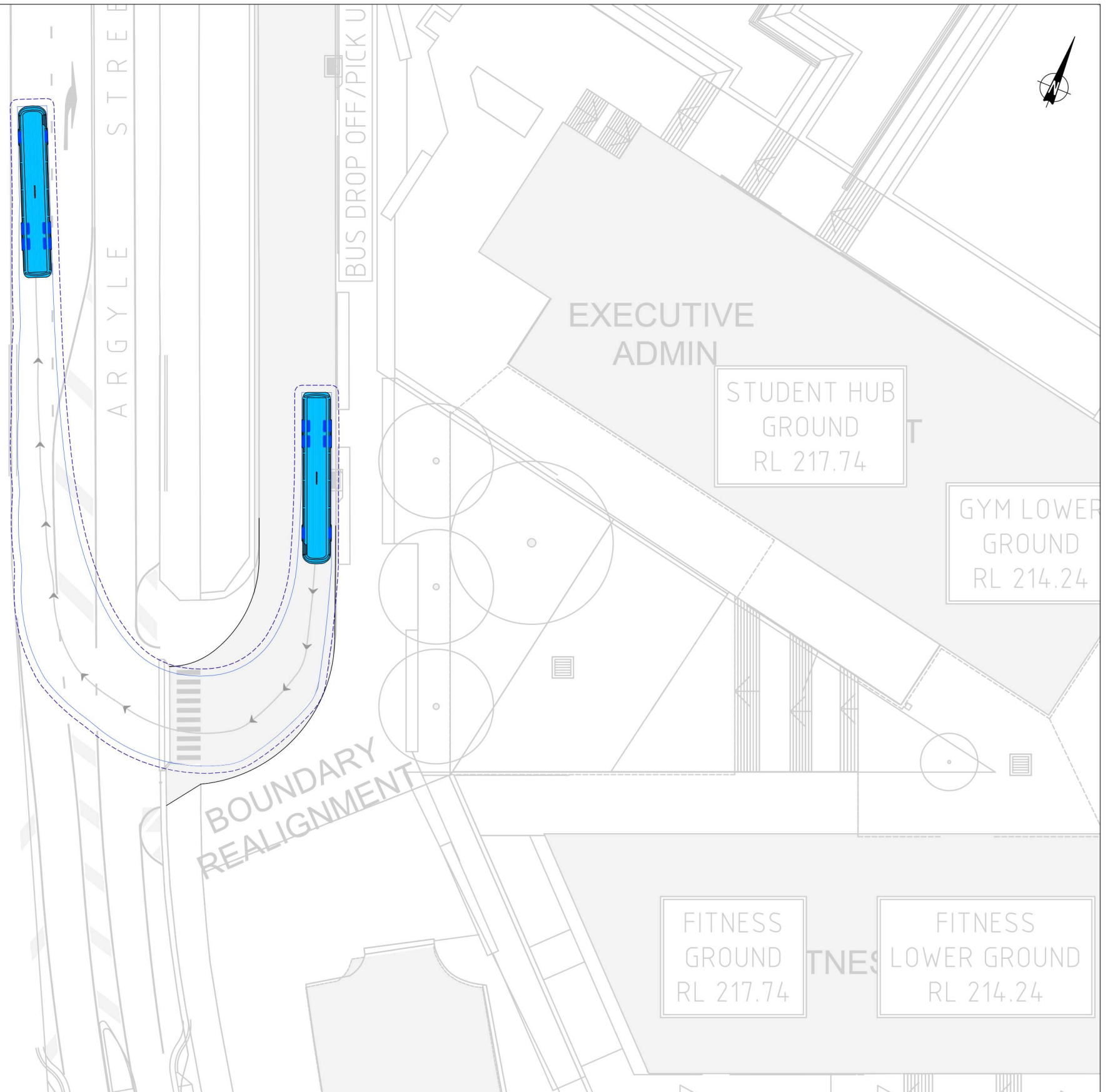
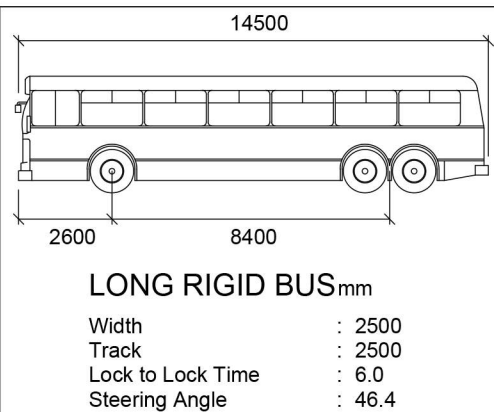
Monday, July 16, 2018 17:02:01

REV	DATE	DRN	CHK	DESCRIPTION
00	16/07/18	TJG	---	---
---	---	---	---	---
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---	---	---	---	---
---	---	---	---	---

Picton High School
Swept Path Assessment
14.5m Bus Entry - Right Turn

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		

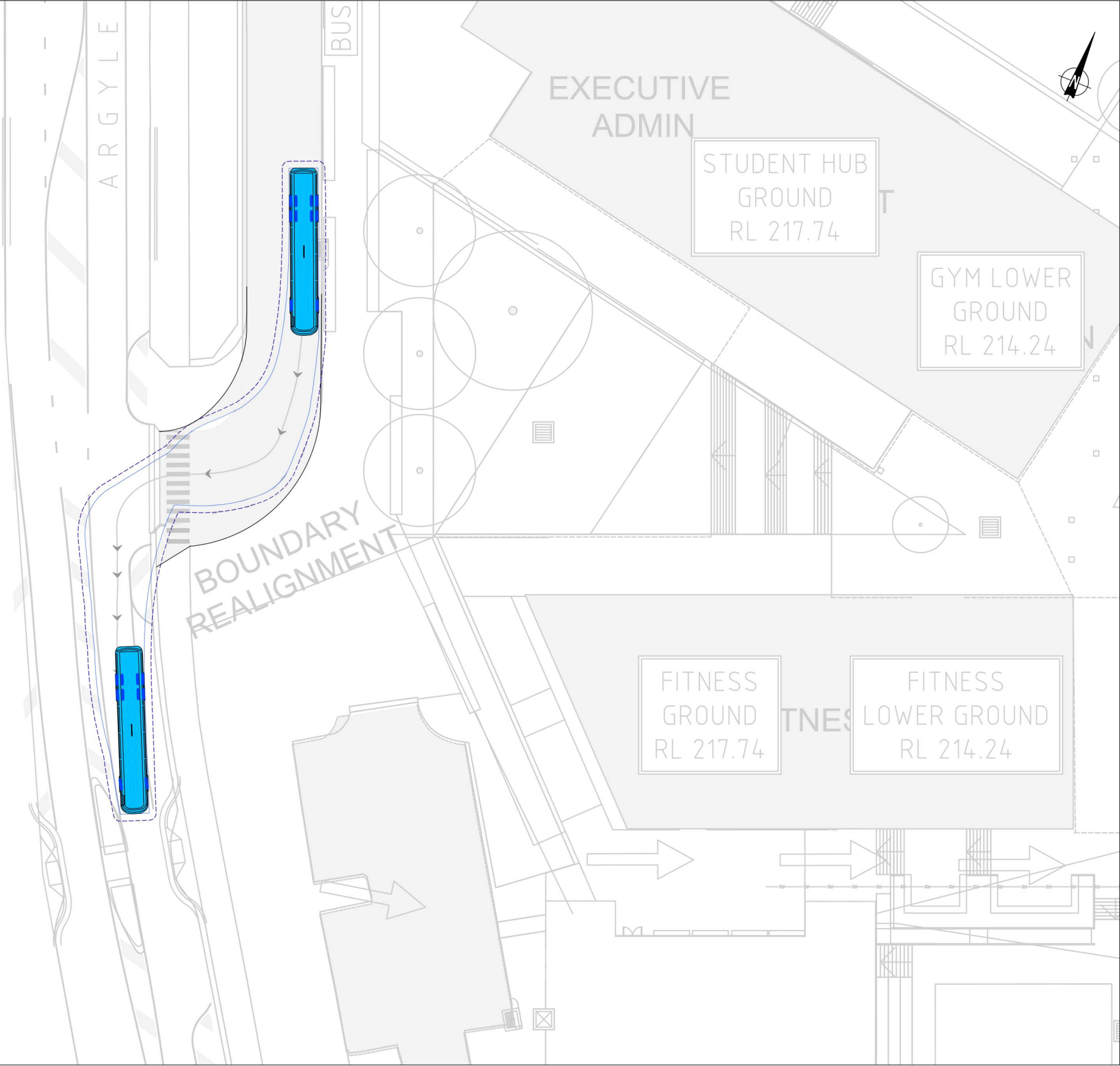
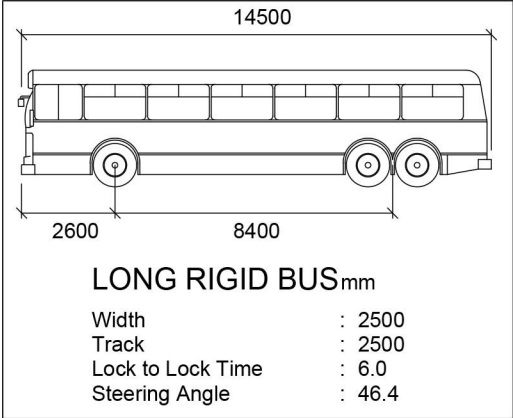


[illegible]

Picton High School
Swept Path Assessment
14.5m Bus Exit - Right Turn

DRAWN: T.JG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		





Monday, July 16, 2018 17:02:01

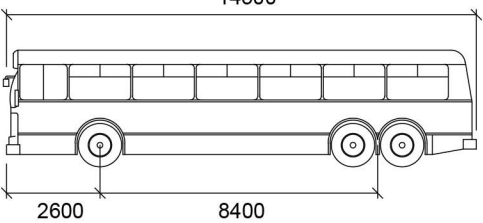
REV	DATE	DRN	CHK	DESCRIPTION
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Picton High School
Swept Path Assessment
14.5m Bus Exit - Left Turn

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		



14500



26008400

LONG RIGID BUS_{mm}

Width

: 2500

Track

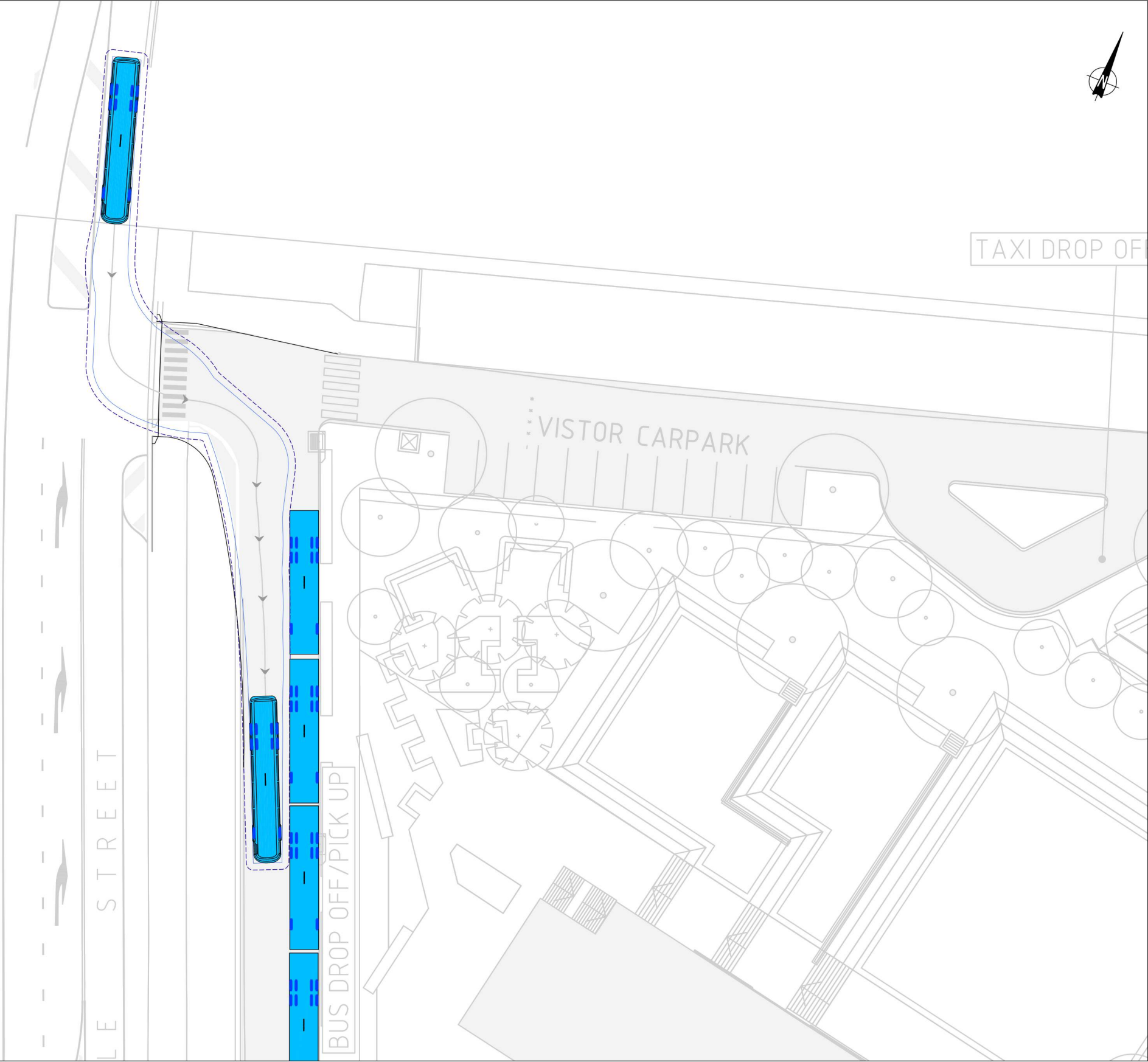
: 2500

Lock to Lock Time

: 6.0

Steering Angle

: 46.4



Monday, July 16, 2018 17:02:01

REV	DATE	DRN	CHK	DESCRIPTION
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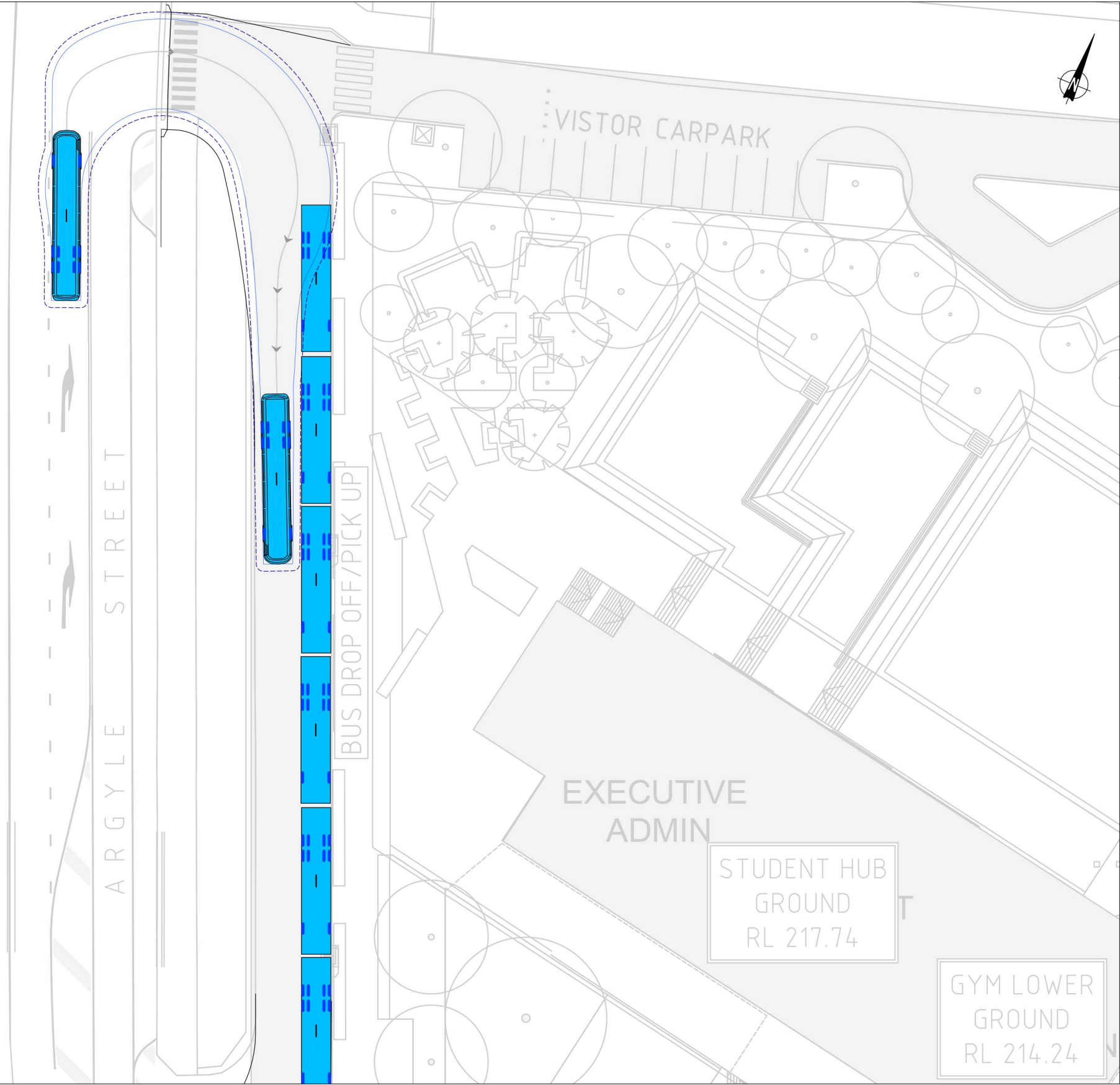
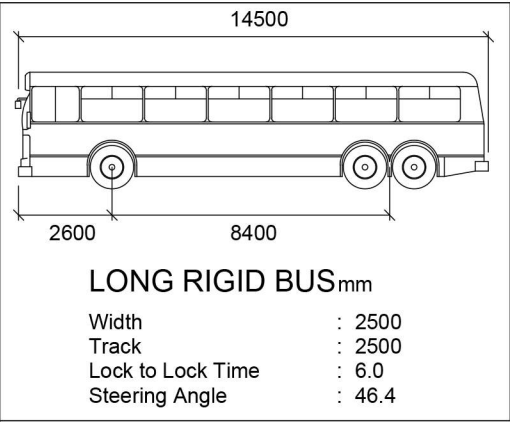
Picton High School

Swept Path Assessment

14.5m Bus Entry - Left Turn (Circulating Lane)

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		





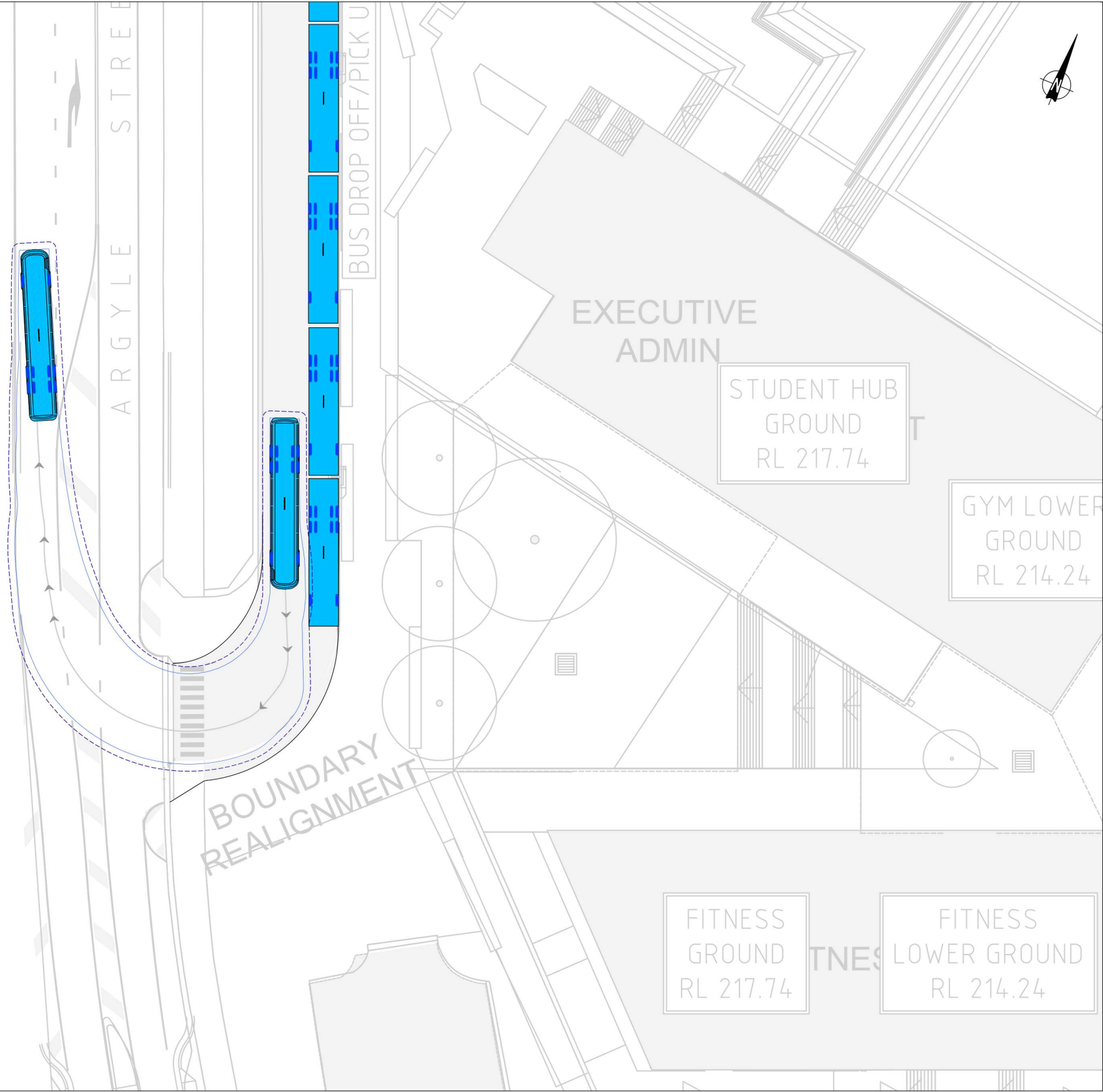
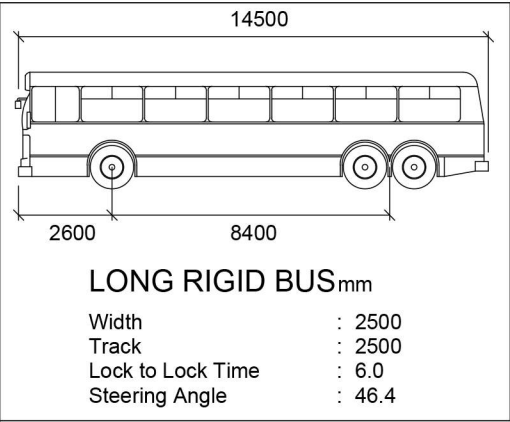
Monday, July 16, 2018 17:02:01

REV	DATE	DRN	CHK	DESCRIPTION
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Picton High School
Swept Path Assessment
14.5m Bus Entry - Right Turn (Circulating Lane)

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		





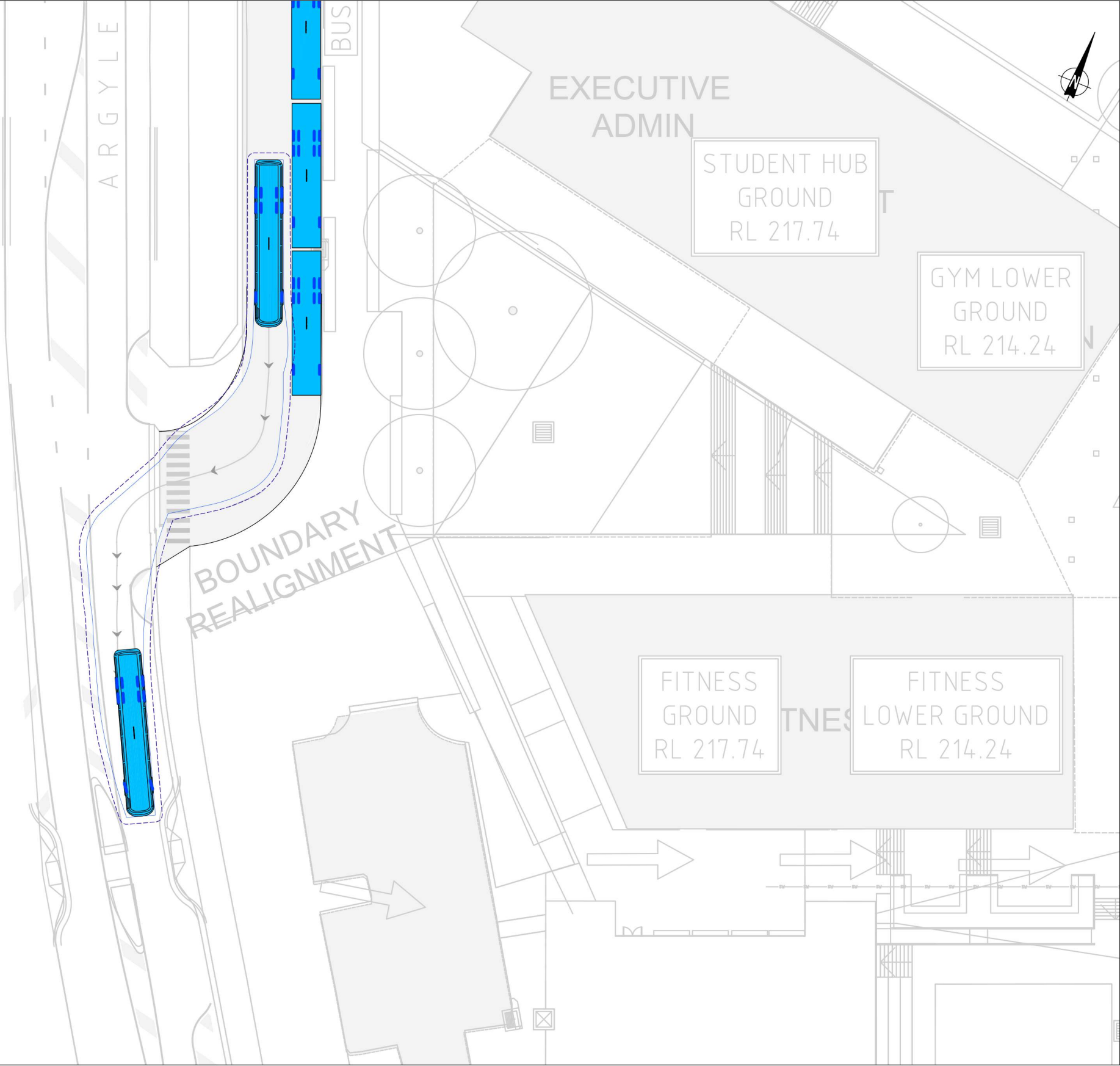
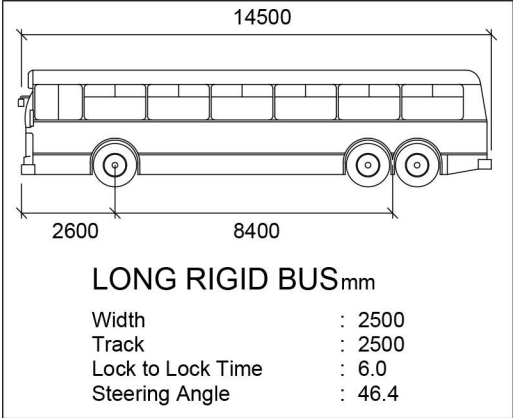
Monday, July 16, 2018 17:02:01

REV	DATE	DRN	CHK	DESCRIPTION
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Picton High School
Swept Path Assessment
14.5m Bus Exit - Right Turn (Circulating Lane)

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	
SCALE: 1:400 @ A3		
DWG NO:14584-0S2C		





Monday, July 16, 2018 17:02:01

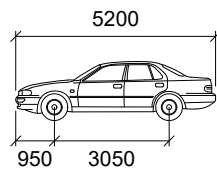
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---	---	---	---	---

Picton High School
Swept Path Assessment
14.5m Bus Exit - Left Turn (Circulating Lane)

DRAWN: TJG	---	---
DATE: 16/07/18	STATUS: ---	---
SCALE: 1:400 @ A3	---	---
DWG NO:14584-0S2C	---	---

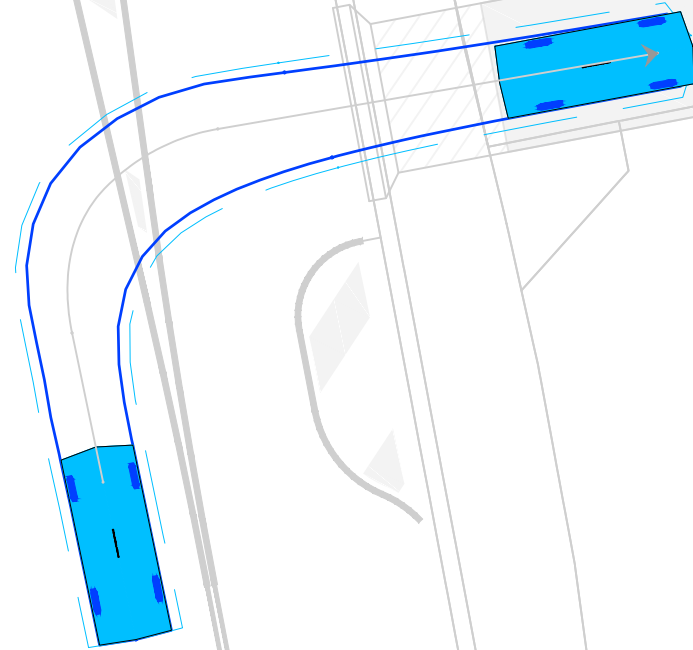
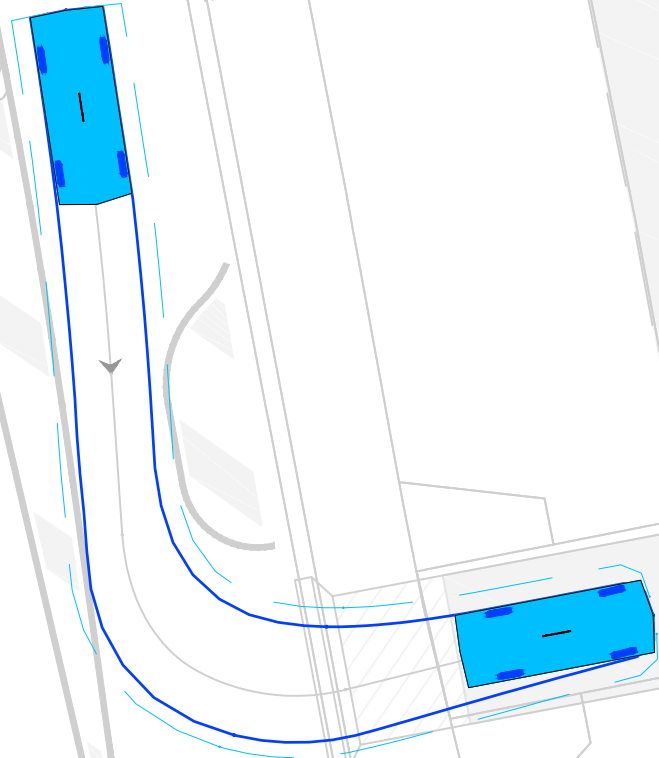


Tuesday, February 20, 2018 16:16:56



B99

Width : 1940 mm
Track : 1840 mm
Lock to Lock Time : 6.0
Steering Angle : 33.9

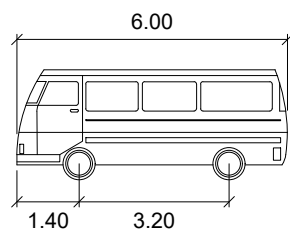


REV	DATE	DRN	CHK	DESCRIPTION
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Picton High School
Swept Path Assessment
Southern Access - B99 Vehicle - Entry from North / South

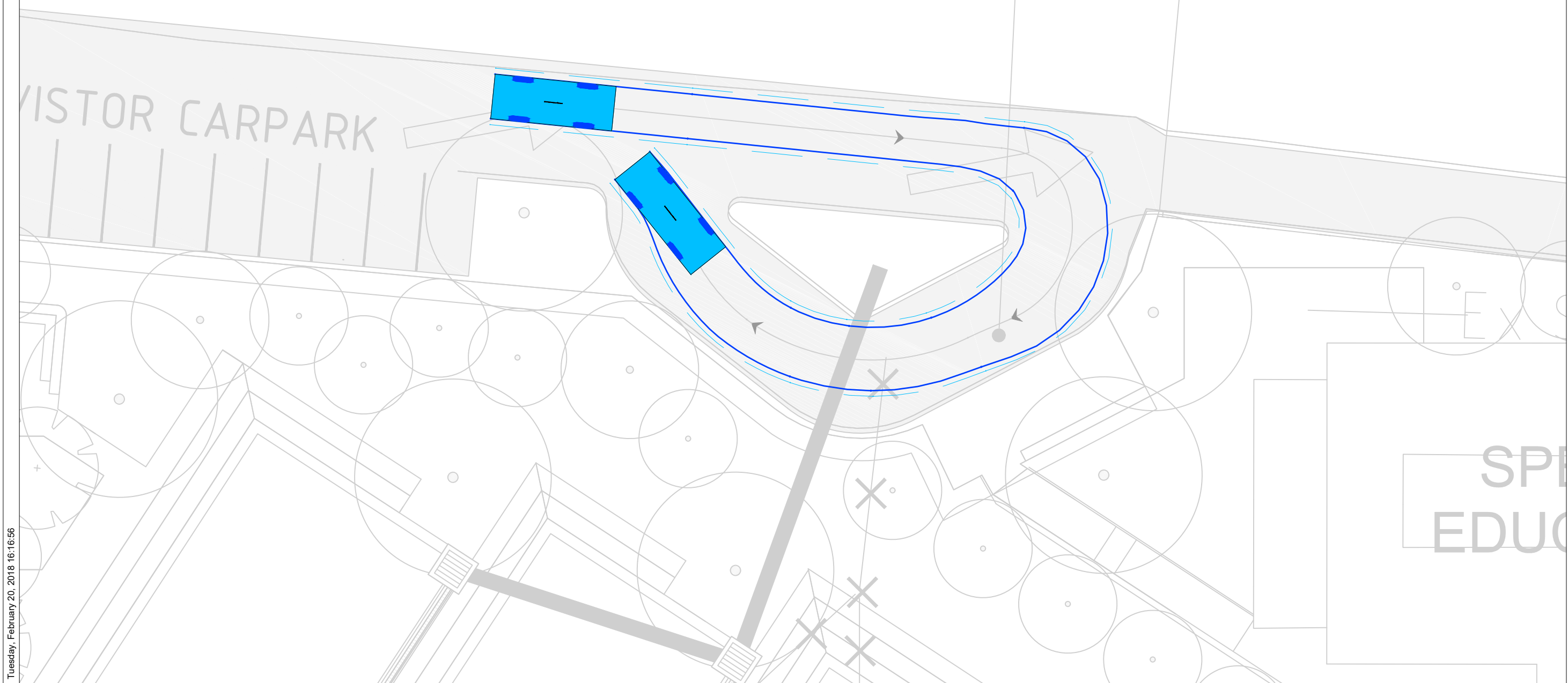
DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO:14584-0S2B		





6M VAN	metres
Width	: 2.20
Track	: 2.20
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

TAXI DROP OFF/PICK UP



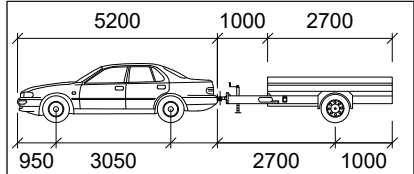
Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	----	----

Picton High School
Swept Path Assessment
6m Van - Circulation

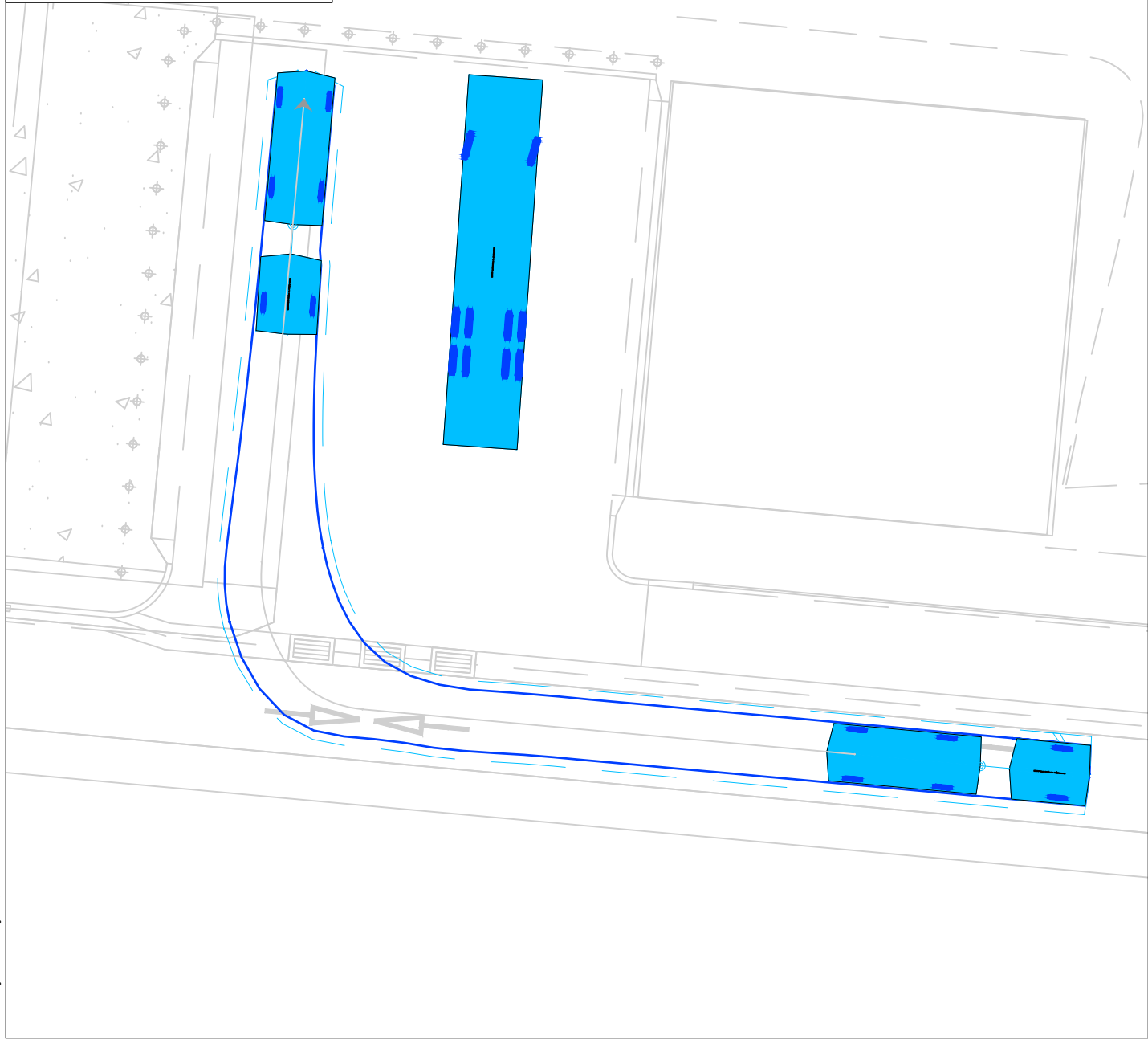
DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	---
SCALE: 1:200 @ A3	---	---
DWG NO: 14584-0S2B	---	---





B99 Vehicle + trailer

	mm
Car Width	: 1940
Trailer Width	: 2050
Car Track	: 1840
Trailer Track	: 1840
Lock to Lock Time	: 4.0
Steering Angle	: 33.9
Articulating Angle	: 70.0



Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	---	---

Picton High School
 Swept Path Assessment
 Loading Area - B99 Vehicle + Trailer - Entry / Exit

DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	---
SCALE: 1:200 @ A3	---	---
DWG NO: 14584-0S2B	---	---



12500

2400 6600

HRV

Width

Track

Lock to Lock Time

Steering Angle

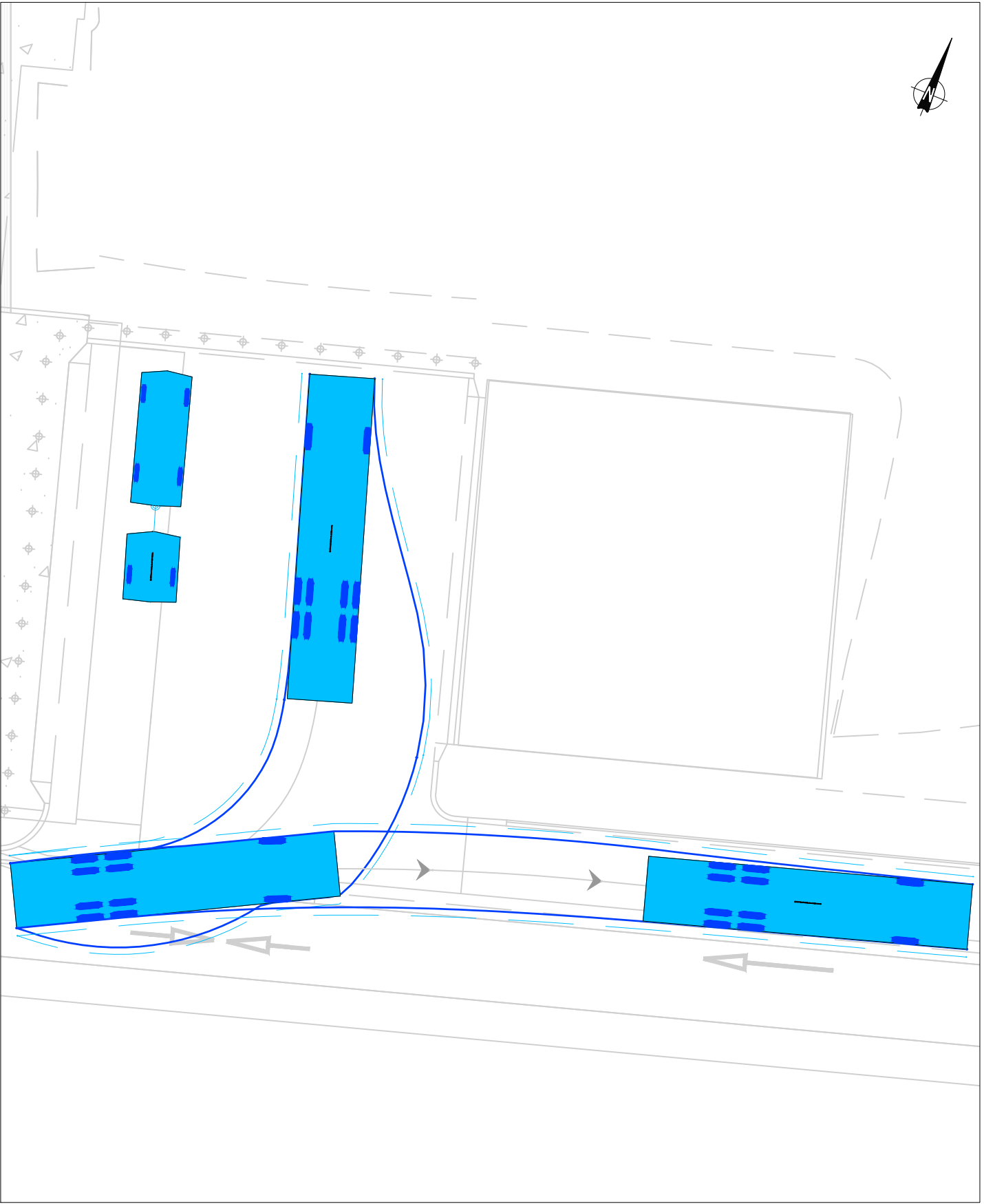
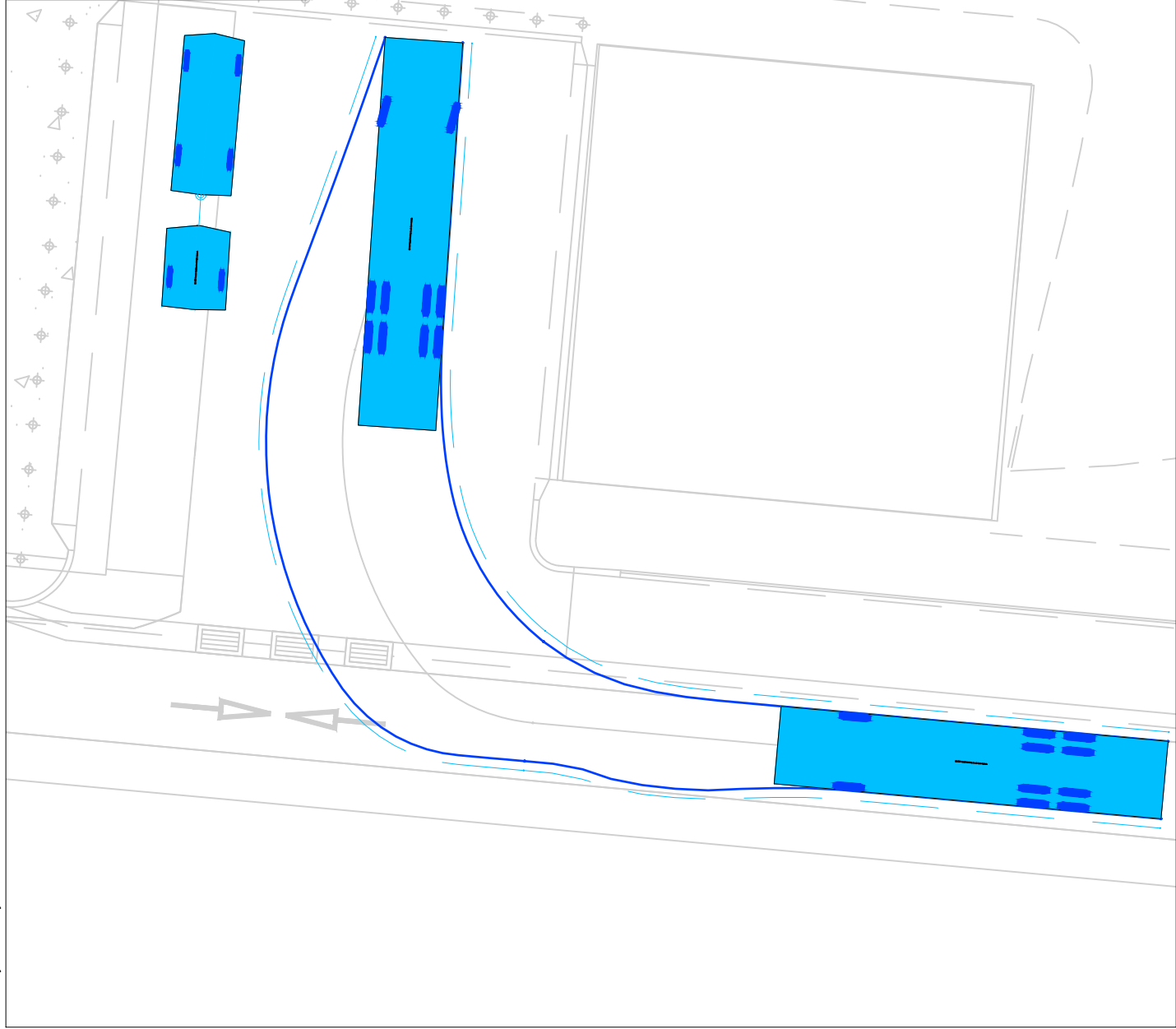
mm

: 2500

: 2500

: 6.0

: 35.2



Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	----	----

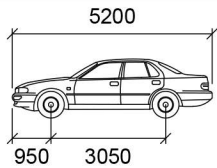
Picton High School

Swept Path Assessment

Loading Area - Heavy Vehicle (HRV) - Entry / Exit

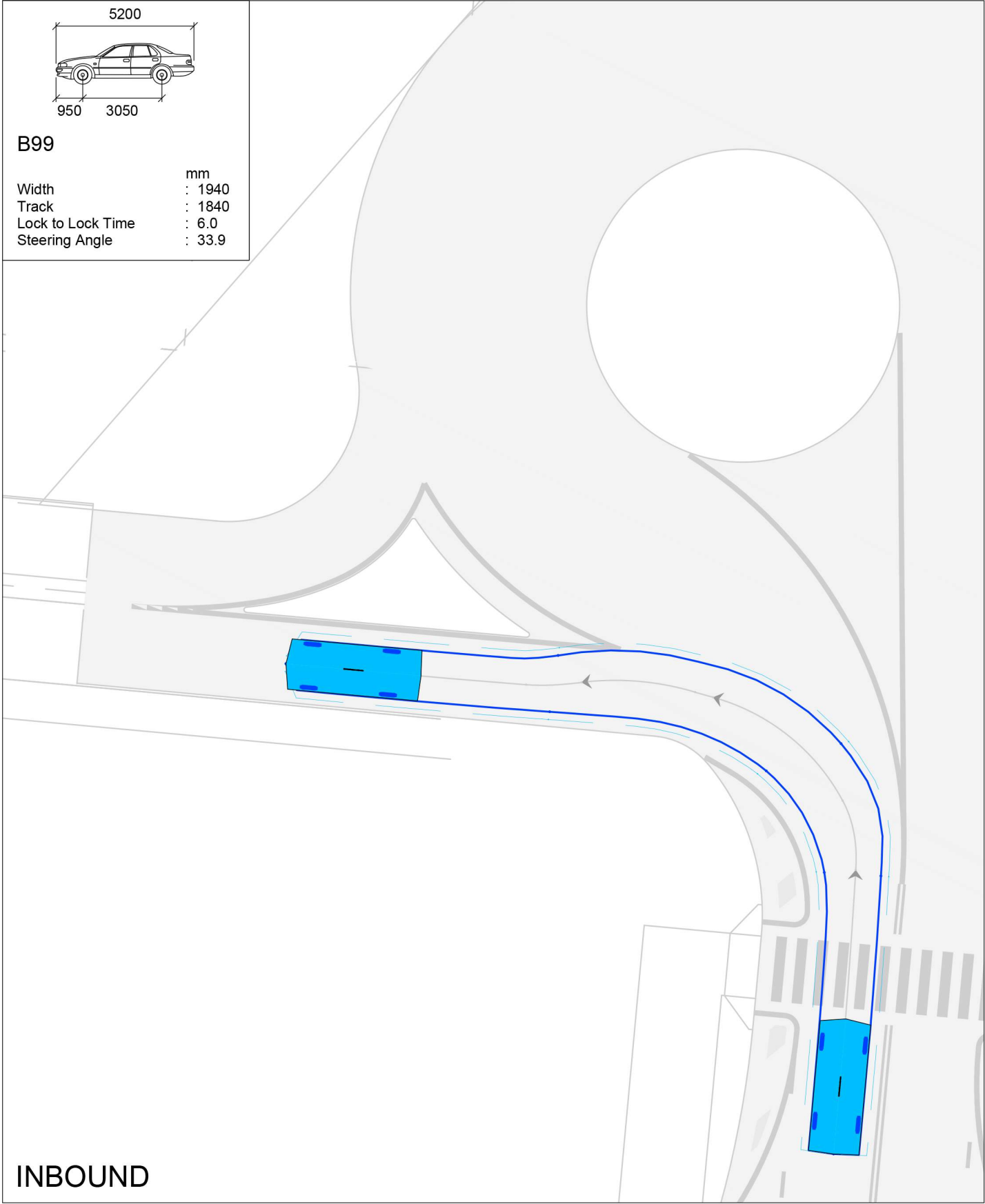
DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO:14584-0S2B		



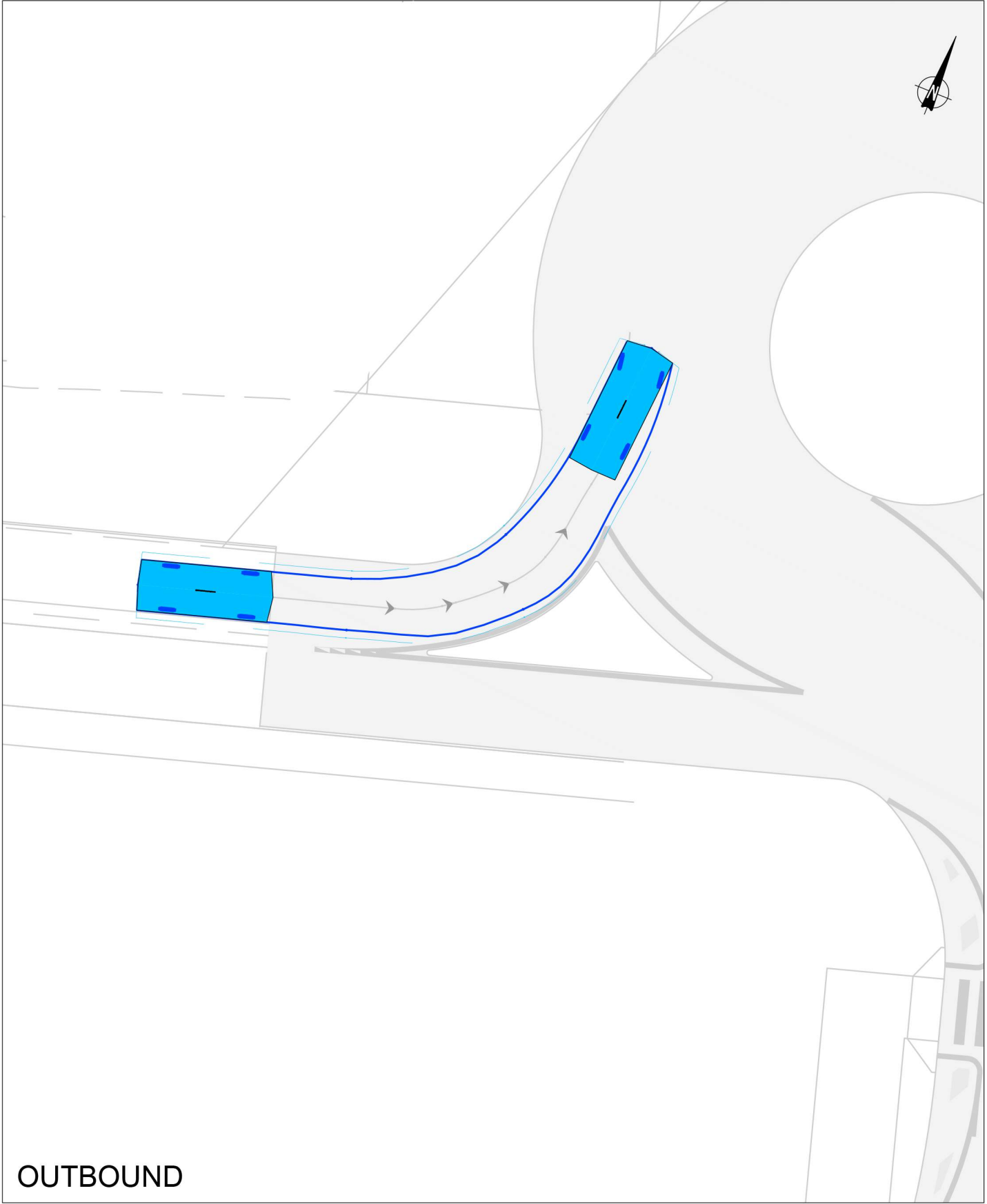


B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



INBOUND



OUTBOUND

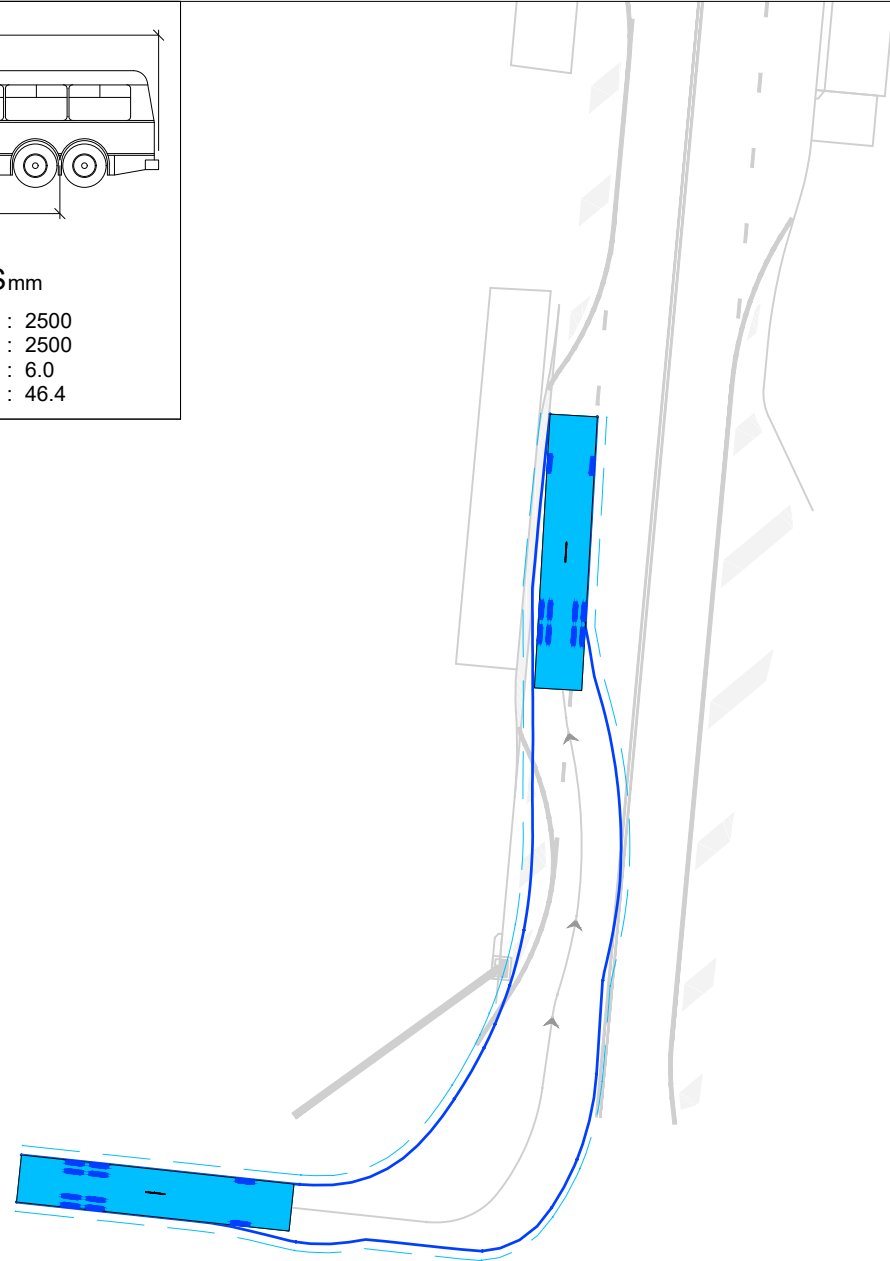
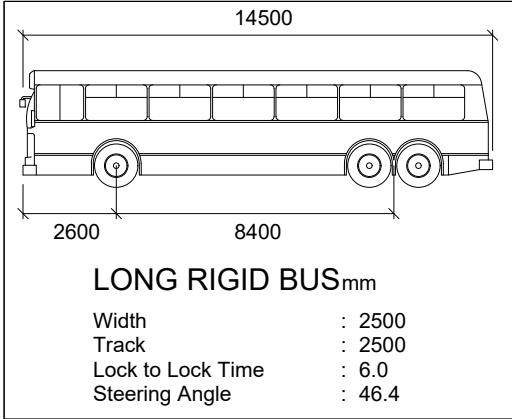
Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	---	---
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Picton High School
Swept Path Assessment
Wonga Road Access - B99 Entry / Exit

DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO:14584-0S2B		





INBOUND



OUTBOUND

Tuesday, February 20, 2018 16:16:56

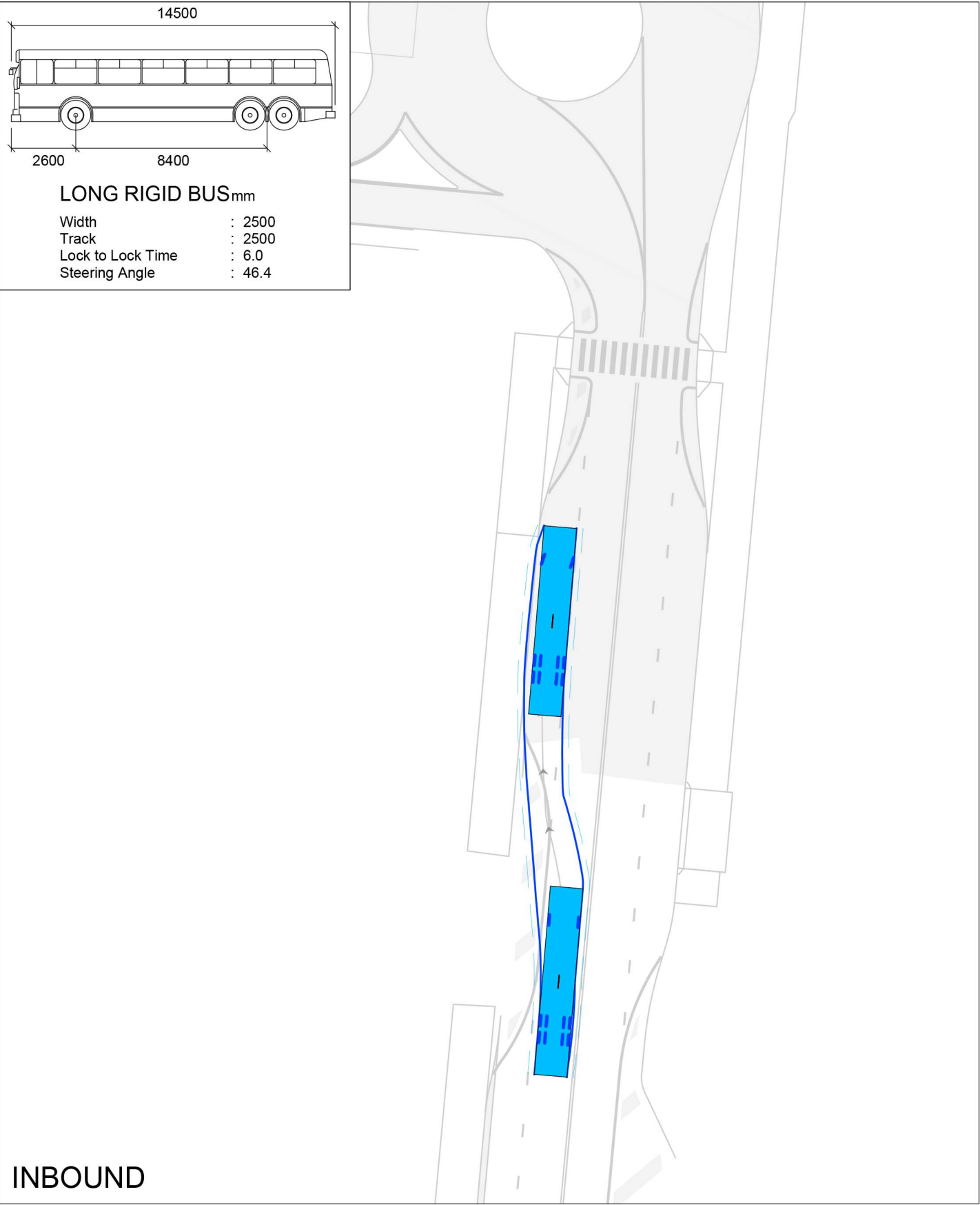
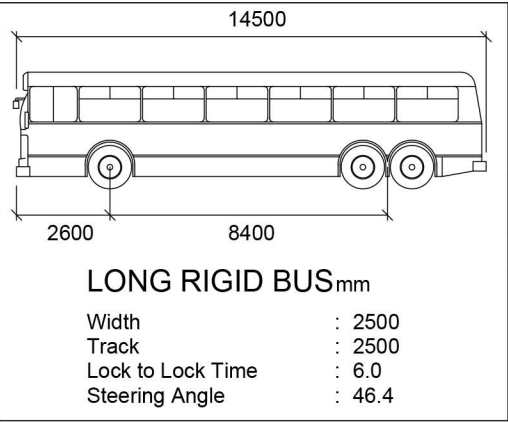
REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	----	----
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Picton High School
Swept Path Assessment
Wonga Road Access - 14.5m Bus - Bus Bay 1 Entry / Exit

DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO: 14584-0S2B		



11



INBOUND



OUTBOUND

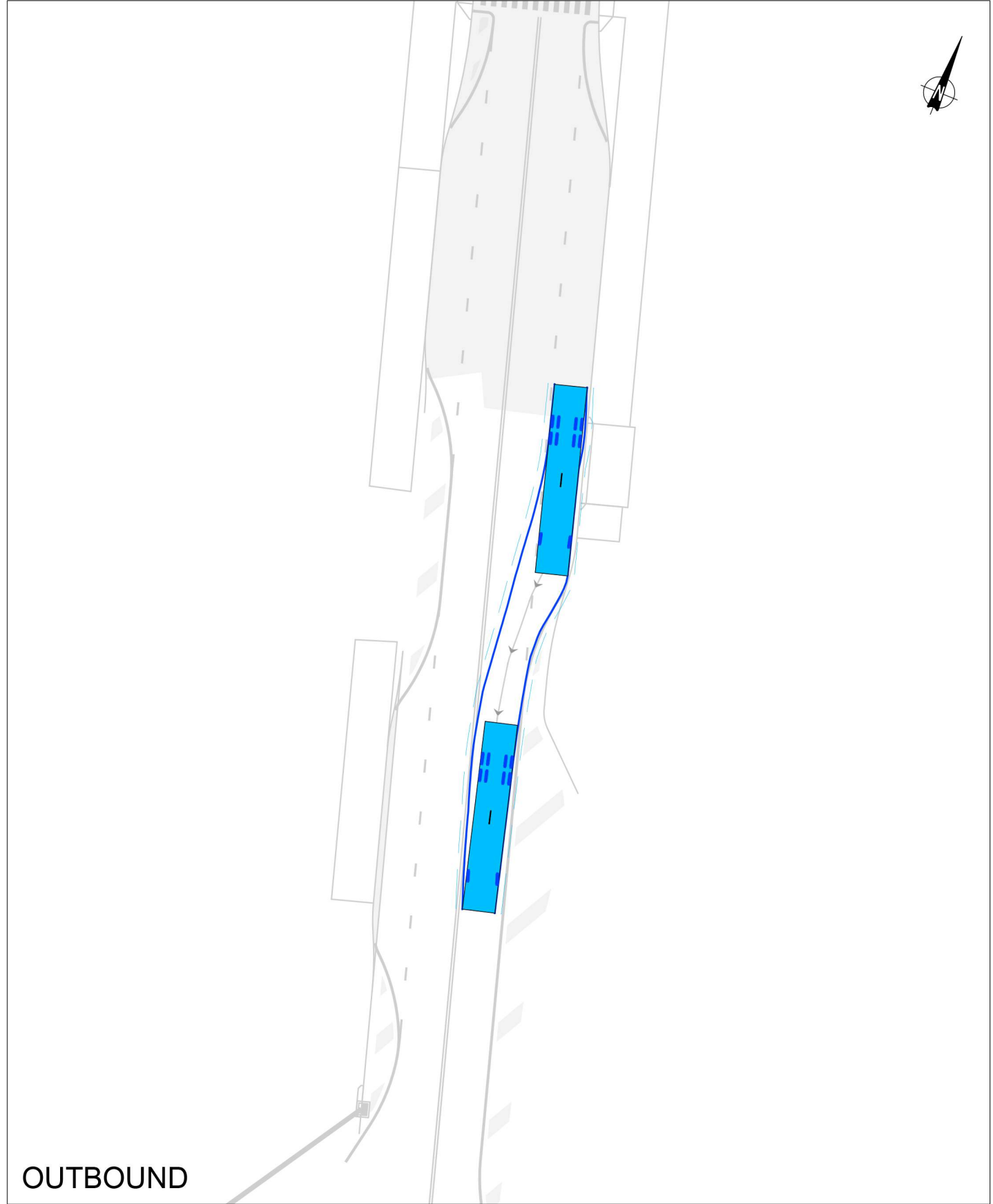
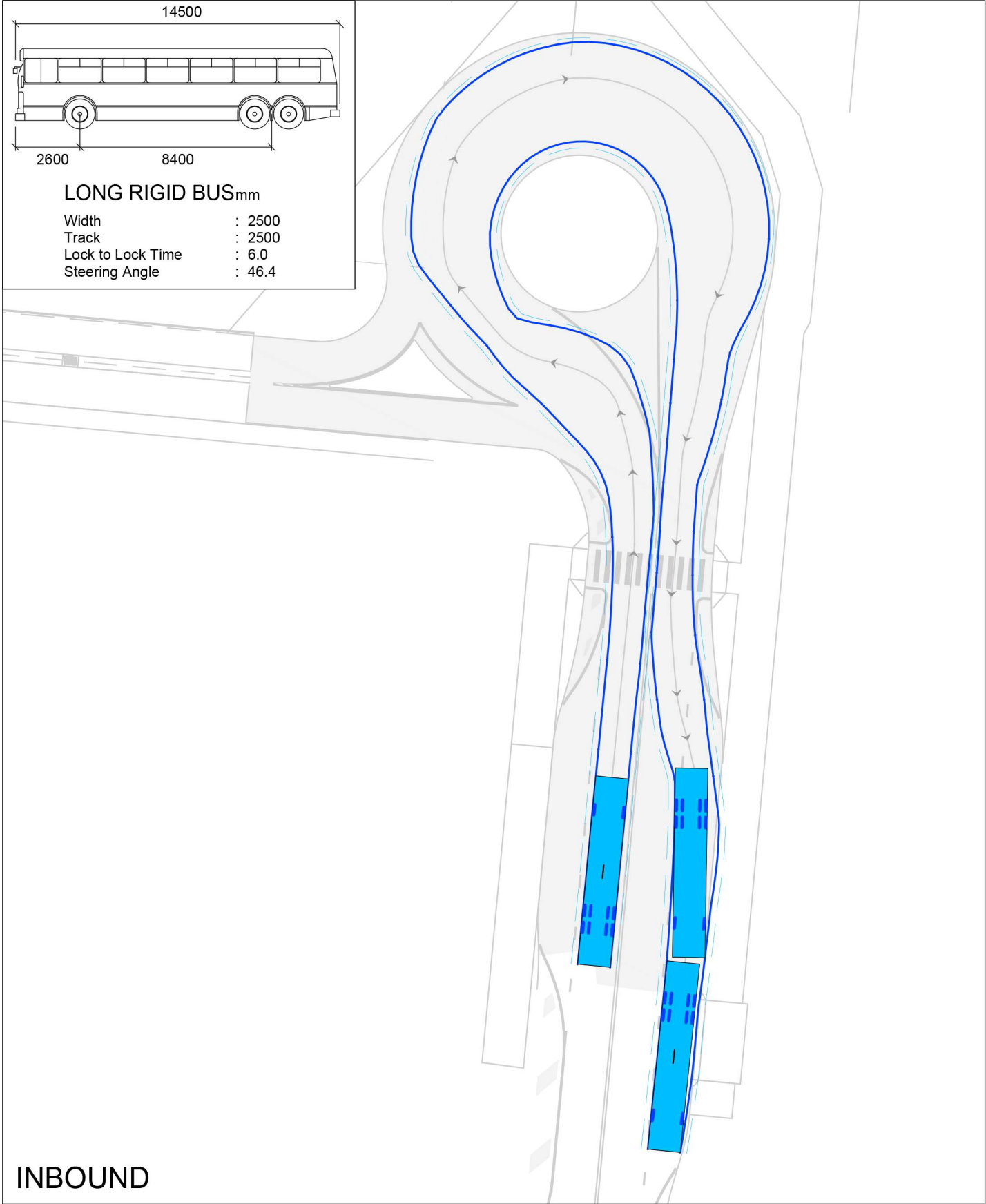
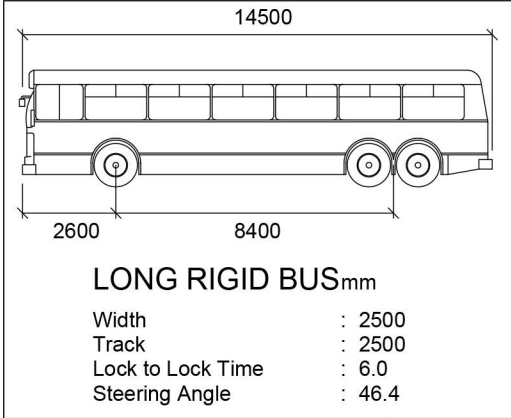
Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	---	---
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Picton High School
Swept Path Assessment
Wonga Road Access - 14.5m Bus - Bus Bay 2 Entry / Exit

DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO:14584-0S2B		





Tuesday, February 20, 2018 16:16:56

REV	DATE	DRN	CHK	DESCRIPTION
00	22/02/18	TJG	---	---
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---	---	---	---	---

Picton High School
Swept Path Assessment
Wonga Road Access - 14.5m Bus - Bus Bay 3 Entry / Exit

DRAWN: TJG	---	---
DATE: 22/02/18	STATUS: ---	
SCALE: 1:200 @ A3		
DWG NO: 14584-0S2B		



Appendix F

Potential Community Use

School Facilities	Types of Functions/Activities	Indoor/Outdoor	Occupancy	Hours of Operation
Hall	<ul style="list-style-type: none"> Community Language Schools Dance, music or drama lessons Community education and training Community productions Community Meetings Sporting events Vacation Care 	Indoor	Max 200 approx	<p>School Hours: 8:00am – 4pm</p> <p>After School Hours 4:00pm – 10:00pm (Times are indicative only and will have to be confirmed with school)</p>
Performance/Fitness Hub Performance Workshop	<ul style="list-style-type: none"> Community Language Schools Dance, music or drama lessons Community education and training Community productions Community Meetings 	Indoor	<p>Fitness and Performance Hub: Max 120 approx.</p> <p>Performance Workshop Max: 75 approx</p>	<p>School Hours: 8:00am – 4pm</p> <p>After School Hours 4:00pm – 10:00pm (Times are indicative only and will have to be confirmed with school)</p>
Fitness Lab	<ul style="list-style-type: none"> Community education and training Sporting events Sports Training 	Indoor	Fitness Lab: Max 80 approx	<p>School Hours: 8:00am – 4pm</p> <p>After School Hours 4:00pm – 10:00pm (Times are indicative only and will have to be confirmed with school)</p>
Student Hub Library	<ul style="list-style-type: none"> Community Language Schools Community education and training Community productions Community Meetings 	Indoor	Student Hub Max: 100 approx	<p>School Hours: 8:00am – 4pm</p> <p>After School Hours 4:00pm – 10:00pm (Times are indicative only and will have to be confirmed with school)</p>
Public Forecourt	<ul style="list-style-type: none"> Community education and training Community productions Community Meetings 	Outdoor	Public Forecourt Max: 400 approx	<p>School Hours: 8:00am – 4pm</p> <p>After School Hours 4:00pm – 10:00pm (Times are indicative only and will have to be confirmed with school)</p>