

Schools Infrastructure New South Wales

Lindfield Learning Village

Response to final submissions - Traffic and Transport

Issue | 28 August 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 251272-00

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Appendix A

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1 Introduction

This Response to Submissions has been prepared by Arup on behalf of the NSW Department of Education and School Infrastructure NSW (the Applicant). It accompanies a Response to Submissions Report in support of State Significant Development Application (SSD 16_8114) for Lindfield Learning Village (the site).

1.1 Project overview

The Response to Submissions on traffic and transport matters and supporting documents seek approval for the remainder of SSD 8114, including:

Phase 2B of construction:

- Works to accommodate 1,050 students (including the approved 350).
- Repurposing of the Phase 1 area.
- An extended driveway from Eton Road extending to the southern portion of the site for emergency vehicles and drop off and pick up vehicles.
- An extended bus turnaround structure south of the upper car park to allow buses to enter and turnaround safely within the site.

Phase 2C of construction:

- Works to accommodate an additional 950 students in the western wing of the building.

The SSD does not seek approval for vegetation management outside the site boundary. Any vegetation management outside the site boundary is the subject of separate approval.

The purpose of this letter is to

- Responds to the agency and public submissions from a traffic and transport perspective
- Provide greater detail as required to the commenting sources.

1.2 Previous Arup reports

Arup submitted a report supporting SSD 8114 titled “NSW Department of Education and Communities, Lindfield Learning Village, Traffic and Transport Assessment, Rev C, 13 June 2017”. This report will be referred to as “the TTA.”

Arup submitted a report supporting the Phase 1 school titled “Supplementary Traffic and Transport Assessment, Issue, 1 June 2018”. This report will be referred to as “the TTA Supplementary.”

Additionally, Arup submitted a response to submissions traffic and traffic and transport report in September 2019. This report will be referred to as “the RtS.”

Lastly, Arup submitted a Transport Response to Submissions report that updated the access arrangement to the school dated 22 May 2020. This report will be referred to as “the TRS.”

1.3 Response to Submissions

This letter response to the final transport submissions has considered the issues raised by agencies during exhibition of SSD 8114 and subsequent final submission stage. Agency comments received on the submission are summarised in Table 1.

Table 1: List of commenting sources

Organisation	Document name
Department of Planning Infrastructure & Environment	Lindfield Learning Village Phase 2 and 3 Response to Submissions (SSD 8114) 100 Eton Road, Lindfield - Supplementary Response to Submissions and Amended Proposal
Ku-ring-gai Council	Lindfield Learning Village Phase 2 and 3 – amended proposal Ku-ring-gai Council submission
Public Submissions	Various

2 Summary of responses

The submissions received from the public agencies have been included in this section, with summary responses provided. These tables also direct to more detailed responses in this document, where applicable.

2.1 Agency submissions

Table 2: Comments from DPIE

ID	Key Issue	Response
B1	<p>The RtS must provide an updated road safety audit report and construction management plan that includes consideration of the potential operational conflicts for the following areas (but not limited to):</p> <ul style="list-style-type: none"> - the operation of the existing Phase 1 parking and pick-up and drop-off facilities during the construction of the loop road and other construction activities. - potential safety risks and hazards caused by the active play space linemarking on the area to be used for parent pick-up and drop-off at the end of the loop road (as detailed in landscape plan LA-2-0006). 	<ul style="list-style-type: none"> • The operation of the phase 1 parking and DOPU area during construction is would remain as existing. Construction vehicles would be limited in their access times to be and after school DOPU times as outlined in the preliminary construction pedestrian and traffic management plan. This is explained in Section 3. • A road safety audit was completed by a qualified road safety auditor on the concept design. The issues raised in the audit were noted and mitigations incorporated into the ongoing detailed design process. Mitigation measures for the management of the active play space and DOPU dual use area have been developed to mitigate these hazards, as shown in Section 3. This audit report is included in our response.

Table 3: Comments from Ku ring gai Council

ID	Key Issue	Response
D1	In response to Council's comments regarding future car mode share for staff, the Transport Response to Submissions (TRS) notes that Schools Infrastructure propose that a more substantial set of items be actioned and submitted prior to occupational certification. While stronger measures are supported, these will need to be reviewed to ensure they are able to realistically achieve the planned 42% mode share by car (for staff) anticipated in Phase 3.	The School Travel Plan has been developed in consultation with SINSW and the School Executive. It has been developed to ensure targets are realistic and capture the likely impact of proposed measures. It will undergo a review by consenting authorities to confirm assumptions and measures are suitable. We note that the School Travel Plan includes a monitoring strategy allowing the plan, which is a 'living document', to be amended if mode shares targets are not met when the plan is reviewed on a yearly basis. An introduction to this plan is presented in Section 5 .
D3	Investigations should be undertaken to assess Symons track's suitability, as upgrading it/incorporating it into the school's pedestrian access routes would potentially add a substantial area into the school's walking catchment.	Noted, this path has been included in the School Travel Plan for the school. It is noted that the path is through the national park and may not be suitable for younger children. An introduction to this plan is presented in Section 5 .
D6	The TRS notes that the school has been in discussions with Transdev and Transport for NSW regarding future bus transport needs, and that school enrolment waiting list was provided to Transport for NSW for bus transport planning purposes. This is encouraging, however occupational certification for Phases 2 and 3 should be conditional on the appropriate bus services having been allocated.	Noted, this is a key measure within the School Travel Plan and consultation with Transdev and TfNSW is ongoing. This can be required through a condition of consent. An introduction to this plan is presented in Section 5 .
D7	In Council's previous submission, it was noted that the extension of the right turn bay on Pacific Highway at Grosvenor Road from 70m to 120m was supported. However, there were questions to the rationale behind the optional extension of the right turn bay to 170m is unclear, with concern that it would impact on future options for improvements at the intersection of Pacific Highway and Strickland Avenue. It was suggested that further advice be obtained from Transport for NSW, but this does not appear to have been addressed.	The project team has been in consultation with TfNSW on the extension of the right turn bay. The concept design did include consideration of the Strickland Avenue intersection upgrade and this has been documented for Council in Section 4 of this response.

ID	Key Issue	Response
G4	<p>Dwg LA-2-0008: The circulation paths for cars and buses seem to clash in the bus turning area. Is there sufficient space for safe bus manoeuvring and car movement through this space?</p> <p>Must the student drop off by vehicles be so large? The Green Transport Plan should aim at reducing the number of private vehicles dropping children off at school. Consider reducing the extent of hard road pavement so that the turning circle of the car turnaround is aligned with the school entry plaza so that the area of pavement can be rationalised/ reduced."</p>	<p>The circulation paths do not overlap as shown in Appendix A. there is space for safe manoeuvres.</p> <p>The School Travel Plan aims to reduce car mode share to achieve a target of about 25% arrival by car. This still represents a significant amount of cars for this school which has influenced the size of the facility which has been designed to queue without impacting bus turnaround movements.</p>

2.2 Public submissions

Table 4: Comments from the public

ID	Key Issue	Response
A1	<p>There will be a direct impact to traffic, in particular at the intersections of Lady Game Drive/Fullers Road, Lady Game Drive, Ryde Road Pacific Highway and Grosvenor Road</p>	<p>The traffic impact of the development was assessed in the traffic and transport assessment that considered the mode share of arriving students and teachers and applied these to the road network. Modelling was completed at the intersection of Grosvenor and Pacific Hwy and at the intersection of Grosvenor Road and Lady Game Drive. This impact has been assessed in that previous report, with subsequent plans developed to increase the likelihood of the mode share targets set in the traffic and transport assessment.</p>

ID	Key Issue	Response
A2	Car parking - Insufficient car parking in the area, mostly due to high use of the soccer field. There is an existing illegal parking issue with parents and students parking at the nearby residential visitor parking at Tubbs View and also communal parking near the playing field.	Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to mitigate the impact of parking outside of the school grounds. More details are provided in the School Travel Plan. An introduction to this plan is presented in Section 5 . Therefore with the reduced demand, the provided parking is aimed to be sufficient.
A3	There is no plan to address the increased traffic. I.e. measures to upgrade the major intersections, provide additional parking, construct a second entrance/exit to the south of the school (alleviate stress off of Eton Road)	The right turn bay into Grosvenor Road from the Pacific Hwy is planned to be upgraded. New footpaths and crossings are proposed to be provided along Abingdon Road and Eton Road. Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to reduce the demand for car-based trips to the school, reducing the need for additional infrastructure. More details are provided in the School Travel Plan. An introduction to this plan is presented in Section 5 .
A4	Poor traffic and pedestrian management - Speed traps, marked and raised crossings are needed	The pedestrian paths and crossings for the school have been developed in discussion with SINSW and Council as part of the School Travel Plan. These aim to provide safe pedestrian routes to the school. More details are outlined in the School Travel Plan. An introduction to this plan is presented in Section 5.

ID	Key Issue	Response
A6	Eton Road. One way out. Results in a high volume of traffic and is greatly impacted by the Grosvenor Road/Pacific Highway bottleneck. Better traffic management needed. What are the alternative routes to avoid this traffic?	<p>The right turn bay into Grosvenor Road from the Pacific Hwy is planned to be upgraded. New footpaths and crossings are proposed to be provided along Abingdon Road and Eton Road.</p> <p>Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to reduce the demand for car-based trips to the school. More details are provided in the School Travel Plan.</p>
A7	It was noted that some parents will be travelling with the children in the shuttle bus, does that mean more buses will be required? This is another example of shifting the issues around, the bus calculation was based on students use only then other response has noted parent will be travelling with students?	<p>School buses will not allow parents to ride with students and therefore these calculations do not consider them on the bus. The shuttle bus mentioned would be a public bus service which was suggested through consultation with TfNSW.</p>

ID	Key Issue	Response
A8	<p>Suggested solutions to consider:</p> <ul style="list-style-type: none"> Construct second entrance/exit on the southern end of the school - (ie. linking to Millwood Ave) to alleviate the traffic on Eton Road. This will give great benefit to people who live on the southern end of the school (eg. Chatswood West, North Ryde). As the result, less buses/cars are required to use Grosvenor Road/Eton Road to enter/exit from the school. The second entrance will provide big benefits as more students will be able to walk to school from Chatswood/Chatswood West. Upgrade intersection Lady Game Drive/Fullers Road, Lady Game Drive, Ryde Road Pacific Highway/Grosvenor Road immediately to relieve the traffic around the area (this is already an existing issue, and will become worse when the school increases the enrollments and residential development around the school is completed) Provide additional car spaces on the Southern end of the school (to alleviate the parking issue around Charles Bean Oval School should only accept enrollment for students live around Lindfield (bounded by South/West of Pacific Highway, East of Ryde Road/Lady Game Drive, North of Millwood Ave) to limit the needs of cars/buses entering the school. (until the traffic issue is addressed)" 	<ul style="list-style-type: none"> The construction of a new roadway across The National Park is not within the scope of this application. School students have walking access to the school through the Symons Track. The intersection of Lady Game Drive and Fullers Road is outside the scope of this application as the intersection is at capacity and cannot be upgraded due to the topography. Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to reduce the demand for car-based trips to the school, reducing the need for additional infrastructure. More details are provided in the School Travel Plan. An introduction to this plan is presented in Section 5. The final catchment area is still being determined, however students within the catchment will be given priority to take substantial pressure off existing public schools within the surrounding locality.

ID	Key Issue	Response
A9	With the increased amount of traffic travelling to school on Eton road, residents trying to get out of their streets to Eton road would be really hard at the peak hours, surprised that the traffic report says that there will be no issue for residents getting in and out from Shout Ridge, Hamilton Corner and Dunstan Grove. How is that possible when you have 300+ cars and 14 buses at peak hours and the only road to get to LLV is through Eton Road? And residents from Shout Ridge, Hamilton Corner and Dunstan Grove all getting in and out on the same and only road ie. Eton Road.	As stated in the traffic and transport assessment, the traffic impact of school traffic is not likely to create issues for nearby residents as the numbers are still low in context to the roadway capacity. Additionally, car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to reduce the demand for car based trips to the school. More details are provided in the School Travel Plan
A10	Illegal parking issue has already been happening with parents and students parking at the nearby residential visitor parking at Tubbs View and also communal parking near the playing field. In some cases, their cars parked there all day. The response mentioned LLV will not provide parking for student so the problem with students parking in the nearby residential visitor parking will surely be happening.	Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to mitigate the impact of parking outside of the school grounds. More details are provided in the School Travel Plan
A11	There is currently a major car park problem when there are sports events in the Charles Bean Oval with residents illegally parking in private areas and in construction sites in Roxy Place. This will already get worse when the constructions are completed and closed off for public access. This problem has been highlighted previously and has still not been addressed. Basic solution like having more frequent bus transport (route 565) are still not being considered. Add to this existing mess thousands of students and staff looking for additional car park, we have a disaster. It is not sufficient for the revised Learning Village project proposal to say "We do not intend to use the Charles Bean Oval, therefore it is not our problem". Well it is a problem for the public and the State Govt needs to address this issue before giving a GO AHEAD to this project.	While events at Charles Bean Oval are outside the school's responsibility, car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to mitigate the impact of parking outside of the school grounds. Additional public route bus services are also recommended. More details are provided in the School Travel Plan

ID	Key Issue	Response
A12	Lady Game Road are still in consultation and development or ignored, what would happen if LLV in full operation and the issues mentioned by the communities have happened? Who would be responsible for that? The proposed modification has only moving things around within the LLV site, it does not actually resolve the major issues which is the traffic and transportation arrangement.	The traffic impact of the development was assessed in the traffic and transport assessment that considered the mode share of arriving students and teachers and applied these to the road network. This impact has been assessed in that previous report, with subsequent plans developed to increase the likelihood of the mode share targets set in the traffic and transport assessment. More details are provided in the School Travel Plan
A13	Allow different time frames: As about 2000 students enter and leave the school every day, it would be chaotic. And as the drop off would be pack and also parking, we need to minimise the amount of cars coming in and out on just 1 road. One suggestion could be allowing different time frames when dismissing and starting school by at least 10 mins. This should be by stage.	The school is currently running with a junior bell time of 2:50pm and a senior bell time of 3:10pm, which mitigates the departure loading for public transport and cars. School start times remain at 8:50am, however the nature of arrivals mean that these peaks tend to be more spread out.
A14	Allowing school buses for not just Lindfield Learning Village students: Some students who don't study at Lindfield Learning Village and live on the planned school bus route or near the school might be needing the bus to go to their school such as Chatswood High and Primary students (as your planned bus route stops at Chatswood Interchange, it would be more convenient for them) cause they're in an OC or a selective school class. Your bus arrangements also goes around Beaumont Road Public School catchment and would be best if those students can use it too to travel to their school. This would provide convenience for students who live around Killara, Lindfield, Roseville, Chatswood and other suburbs that can take pressure from buses or trains.	School bus routes proposed will be developed in conjunction with TfNSW and the bus operator based on the actual enrolments to LLV. With regards to allowing students from other schools on the school buses, we are not aware of anything preventing this.

ID	Key Issue	Response
A16	Provide more parking spaces for other events and for parents who have young kids	<p>The DOPU area provides parents a safe drop off location for smaller children.</p> <p>Car mode share is targeted for a percentage reduction in the future phases of the school, with a travel access guide developed to explain the best way to get to school for parents and staff. This aims to mitigate the impact of parking outside of the school grounds. More details are provided in the School Travel Plan. An introduction to this plan is presented in Section 5.</p>
A17	Upgrade Lady Game Drive from the A38 route intersection towards the Grosvenor Road Roundabout	<p>The traffic impact of the development was assessed in the traffic and transport assessment that considered the mode share of arriving students and teachers and applied these to the road network. This impact has been assessed in that previous report, with subsequent plans developed to increase the likelihood of the mode share targets set in the traffic and transport assessment. The upgrade of Lady Game Drive from Grosvenor Road to Fullers Road is outside the scope of this application as the intersection is at capacity and cannot be upgraded due to the topography. The travel focus for students has been from the north and the east which is reflected in the modelling that was completed.</p>
A18	"No Stopping on Eton Road during school hours from Austral Avenue	<p>Kerbside parking controls are the responsibility of Ku ring gai Council and they will be amended by Council if they see a need.</p>

3 Operation of the DOPU area

3.1 Drop-off and Pick-up

The drop-off and pick-up (DOPU) area will be located adjacent to the southern side of the school as indicated in Figure 1. This will be used by parents to drop off and pick up children from the school. Parents enter the area from the west and travel east to the turnaround using the loop at the end of the access road before entering a third DOPU lane and waiting area.

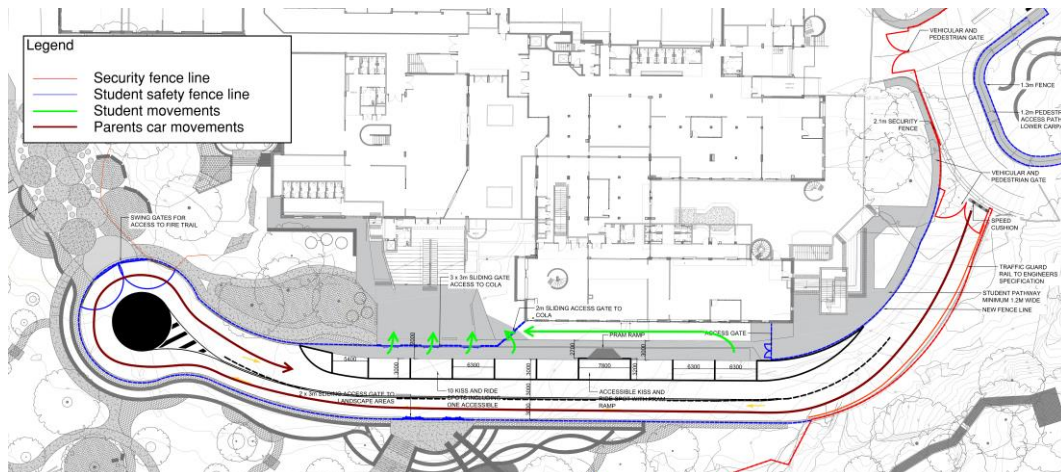


Figure 1: Car DOPU area design

During morning drop off, students will be guided to make their way into the school premises past the fence line around the DOPU area.

3.1.1 Timing

The DOPU will operate at the following times:

- Drop off: 8:20am – 8:50am
- Pick up 2:30pm – 3:20pm

The gate providing access to the DOPU area will be closed outside these times and will be opened by the travel coordinator at the beginning of the morning and afternoon periods. This will be clearly communicated and directed by the school so that parents do not arrive before the gates are open at operational times which could lead to queues developing.

3.1.2 Managing the transition

The southern extent of the school is planned to be a play area. A portion of the southern area comprises of the DOPU which sits between the school via the COLA and the remainder of the outdoor play area. It will be essential for school operations that this area be incorporated into a diverse and functional landscape for the children. It will provide additional space, be used for access and as functional hardstand play - noting it is the only area where a basketball court and

hardstand ball game play area can be played in the school grounds. At any one time, the play area will either be entirely for play purposes or used entirely for DOPU operations.

Outside of DOPU operational hours, the access way will be closed from all traffic using a gate and children may play safely. During DOPU operational times, students will be prohibited from using the play area while gates are open allowing vehicle traffic to circulate. This separation of activities looks to eliminate the potential conflict between vehicles and playing children.

This multi-use area will be controlled by staff at the changeover times from school play area to DOPU. A potential sequence of events for this process is presented below:

3.1.2.1 Arrival

- 8:20am – Staff close the safety fences (2 & 4) and open the outer gate (3) at DOPU times ensuring that the area is clear of hazards.
- 8:20am to 8:50am – the rostered staff member will manage the DOPU area.
- 8:50am – DOPU ends – staff will close the outer gate (3)
- 2 minutes after DOPU ends – playground gates (2 & 4) will be opened, and children will be permitted into the area (1)

3.1.2.2 Departure

- 20 minutes before DOPU – staff as part of their normal class will begin to clear the area of children and close access to the playground area. Teachers to move their classroom clear of the area (1) in Figure 2.
- 2:50pm – Staff close the safety fences (2 & 4) and open the outer gate (3) at DOPU times ensuring that the area is clear of hazards.
- 2:50 pm to 3:20pm – the rostered staff member will manage the DOPU area (1) with the LPNR tablet and microphone.
- 3:20pm – DOPU ends – staff will close the outer gate (3).

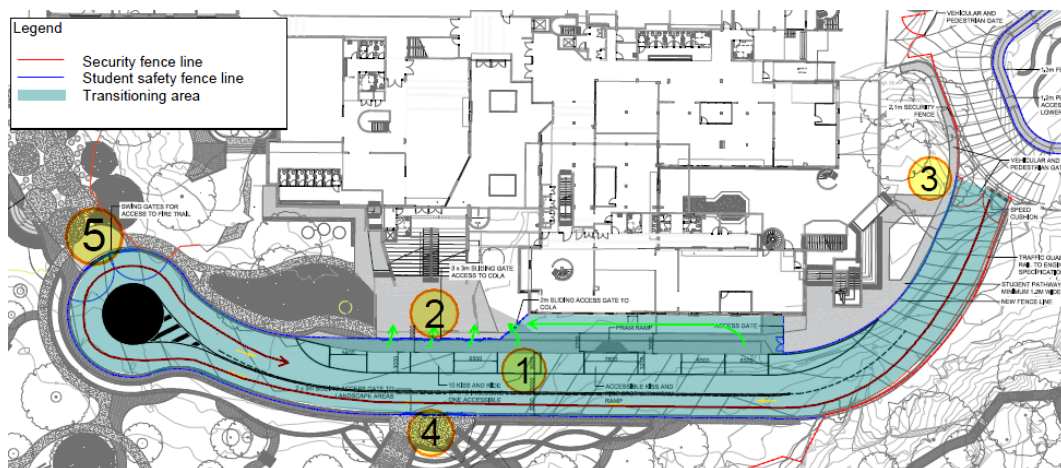


Figure 2: Fence lines and transition

3.1.3 Student expectations

Younger children will not be using this lower play area and the older children will be under supervision from staff to know that during the transition times, this area is to be cleared for DOPU operations. With fencing and gates and child education, this is aimed to be a safe transition and useful adaption of an otherwise unusable hardstand within the school play area.

3.1.4 Parent communication

Parents should be well educated on how the new DOPU arrangements will work as well as guidance and rules to abide by. This should be clearly communicated before commencement of the school term and continually shared amongst new users of the DOPU area.

There are various resources under TfNSW Centre for Road Safety “pick-up and drop-off initiative” which includes; template parent letters, brochures for drop off and pick up safety tips. The travel coordinator will develop suitable communication items outlining measures parents can take to facilitate the safety and efficient of the DOPU area in consultation with the school executive. These are to be circulated prior to the start of the school term. This can be done through various channels such as onboarding letters to parents, the school website’s travel page, school newsletter and at the school throughout the school term.

3.1.5 During construction

3.1.5.1 Timing

Construction would be undertaken during standard working hours which are assumed to be as follows:

- Monday to Friday: between 7:00am-5:00pm, excluding school times 8:00am – 9:30am and 2:00pm – 4:00pm on school days
- Saturday: between 8:00am – 1:00pm.
- Sunday and public holidays: no work.
- It is required that traffic controllers will be in place before work starts to manage early arrivals.

3.1.5.2 Phasing

The phasing of the project is proposed to be broken down into three phases. Phase 2A commences work on the main building and the extended driveway, shown in green in Figure 3. In this phase construction deliveries occur outside of DOPU times and the area in green is fenced off from parents and staff. As there is no change to the roadway,

Following the end of Phase 2A, the bus turnaround and DOPU area is handed over to minimise impact to the operating school. This is shown in the green area in Figure 3. Work continues on the main buildings until the end of Phase 2B where these buildings are handed over to the school as shown in purple in Figure 3. Finally Phase 2C is the last area to be constructed.

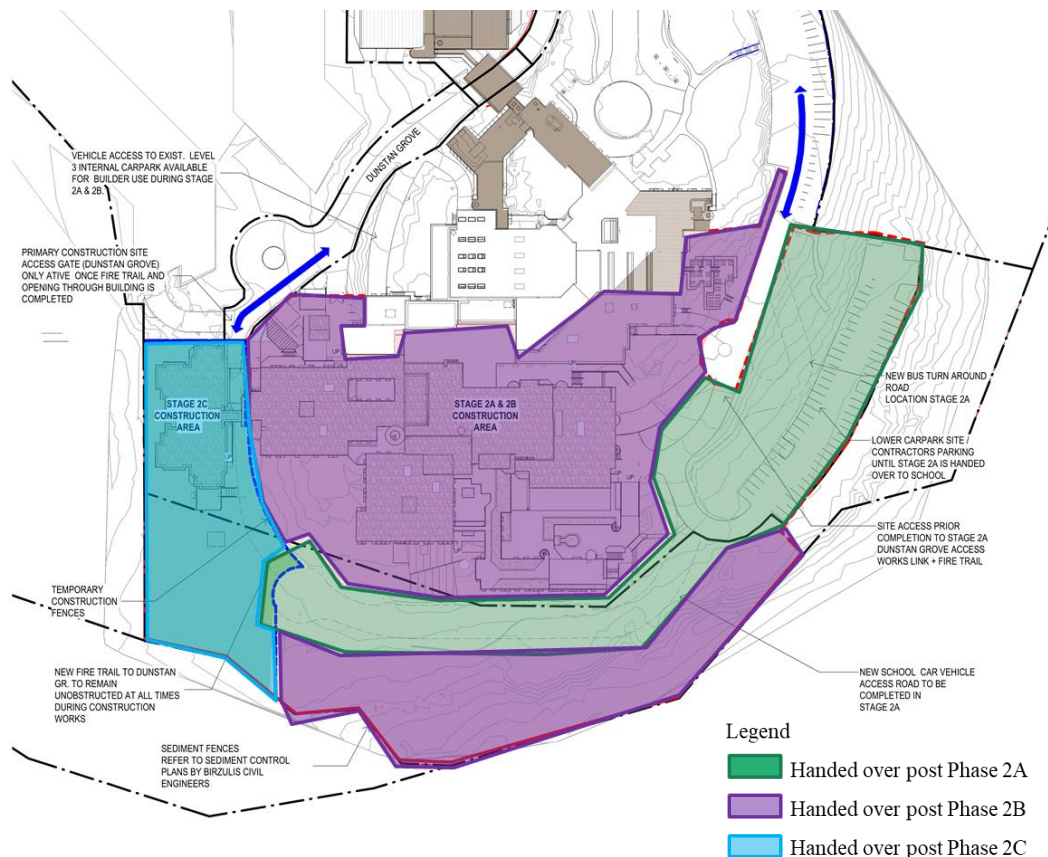


Figure 3: Construction handover phasing

3.2 OSHC

Out of school hours care (OSHC) is located in the gym adjacent to Charles Bean Oval. Parents would be directed to use the parking spaces at the community centre or along Shout Ridge for pick up or drop off, whichever would be available. The DOPU area gates will be closed after DOPU times.

3.3 Opening day considerations

During the first few weeks of transition, additional staff will need to be present to help navigate parents to the changed DOPU location and ensure that cars do not

mistakenly wait in the Bus zone. Potential considerations to aid operations on opening day are considered below.

3.3.1 Prior to School Opening

Communications will be developed, and information sessions will be made available on top of information packs being issued to the families and students covering access. There will be information packs going out addressing how students can travel to school through the various modes.

The resources described in this section report are available from Council and TfNSW and can be provided along with school specific information to parents prior to school opening. This will encourage travel to school to be orderly with appropriate travel choices made.

3.3.2 School Opening

A traffic management company will need to be employed to manage the opening period of the school, over a two to three-week period. It is envisaged that personnel and variable message signage will be implemented at key locations to educate drivers, walkers and cyclists of the correct procedures including:

- Directional signage to the main school entries
- Student drop-off and pick-up areas
- Bus arrivals route and queuing locations
- Walkers and cyclists using the new footpath

4 Pacific Highway works

4.1 Right turn bay on Pacific Highway at Grosvenor Road

As described in the TTA Supplementary, the right turn bay needs to be extended to at least 100m to accommodate the predicted 95%ile queue. The existing right bay is 70m long as shown in the RtS report. To allow for future growth it is recommended that the right turn bay be extended to 170m as shown in Figure 4.

The extension is possible within the existing road reserve by utilising a bus zone on the western kerb. In discussion with Transport for NSW it has been agreed that the bus zone can remain as an in-lane stop given the low frequency of use.

A land survey of the existing road conditions was commissioned by Schools Infrastructure to provide a base for a concept design of the right turn bay. The survey extended beyond Gladstone Parade to determine the full extent of right turn bay possible which was presented to be 170m long as shown in the Supplementary TTA.



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4.2 Potential Strickland Avenue upgrades

Council has provided indicative plans (not part of the Lindfield Learning Village development) of the potential Strickland Avenue / Pacific Highway upgrades. The two indicative upgrade options are shown in Figure 5 and Figure 6 and have been overlaid with the extended 170m long Grosvenor Road right turn bay. The road layouts for Strickland Avenue are shown in blue, while the Grosvenor Road works are shown in red.

The extent of the upgrade starts at Strickland Avenue and end at Llewellyn Street. Llewellyn Street is located some 150 metres north of the Pacific Highway / Grosvenor Road intersection. In the council preferred layout, shown in Figure 5, the impact would be that the new right turn bay into Strickland Avenue would reduce by about 15m. despite this reduction, the new right turn bay for Strickland Avenue would be about 10m more than currently provided.

This means that when the Grosvenor Road right turn bay is extended to 170m, the right turn bay for Strickland Avenue gains one to two cars storage over the existing layout. The council proposed layout would have allowed for about two to three cars storage over the existing layout.

In the RMS (TfNSW) preferred option, shown in Figure 6, a right-hand lane would be added about 50m prior to the traffic signal stop line of Strickland Avenue. The proposed upgrades of the Grosvenor Road right turn bay to 170m would have no impact on the potential Strickland Avenue upgrades in the RMS preferred option.

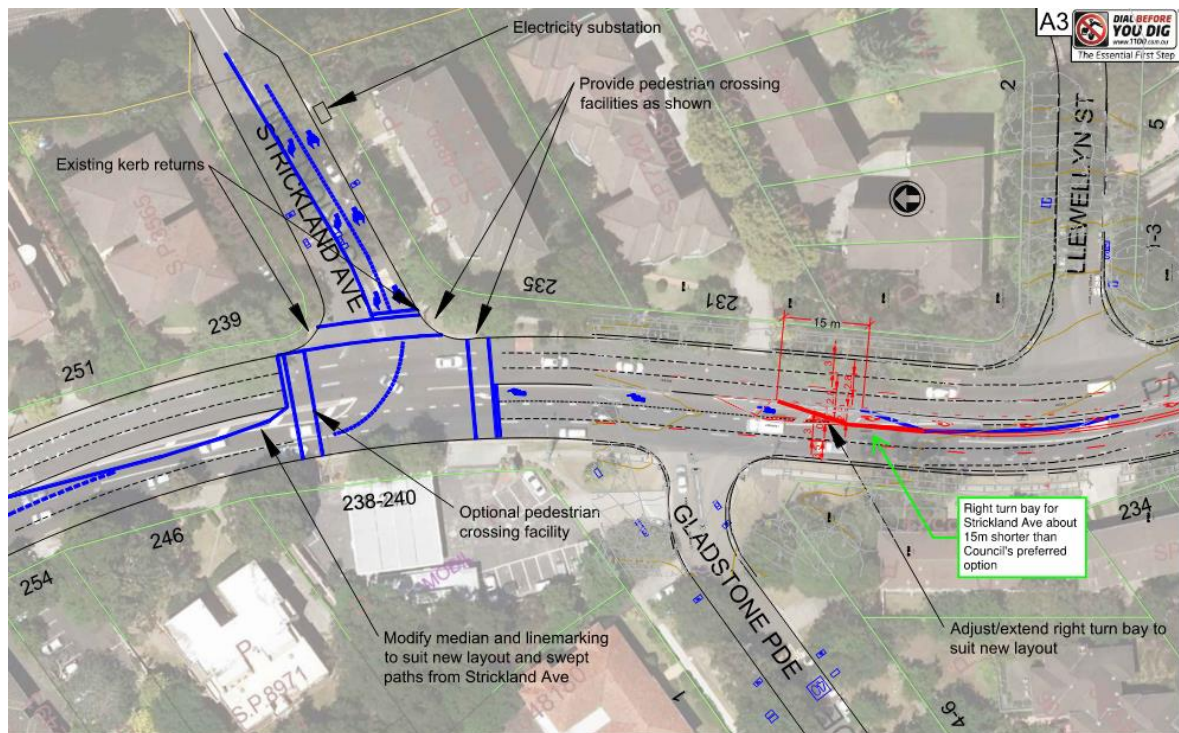


Figure 5: Proposed Strickland Avenue Concept Plan, with right turns

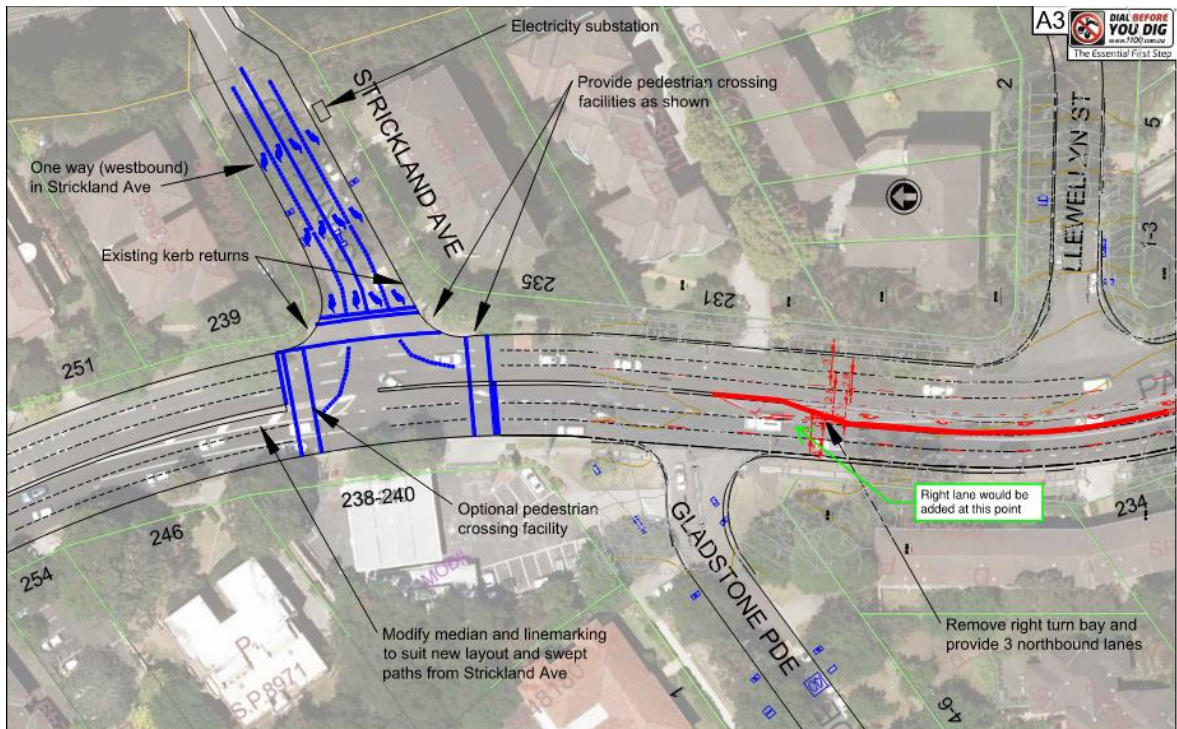


Figure 6: Proposed Strickland Avenue Concept Plan, no right turns

5 School travel plan

Arup is currently preparing a School Travel Plan. The purpose of this School Travel Plan is to provide efficient, safe and sustainable travel for school staff, students and visitors who may access the school during planning, construction and operation of school assets. This document is intended to be used by a range of stakeholders including Lindfield Learning Village staff and students, consultants and government agencies such as the NSW Department of Education and School Infrastructure for NSW.

While the details of the document are being developed, the following text has been extracted from the plan to outline what the school travel plan is, what it is meant to achieve and how it is proposed to be used.

5.1 What is a School Travel Plan?

A School Travel Plan aims to provide guidance on infrastructure requirements and management measures to relevant government authorities such as the NSW Department of Education and School Infrastructure NSW. The School Travel Plan aims to focus on delivering efficient, safe and sustainable access methods to / from schools during the planning, construction and operation of school facilities. Requirements set by School Infrastructure NSW include undertaking the following:

- **Transport Assessment (Purpose and Framework)** to review existing transport networks, travel demand, address safety concerns and identify potential infrastructure recommendations
- **Travel Plan Framework** to identify potential facilities that may be needed to serve the site. A sustainable transport mode share target should be developed as part of this framework.
- **Transport Compliance Letters** to confirm deliverables comply with School Transport Plan processes, ensure transport recommendations are considered by the project team, outline potential transport and government risks and propose improvements to the School Transport Plan process.

The School Travel Plan applies to all people who will use the site after being developed. This includes all school staff, students and visitors who may travel to and use the site.

5.2 School Travel Plan Objectives

The objectives of the School Travel Plan are framed by the Premier's Priorities to:

- **Deliver local infrastructure** to promote students to walk, ride and use public transport to reduce the reliance on cars and decrease traffic congestion
- **Tackle childhood obesity** by encouraging students to increase their daily physical activity through active travel to / from school or partway to school

Furthermore, School Travel Plans should be guided by the following objectives set by the Premiers Priorities:

- **Safe:** developments should aim to minimise pedestrian and vehicle conflict, ensure schools are accessible and safe for all who attend or visit the school and the identify and implement new transport measures.
- **Efficient:** reduce local traffic congestion and parking impacts, outline required infrastructure and operations to be delivered prior to occupancy, communicate relevant transport policies and programs and resolve issues early in the school master planning, schematic design and business case stages.
- **Sustainable:** increase the use of sustainable travel modes, minimise car parking and kiss-and-ride provisions and integrate school transport facilities within the surrounding community.
- **Collaborative:** identify opportunities to work with state or local government authorities, share travel demand and transport initiatives and engage transport agencies to seek or improve existing transport networks
- **Replicable:** to understand the processes within relevant policies and programs and to inform government authorities on potential transport / infrastructure requirements

With these requirements laid out, the objectives of the School Travel Plan have been synthesised to be the following:

- **Encourage the use of sustainable transport modes** by promoting walking, cycling and utilising public transport and car sharing rather than single occupant car travel and taxi usage. This generally requires improving people's travel choices by improving access to other modes (e.g. more public transport options, improved mobility for non-car users or greater infrastructure for active transportation). Supportive measures may include reducing convenience for car drivers by minimising parking or maintaining road capacity.
- **Reduce traffic congestion and air pollution** to enhance safer and more enjoyable journeys. This is intrinsically linked to encouraging a shift to sustainable modes. It can also be achieved through integrating school transport facilities within the nearby community.
- **Travel demand management** to reduce the need for energy intensive travel modes and single occupancy trips by combining journeys that are travelling to towards a common area.
- **Implement feasible travel options** for students, staff and other users of the site and encourage travel options that will benefit their health and wellbeing.
- **Implement, monitor, evaluate and review measures** to assess the progress of the School Travel Plan.

5.3 Plan Structure

The School Travel Plan will follow a general structure provided below:

- **Section 2 - Phase 1 Travel Survey** will describe the current travel modes used by the school during Phase 1. This section will provide an overview of the baseline mode share percentages achieved and outline where these can be improved through the School Travel Plan.
- **Section 3 - Infrastructure assessment** will document the transport networks which surround the school. This will comprise of reviewing the local pedestrian and bicycle network, public transport services and the surrounding road network.
- **Section 4 - Future travel analysis** which consists of mode share targets defined through analysis for travel to Lindfield Learning Village using public or active transport methods for students, staff and visitors. This will include infrastructure provided by the project to promote the use of sustainable travel methods for students, staff and visitors who may travel to and from Lindfield Learning Village.
- **Section 5 - Transport strategies** adopted to educate and promote sustainable travel methods to the users of Lindfield Learning Village.
- **Section 6 - Management plan for the school** includes the management plan for the operation of the school's arrival modes including buses and parent drop-off and pick-up (DOPU)
- **Section 7 - Governance of the plan** will outline methods of governance for the School Travel Plan by the Travel Coordinator, the school leadership, staff, parents and students. Governance arrangements to report transport use and operations to TfNSW, bus operators, Ku-ring-gai Council and the Lane Cove National Park.
- **Section 8 - Monitoring Strategies** will include agreed data collection, re-evaluating, reviewing and monitoring measures adopted by Lindfield Learning Village to ensure targets from the School Travel Plan are achieved. This section will aim to ensure the School Travel Plan is an evolving strategy; although the objectives of the School Travel Plan will not change, specific targets or programs may need to be revised or strengthened over time.

Appendix A

Turning paths

A3

A

B

C

D

E

F

G

1

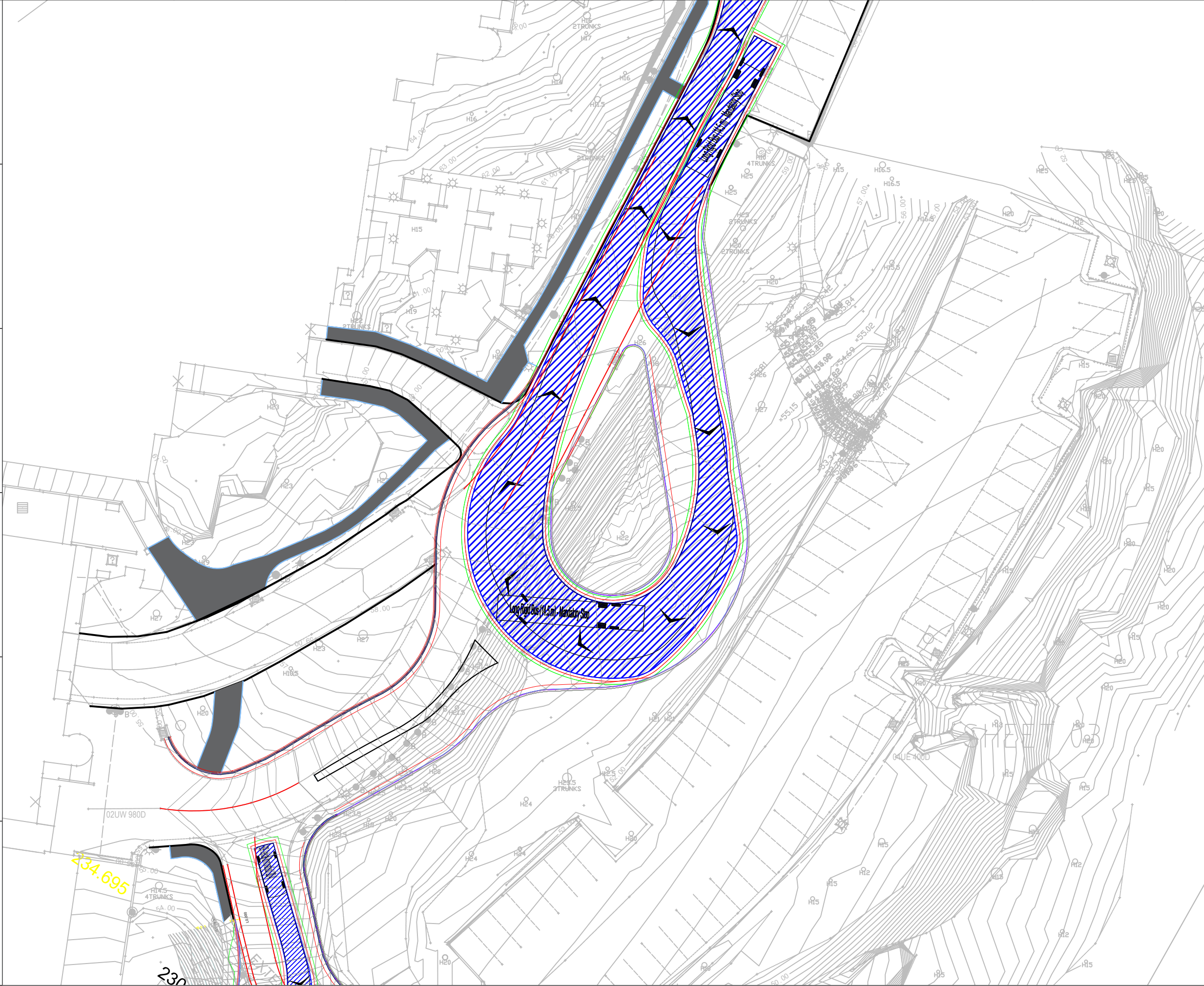
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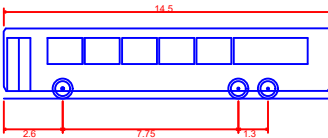


Do not scale

Legend

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- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Long Rigid Bus (14.5 m)
Overall Length 14.500m
Overall Width 2.500m
Overall Body Height 3.102m
Min Body Ground Clearance 0.337m
Track Width 2.500m
Lock to Lock Time 6.00 sec
Curb to Curb Turning Radius 15.000m



Footpaths

B	28/04/20	JG	MAC	MAC
Updated Civil				
A	26/03/20	JG	MAC	MAC
For Information				
Issue	Date	By	Chkd	Appd

ARUP

Arup, Level 10, 201 Kent St
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Department of Education

Job Title
Lindfield Learning Village

Drawing Title
Leveled Bus turn around swept paths

Scale at A3

Discipline
Transport

Drawing Status

Draft

Job No
251272

Drawing No
SKT02

Issue
B

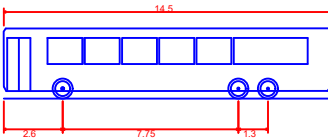
© Arup



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- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Long Rigid Bus (14.5 m)
Overall Length 14.500m
Overall Width 2.500m
Overall Body Height 3.102m
Min Body Ground Clearance 0.337m
Track Width 2.500m
Lock to Lock Time 6.00 sec
Curb to Curb Turning Radius 15.000m



Footpaths

B	28/04/20	JG	MAC	MAC
Updated Civil				
A	19/03/20	JG	MAC	MAC
For Information				
Issue	Date	By	Chkd	Appd

ARUP

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www.arup.com.au

Client
Department of Education

Job Title
Lindfield Learning Village

Drawing Title
Leveled Bus turn around and drop off

Scale at A3

Discipline
Transport

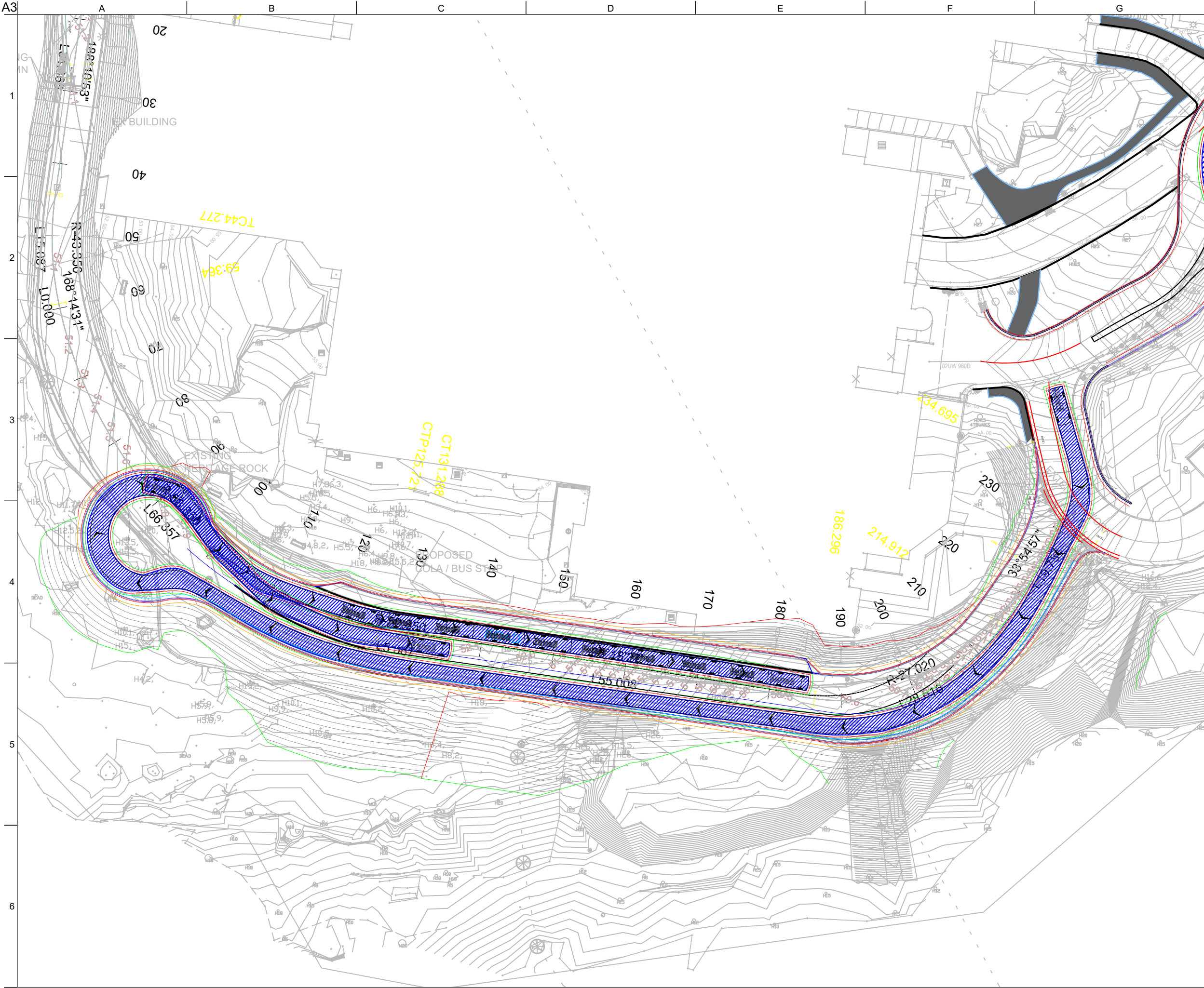
Drawing Status

Draft

Job No
251272

Drawing No
SKT03

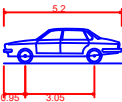
Issue
B



Legend

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- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Car
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.527m
Min Body Ground Clearance 0.312m
Track Width 1.840m
Lock to Lock Time 4.00 sec
Curb to Curb Turning Radius 6.250m



Footpaths

B	28/04/20	MAC	AMH	AMH
Updated Civil				
A	26/03/20	JG	MAC	MAC
For Information				
Issue	Date	By	Chkd	Appd

ARUP

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www.arup.com.au

Client
Department of Education

Job Title
Lindfield Learning Village

Drawing Title
Car turn around and drop off operation

Scale at A3

Discipline
Transport

Drawing Status

Draft

Job No 251272	Drawing No SKT04	Issue B
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