

Our Ref: 17235

11 April 2018

JQZ Pty Ltd  
Retail 24 & 25, 1 Nipper Street  
HOMEBUSH NSW 2140

**Attention: Mr Jeremy Hung**

Dear Jeremy,

**RE: 88 CHRISTIE ST, ST LEONARDS PROPOSED MIXED USE DEVELOPMENT  
RESPONSE TO SUBMISSIONS**

As requested, The Transport Planning Partnership (TPPP) has prepared this letter in response to comments raised by Lane Cove Council and public submissions from the local community in relation to the above proposed development.

### Background

In January 2018, a development application was submitted to Lane Cove Council seeking approval for a mixed use development at 82-90 Christie Street, 71-79 Lithgow Street and 546-564 Pacific Highway St Leonards. The proposed development comprises:

- 654 residential apartments
- 10,364m<sup>2</sup> of retail gross floor area
- 19,297m<sup>2</sup> of commercial gross floor area, and
- 1,000m<sup>2</sup> of communal gross floor area.

The proposed development would be served by a nine-basement level car park with 1,138 car parking spaces.

The application has been reviewed by Council and Council has provided their comments on the proposed development. The development application was also put on public exhibition. Council has received submissions from the public commenting on the proposed development.

This letter provides TPPP's responses to the traffic and parking related matters raised by Council and the relevant submissions from the public.

## TTPP's Response to the Matters Raised

This section presents the relevant comments and submissions followed by TTPP's response to the matter raised.

### Comments from Lane Cove Council

#### *Parking and Servicing*

Council's Transport Engineer has made the following comments in relation to Parking and Servicing:

- 1. Adequate measures must be in place to ensure that public do not access the express access. The public may be unfamiliar with the proposed contra flow arrangement and given that it is a single lane ramp, there may be potential for head-on collisions. The plans indicating the proposed measures are required to be submitted to Council for approval.*
- 2. Further details are required on the management of the contra flow operation.*
- 3. Further information is required regarding the operation of the boom gates.*
- 4. The delivery truck access is not accepted as a single lane. A two way road width must be maintained in accordance with AS2890.2 to ensure safe movement of delivery trucks.*
- 5. Swept paths demonstrating the turning movements for HRVs entering/exiting the site from the new Christie Lane is required. All swept paths to be done on a 6 metre carriageway (see points 14 and 15).*
- 6. Car parking spaces near the express access is not supported on Levels B04 and B03 as the location of the column may hinder opening of the car door.*
- 7. Line markings should be provided to guide pedestrians to the lift in public car parking areas.*

In relation to Item 1 above, signage will be installed across the driveway lanes and inside the basement level (Level B6) to manage the traffic flows using the express access ramp and the access to/from the public car park. The proposed signage is contained in Attachment One of this letter.

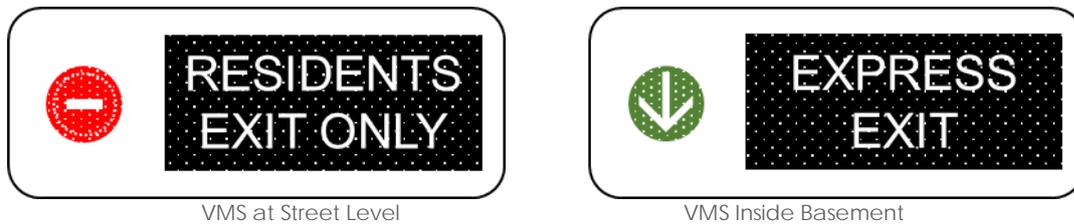
The public will not be permitted to use the express access ramp. The express access ramp will have a sign above it indicating that it is a residents only access.

The figures in Attachment One will inform Council in principle how the express access ramp would function. Details of the operation of the express access ramp will be provided in the relevant management plans. It is typical that Council would include a consent condition in their approval requiring a car park and loading dock management plan to be submitted to Council for approval prior to the occupation of the building. As such, it would be reasonable for Council to impose such condition for this development.

In relation to Item 2, as indicated in TTPP’s traffic report (dated 10 January 2018), the express access ramp would permit express egress from the residential car park during the morning peak period (say from 5:00am to 12noon) and express ingress into the residential car park from 12noon to 5:00am. However, it is envisaged that the time could be adjusted by the body corporate (or similar) to suit on-site conditions and different days of the week.

The express access ramp/driveway will have appropriate variable message signs (VMS) as detailed in Attachment One to manage the contra flow. During the morning period when the express access would operate to permit egress movement, the VMS for the express ramp located at the street level would display a “RESIDENTS EXIT ONLY” with a no entry sign while at the other end of the express ramp inside the basement the VMS would display a “EXPRESS EXIT” sign indicating it as an exit only – see Figure 1 below.

Figure 1: Morning Period Express Access Signs



When the express access ramp is operating in the opposite direction, the reverse signs (see Attachment One) would be applicable.

Figure 2 shows photomontages what the signs would like from the view point of a driver on the new laneway.

Figure 2: Photomontages of Proposed Signs



In relation to Item 3, it is envisaged that Council would operate the public car park as a paid car park. As such, it will be necessary for boom gates to be installed at the entry and exit lanes. In addition, it is expected the paid car park would have a ticketless parking system with automatic number plate recognition. Such a system is installed at the Lane Cove Market Square development since its opening in 2010.

The ticketless parking system will enable vehicles to enter the car park under free flowing conditions (i.e. vehicles do not need to stop to obtain a ticket from a machine). On entry, cameras mounted at strategic locations will record the vehicle registration number plates of entering vehicle together with a time stamp.

The exit lane would be controlled by a boom gate. Cameras would also be installed near the exit boom gate to record the number plate of exiting vehicles. The number plate of entering vehicles would be matched with the number plates of exiting vehicles so that the duration of stay can be determined to calculate the appropriate parking fees.

Residential and commercial tenants, if they choose to access the car space via the public car park, would enter the car park as per the general public using the retail car park. On exit, residential and commercial tenants would use a remote control to open the boom gate so that they would not be charged a parking fee.

In relation to the express access, it is envisaged that it would have a roller shutter gate located next to the new laneway and it would be remote control operated. Residential tenants would be provided a remote to control the roller shutter at the access.

The largest direction flow during the busiest period is the egress movement which would have some 278 vph. A queue length analysis using traffic queueing theory based on probability principles for a multichannel queueing system as described in the Transportation and Traffic Engineering Handbook (ITE), together with egress lane capacity of 600 vph as indicated the Australian Standard for a free flowing condition (ticketless parking system). The queue analysis indicates that the 95th percentile queue would be approximately four vehicles. The relevant architectural plans indicate there is sufficient queue storage on a relatively flat section of the ramp to accommodate the 95th percentile queue.

Similarly, the entry lane would have a 95th percentile queue of approximately three vehicles. There would be sufficient queue storage area for the inbound queues as well.

In relation to Item 4, it is considered that a single lane, two-way driveway to the loading dock would provide satisfactory operation noting that there are numerous examples of existing developments around Sydney that includes similar driveway configuration providing single lane, two-way access to the loading dock. Such examples include:

- The Forum at 201 Pacific Highway, St Leonards (mixed use development with three commercial towers, two residential towers and a range of retail/restaurant uses including a Coles supermarket)
- the IBM building at 601 Pacific Highway, St Leonards (commercial tower with approximately 12,500m<sup>2</sup> of GFA)
- Central Park, Sydney at 28 Broadway, Chippendale (a recent major mixed use development with 2,000 residential apartments, 75,000m<sup>2</sup> of commercial floor area and 27,000m<sup>2</sup> of retail floor area)

- Darling Quarter at 1-25 Harbour Street, Sydney (two commercial office buildings providing a total of 58,000m<sup>2</sup> of gross floor area with additional retail tenancies)
- 1 Bligh Street, Sydney (commercial office tower with 42,700m<sup>2</sup> of floor area), and
- 533 Kent St, Sydney (high rise commercial and residential development).

Figure 3 shows photographs of the driveway configurations at the two examples in St Leonards.

**Figure 3: Existing Examples of Single Lane, Two-way Driveway Configurations**



The Forum in St Leonards

The IBM Building (601 Pacific Hwy, St Leonards)

The two St Leonards examples noted above would require arriving service vehicles to wait on the roadway if there is another service vehicle exiting the site.

Notwithstanding this, it is proposed to provide green and red traffic lights together with signage and line marking as detailed in Attachment One to manage the use of the driveway in a safe and efficient manner.

The system would follow these steps:

- The traffic lights at the at the driveway (facing entering trucks) are default to display a green signal, while the lights inside the loading dock (facing trucks in the loading bays) are default to display a red signal.
- An entering truck could enter the loading dock at any time unless there is a truck exiting. In this case, the entering truck would need to wait momentarily on Lithgow Street.
- Trucks within the loading bay will require to wait within their respective loading bays for a change of the traffic light displays.
- For trucks leaving the loading dock, the driver is required to make a request via a push button to change the traffic lights inside the loading dock from a red display to a green display.
- Once this request is registered, the system will change the traffic lights at the driveway from a green display to a red display. The system will also undergo a self-check process using the detector loops to ensure there are no vehicles entering the loading dock.

- After a lapse of say five seconds, another self-check process is repeated to ensure there are no entering vehicles. After another lapse of five seconds, the traffic lights inside the loading dock will change from a red display to a green display, while the traffic lights at the driveway will continue to show a red display.
- Once the detector loops detected the last truck leaving the loading dock, the system will wait for say five seconds for another self-check to ensure there are no additional vehicles waiting on the driveway and any further requests from drivers wanting to leave the loading dock will be held back.
- Following this, the traffic lights at the driveway and inside the loading dock would revert to its default signal display.

This procedure will be written into the car park and loading dock management plan. It is expected that a consent condition will be imposed requiring such a car park and loading dock management plan to be prepared and submitted to Council for approval prior to the occupation of the development.

The plan of management would ensure that deliveries to the site are spread throughout the day consistent with the available capacity of the loading dock. Management measures will be put in place in the plan of management. Measures may include:

- deliveries to the site are to be undertaken only during an allocated time slot booked in advance with the building/dock manager
- the dock manager would have the authority to reject any deliveries if suppliers/delivery drivers can not comply with any conditions/measures stipulated in the management plan and/or any other additional measures and/conditions imposed to the suppliers by the building manager
- delivery drivers will need to call in to the dock manager on approach to the loading dock, and
- the tenants would also need to be made aware and agree to the measures/conditions in relation to the use of the loading dock. Lease agreements between the tenants and the building owner are to include a clause stipulating this.

In relation to Item 5, swept path analysis was carried out by consultant AT&L as part of their civil engineering documentation accompanying the development application. These swept path diagrams are provided in Attachment Two.

AT&L confirms that the design of the laneway and relevant section of Lithgow Street has been designed in accordance with requirements set out in Austroads Guide to Road Design. There would be sufficient sight distance to allow vehicles to self manage themselves as they pass each other turning around the corner.

In relation to Item 6, TTPP's review of the relevant car parking spaces does not indicate that there would be any issues with door openings.

The design of the car parking spaces through the car park including the car spaces identified by Council complies with design requirements set out in the Australian Standard for car parking facilities. All car parking spaces have been reviewed using car space design envelope provided in Figure 5.2 in AS2890.1:2004. TPPP confirms that the car spaces in question have sufficient clearance such that columns, walls and obstructions are located outside of the car space design envelope. Therefore, column would not hinder door opening.

In relation to Item 7, this would be provided a matter of course. Line marking to guide pedestrians to pedestrian access can be provided during the relevant construction certificate stage. It would be reasonable for Council to impose a consent condition requiring this to be provided during the construction certificate stage.

In addition, Council's Transport Engineer has suggested a number of consent conditions Items 8 to 14 below.

8. *The proposed Car Park design shall comply with AS 2890.1-2004. This includes all parking spaces, ramps, aisles, disabled parking and loading areas. All other aspects of the Car Parking areas are required to comply with AS 2890.2-2002 for Loading Facilities and Services Vehicles.*
9. *The access to the car park shall comply with Australian Standards. AS 2890.1-2004.*
10. *Visibility requirements of the proposed access must comply with AS 2890.1-2004.*
11. *All accessible car spaces in the car park are to be adequately signposted and linemarked, and provided in accordance with AS2890.6: 2009 including the adjacent shared space and the height clearance.*
12. *Small car spaces must form no more than 10% of the overall parking provision in public car parks.*
13. *Small car parking, Car Share, car wash bay, motorcycle parking, retail parking, tenant parking, and resident parking to be sign posted and adequately line marked.*
14. *All residential and commercial waste must be collected on the loading dock.*

TPPP has reviewed the above conditions and confirm that the design of the car park thus far can be made to comply with the above conditions.

#### *Pedestrians/Cycling*

It is noted that Council's Transport Engineer has made a number of comments under the heading of Pedestrians/Cycling. This will be addressed separately by the appropriate consultant.

### Public Transport

Council's Transport Engineer has suggested following condition under the heading of Public Transport:

21. *A Sustainable Transport Action Plan (STrAP) showing the proposed mode shares, relevant bike routes, access to existing car-share spaces and bus route frequencies will need to be submitted and approved by the Traffic and Transport Manager in Lane Cove Council prior to Occupation Certificate.*

A STrAP will be prepared and submitted to the Traffic and Transport Manager for approval prior to Occupation Certificate.

### Intersection Operation

Under this heading the following comments have been made:

22. *The additional traffic volumes from the proposed development must be incorporated in to the Aimsum model.*
23. *Any permanent change to the traffic arrangement on Lithgow Street must be approved by Roads and Maritime Services (RMS). Consideration must also be given to how this arrangement would affect the St Leonards Cumulative Traffic Study by TEF Consulting.*

In relation to Item 22, it is noted that it was explained in the TTPP's DA traffic assessment report that TEF's Aimsum ultimate development future case model "Base Model 2021 + ABC" has been used as the future base case model together with 2017 surveyed traffic flows in TTPP's assessment. TEF's ultimate development future case model includes development traffic from all known developments in the vicinity of the subject site.

Although, TEF's assessment included development traffic from all known developments including the subject proposed development, the TEF assessment only considered the proposed development on the subject site envisaged in the planning proposal. It does not include the extra development sought for Site A above that envisaged in the planning proposal nor does it include the proposed commercial development on Site B of the subject site. The difference in development traffic between the proposed development envisaged in the planning proposal and the proposed development in the current DA is approximately 180 vehicles per hour (vph) during the busiest peak period.

In light of this, TTPP's traffic assessment includes two future scenarios as follow:

- TTPP's future base case – intersection flows from TEF's ultimate development case less intersection flows from the TEF's "Base Model 2013" superimposed onto the 2017 surveyed intersection flows, and
- TTPP's future development case – TTPP's future base case plus extra development traffic from Site A and Site B.

On this basis, TEF’s ultimate development case would be comparable to TTPP’s future base case. Essentially, TTPP’s future base case model is an update of TEF’s ultimate development case model.

The resultant intersection flows for the above scenarios have been used to assess the traffic effects of the proposed development using SIDRA. It is noted that Roads and Maritime Services has agreed that SIDRA can be used to assess the traffic impacts of the proposed development.

Table 1 below compares the modelling results from the Aimsum model prepared by TEF for their ultimate development case (noted as (1) in Table 1) with TTPP’s future base case (noted as (2) in Table 1). As indicated previously, these models are comparable. In addition, it is noted that TTPP’s future base case does not include the extra development traffic from Site A and Site B.

**Table 1: Modelling Results – Future Case (No Extra Site A + Site B Development Traffic)**

Intersections	TEF Ultimate Development Case (Base Model 2021 + ABC) (1)				TTPP Base Case (SIDRA Model) (2)			
	Morning Peak		Evening Peak		Morning Peak		Evening Peak	
	Del.	LoS	Del.	LoS	Del.	LoS	Del.	LoS
Christie St-Pacific Hwy	23	B	15	B	18	B	17	B
Oxley St-Pacific Hwy	13	A	13	A	16	B	11	A

Del. = Average Intersection Delays (seconds per vehicle)  
LoS = Level of Service

From Table 1, it can be seen that the results between TEF (noted as (1) above) and TTPP (noted as (2) above) assessments are generally consistent as they should be. As such, TTPP’s SIDRA modelling results are robust and could be used to inform Council’s traffic assessment of the proposed development.

Table 2 presents the SIDRA modelling results for TTPP’s future development case.

**Table 2: Modelling Results – Future Case (With Extra Site A + Site B Development Traffic)**

Intersections	Morning Peak		Evening Peak	
	Del.	LoS	Del.	LoS
Christie St-Pacific Hwy	19	B	18	B
Oxley St-Pacific Hwy	17	B	13	A

Del. = Average Intersection Delays (seconds per vehicle)  
LoS = Level of Service

In addition, it is noted that TEF’s assessment indicates that following the completion of all known developments the nearby assessed intersections considered in the TEF Aimsum model would continue to operate satisfactorily with the vast majority of intersections operating at good level of service (LoS A/B/C) in both peak periods. The only exception is at the River Road intersection with Greenwich Road which TEF’s assessment indicates would operate with LoS D in the morning peak period. LoS D is considered by Roads and Maritime Services to provide satisfactory performance.

It is further noted that TTPP's assessment considers two nearby intersections along the Pacific Highway, namely Christie Street and Oxley Street (which has been requested by Roads and Maritime Services) and three local intersections at Nicholson Street, Lithgow Street and Oxley Street.

These intersections will receive all of the development traffic arising from the proposed development on the subject site as well as passing traffic from other known developments considered in TEF's assessment. As such, any potential traffic impacts due to the proposed development will manifest themselves at these critical intersections (if any).

The other intersections such as River Road intersection with Greenwich Street are located further away from the proposed development site and as such development traffic arising from the subject site will not be as concentrated as that at the intersections closer to the site. Given TEF's assessment has indicated that these other intersections are expected to operate satisfactorily in the future with good level of service, it is not expected that the proposed development would result in these other intersections operating with a deteriorated level of service in the future.

On this basis, it is expected that the proposed development would not create any material adverse impact to the other intersections. It is expected if the additional traffic volumes from the proposed development are incorporated in to the Aimsum model, the updated Aimsum model will continue to show similar modelling results to that already presented in the latest TEF report. For these reasons, TTPP does not see any value in conducting Aimsum modelling as requested by Council's Transport Engineer.

Finally, it is noted that Roads and Maritime Services has requested for traffic modelling to be conducted at the two Pacific Highway intersections at Christie Street and Oxley Street. They have agreed that SIDRA can be used to conduct the traffic modelling for the two Pacific Highway intersections. Given that Roads and Maritime has accepted the use of SIDRA modelling for the two Pacific Highway intersections, TTPP does not see any further value that can be achieved through an Aimsum model.

In relation to Item 23, TTPP notes that the proposed development including the proposed partial closure of Lithgow Street is being considered by Roads and Maritime's Land Use Section. As such, the proponent/consultant team is currently liaising with Roads and Maritime on this matter.

In relation to the effects on TEF's assessment, it is noted that the TEF assessment already considers this in their assessment. Below is an extract from TEF's report (dated 21 September 2017) confirming this:

- Council's Development Control Plan for the 'Winten' site development envisages to close the existing Christie Lane to vehicular traffic. A 'new Christie Lane' would then be relocated to the south of the development site and be a 2 lane road. Council would also partially close the adjoining portion of Lithgow St to allow the development of its Over Rail Plaza. This was illustrated in the draft Voluntary Planning Agreement (reproduced in Figure 5 below). Aimsun model was amended to reflect this proposal (also shown in Figure 5).

As such, TEF and TPPP's assessments have already considered the effect of the proposed partial closure of Lithgow Street. Further assessment in relation to this matter is not required.

#### Matters Raised in Public Submissions

TPPP has reviewed submissions from the public. Based on TPPP's review of the submissions, traffic and parking related issues can be distilled into the following main topic areas:

- *closure of Lithgow Street has been assumed rather than formal approval sought*

TPPP notes that the submitted development application seeks approval for the overall proposed development, as noted in the Statement of Environmental Effects, which includes approval from the relevant authorities e.g. Roads and Maritime Services, Lane Cove Council. The proponent is currently liaising with authorities to obtain approval for closure of the Lithgow Street.

It is further noted that Council proposed to close Lithgow Street as part of the planning proposal that supersedes this DA. The closure of Lithgow Street has been foreshadowed for some time so that Council can deliver its St Leonards Plaza development. As such, the closure of Lithgow Street has been initiated by Council, rather than the applicant. In addition, the executed VPA requires the closure of Lithgow Street to be implemented as part of the subject proposed development.

In addition, the community was made aware by the Council of the proposed Lithgow Street closure when Council consulted the community in November 2016.

- *proposed closure of Lithgow Street will result in traffic diverted to neighbouring streets such as Christie Street and Nicholson Street*

Traffic counts at the Pacific Highway intersection with Lithgow Street conducted in April 2017 indicates that Lithgow Street near the highway carried 74 vph during the busiest weekday period. This is equivalent to approximately 1.2 vehicles per minute on average. The traffic volume using Lithgow Street is considered to be low and could be absorbed into the road network without any adverse traffic impacts.

In this regard, both TEF's and TPP's traffic assessments have considered the re-diverted traffic into nearby streets following the closure of Lithgow Street. The traffic assessment conducted by both TEF and TPP indicate that the road network would continue to operate satisfactorily with good level of service in the future.

- *no plans to upgrade the Pacific Highway intersection with Oxley Street to support the closure of Lithgow Street as the Oxley Street intersection will become the only access for traffic to leave the area especially when considering that it is already difficult for right turn traffic to turn into Pacific Highway*

Traffic assessments conducted by both TPP and TEF (with both assessments taking into consideration the additional development traffic from known developments in the area and the closure of Lithgow Street) indicates that the Pacific Highway intersection with Oxley Street would operate at LoS A/B which indicates the intersection would have good operation.

In addition, TPP is aware that Roads and Maritime Services has collected funds from relevant developers to undertake works associated with integrating the Oxley Street intersection to their SCATS system to enable the remote monitoring of traffic conditions at this intersection and make necessary adjustments to the operation of the traffic signals to mitigate traffic congestion as required.

- *the traffic assessment did not consider the effects of closing Lithgow Street*

As indicated previously, the traffic assessments conducted by TEF and TPP take into consideration the traffic effects of the proposed closure of Lithgow Street. It was found that the proposed closure would not result in any adverse traffic impacts to the surrounding road network as evidenced by good intersection performance in the future.

- *consideration should be given for underground walkway or overpass to redirect pedestrians across the Pacific Highway to improve traffic capacity for right turn traffic from Oxley Street*

This is a matter for Roads and Maritime Services in conjunction with other government agencies and stakeholders to consider.

- *the "compounding of traffic around the area, especially on the Pacific Highway" will result in significant delays for emergency vehicles to Royal North Shore Hospital*

Traffic modelling conducted by TPP at the Christie Street and Oxley Street intersections with Pacific Highway indicates that these two intersections would continue to operate with good performance. TEF's traffic assessment commissioned by Lane Cove Council also indicated

that the intersections along the Pacific Highway would continue to operate with good performance.

- *insufficient parking for the proposed size of the development*

The proposed on-site car parking provision has been provided in full compliance with the requirements stipulated in Lane Cove Council's Development Control Plan.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



**Michael Lee**  
**Associate Director**

# Attachment One

## Proposed Signs

# Driveway Street Level (On New Laneway) Proposed Signs

Note: Entering trucks will require to wait on Lithgow Street/laneway on red signal display.

Driveway Lane 1



Driveway Lane 2



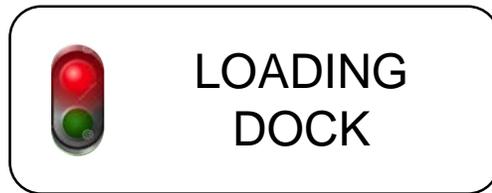
Driveway Lane 3



Driveway Lane 4



↑ Traffic lights always default to green for entering vehicles. Traffic lights switch to red when there is a truck leaving the loading dock.  
↓



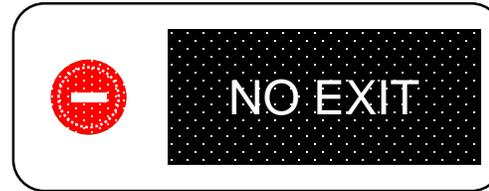
↑ VMS signs interchangeable depending on mode of operation. Signs will be coordinated with those in B6 to show the reverse message.  
↓



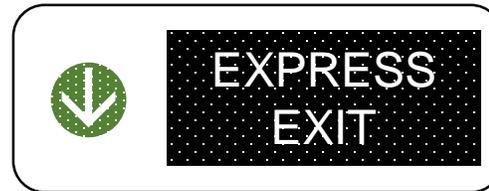
Approximate Location of Signs



# Basement Level B6 Proposed Signs



↑ VMS signs interchangeable depending on mode of operation. Signs will be coordinated with those on the street level to show the reverse message.  
↓



Approximate Location of Signs

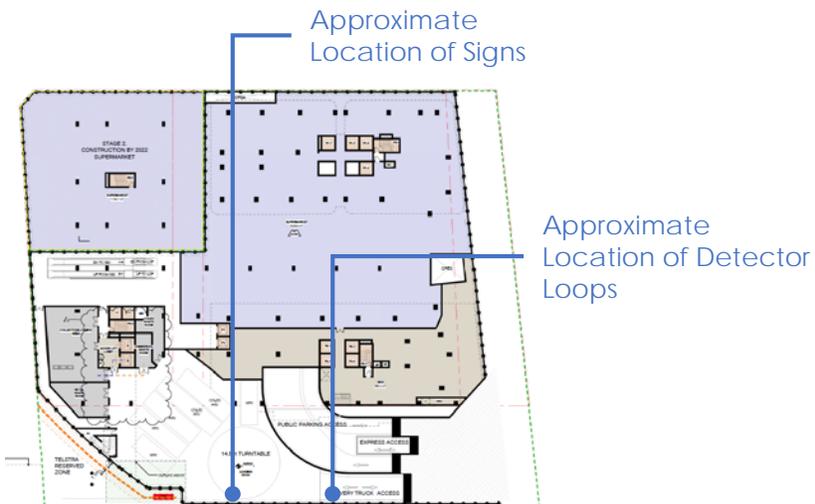


# Loading Dock Proposed Signs

Note: In addition to the signs, directional detector loops/sensors will be required at the locations shown to detect the passage of vehicles so that the traffic signal displays could revert back to default display i.e. green for entering vehicles and red for trucks inside the loading dock. In addition, push buttons will be located at strategic locations throughout the loading dock to allow truck drivers to make a request for the traffic signals inside the loading dock to change to a green display and the one on street level to change to a red display.

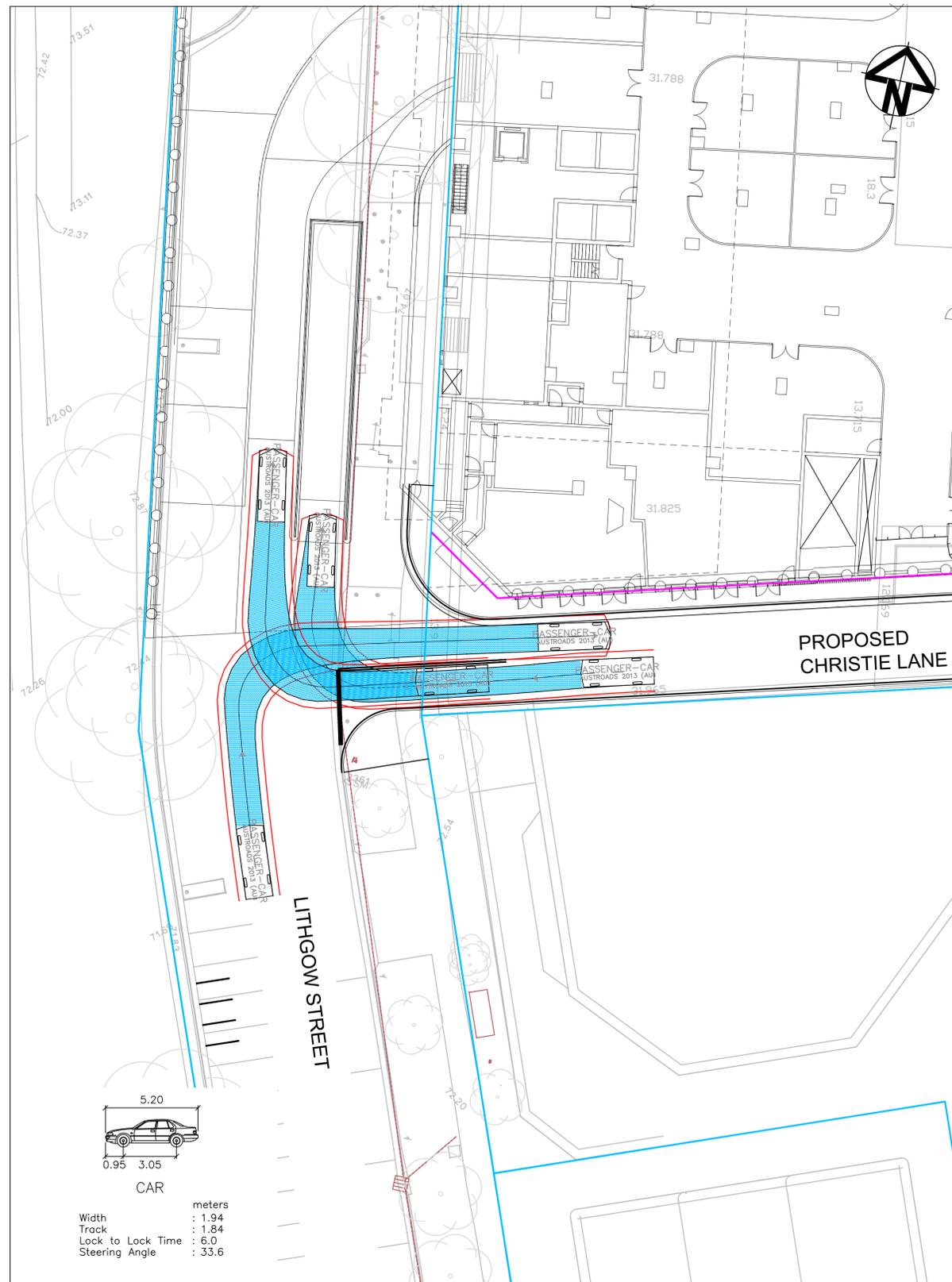


↑  
Traffic lights always default to red for vehicles inside the loading dock. Traffic lights switch to green when a driver activates a push button to request for a change of the lights.  
↓



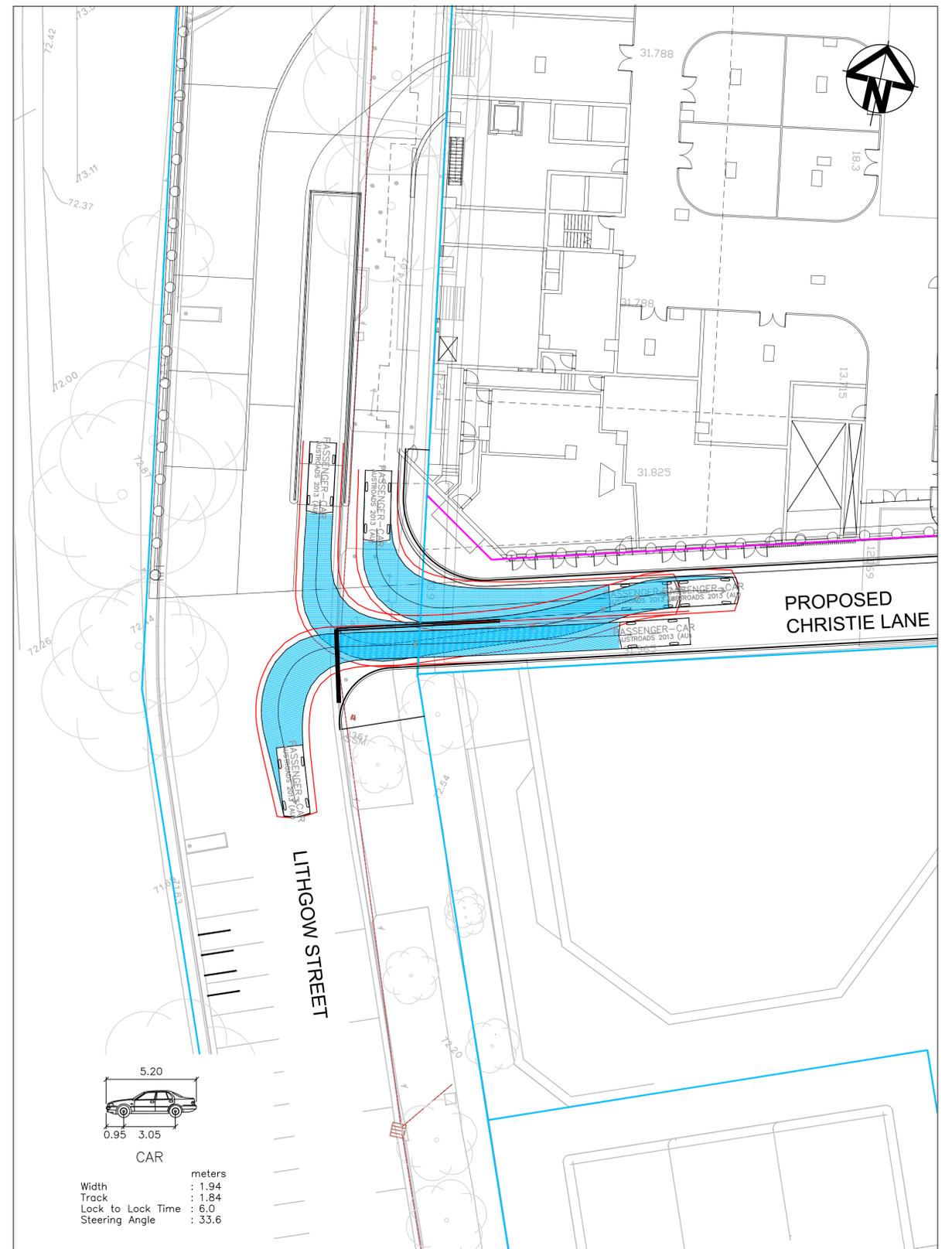
# Attachment Two

## AT&L Swept Path Diagrams



VEHICLE TURN PATH CAR - ENTRY

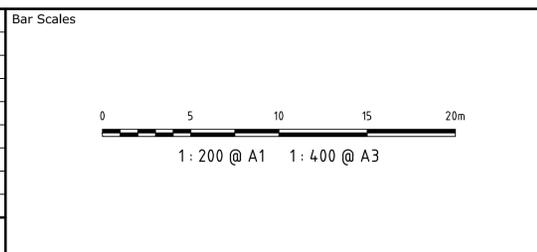
SCALE 1 : 200



VEHICLE TURN PATH CAR - EXIT

SCALE 1 : 200

Issue	Description	Date
D	RE-ISSUED FOR DA APPROVAL	22-12-17
C	ISSUED FOR DA APPROVAL	13-12-17
B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17
P1	ISSUED FOR INFORMATION	08-11-17



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Scales	1 : 200 @ A1	Drawn	TS
		Designed	GB
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Height Datum	AHD	Approved	

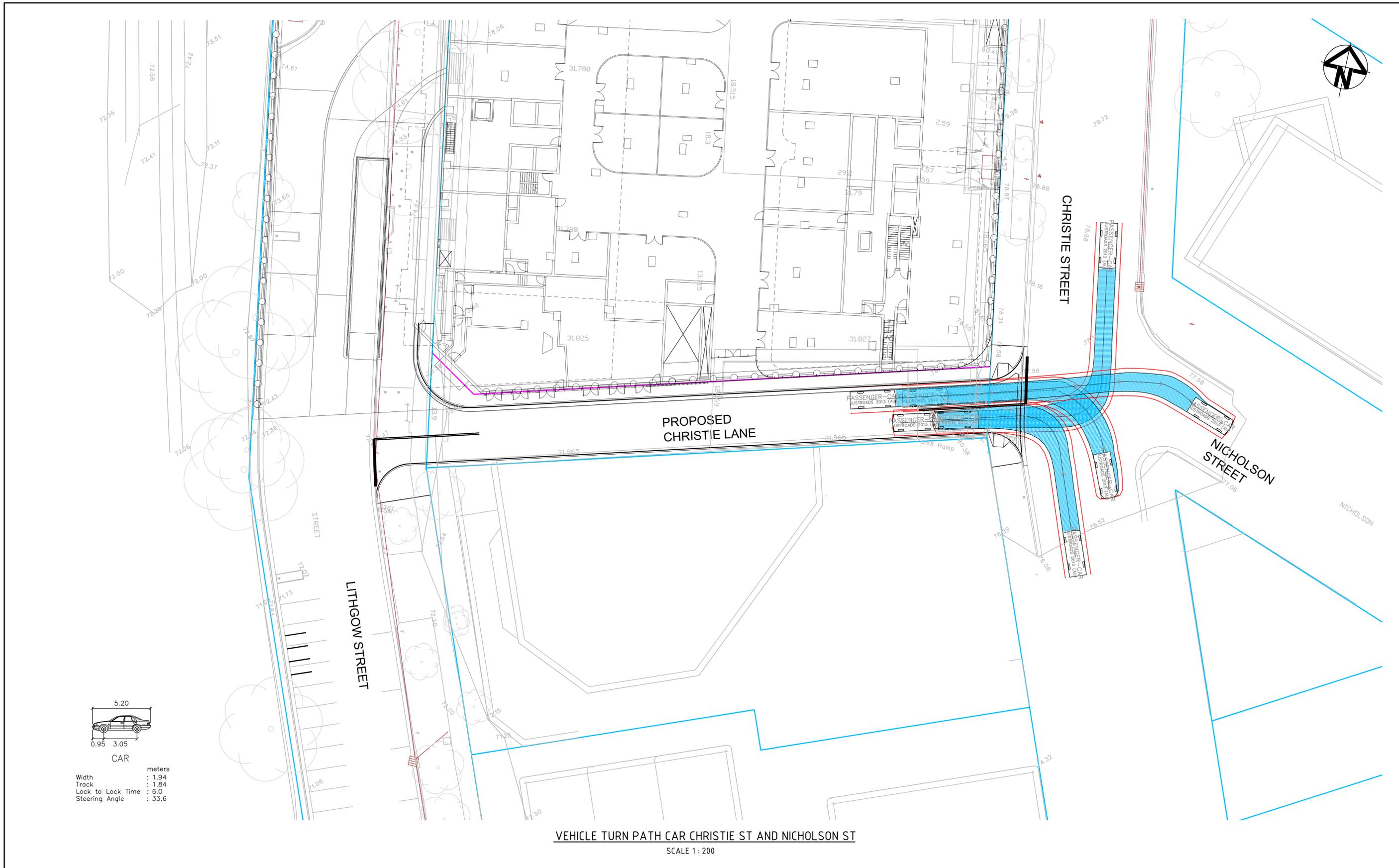
Project  
**88 CHRISTIE STREET  
 ST LEONARDS**

Title  
**VEHICLE TURN PATH  
 PLAN  
 SHEET 1**

Civil Engineers and Project Managers

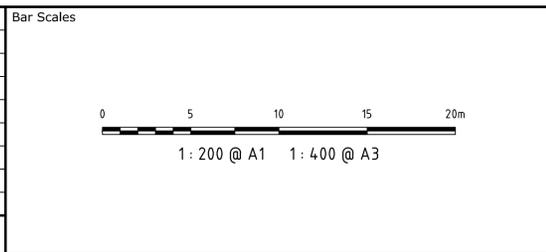
Suite 702, 154 Pacific Hwy  
 St Leonards NSW 2065  
 ABN 96 130 882 405  
 Tel: 02 9439 1777  
 Fax: 02 9460 8413  
 www.atl.net.au  
 info@atl.net.au

Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	17-481	Issue
Project No.		D



VEHICLE TURN PATH CAR CHRISTIE ST AND NICHOLSON ST  
SCALE 1 : 200

Issue	Description	Date
D	RE-ISSUED FOR DA APPROVAL	22-12-17
C	ISSUED FOR DA APPROVAL	13-12-17
B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17
P1	ISSUED FOR INFORMATION	08-11-17



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Client

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Height Datum	AHD	Approved	

Project

88 CHRISTIE STREET  
ST LEONARDS

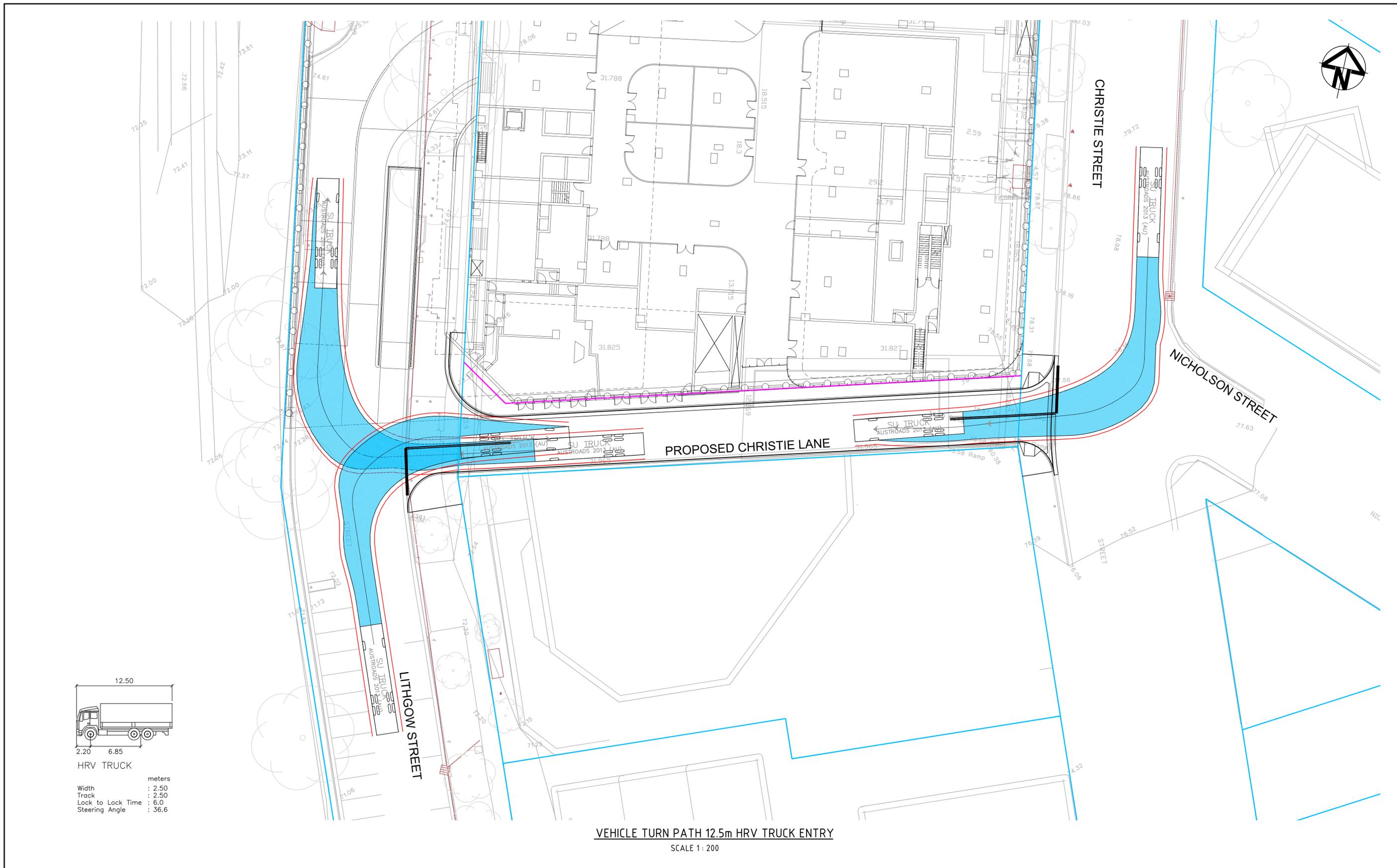
Title

VEHICLE TURN PATH  
PLAN  
SHEET 2

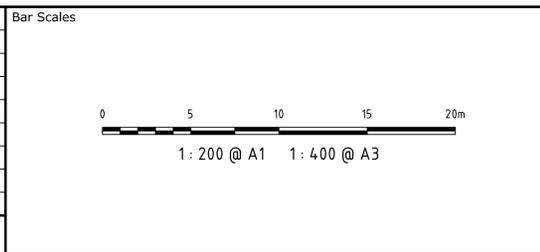
Civil Engineers and Project Managers

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www.atl.net.au  
info@atl.net.au

Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	17-481	Issue
Project No.		D



Issue	Description	Date
D	RE-ISSUED FOR DA APPROVAL	22-12-17
C	ISSUED FOR DA APPROVAL	13-12-17
B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17
P1	ISSUED FOR INFORMATION	08-11-17



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Grid	MGA	Designed	GB
Height Datum	AHD	Checked	JP
		Approved	

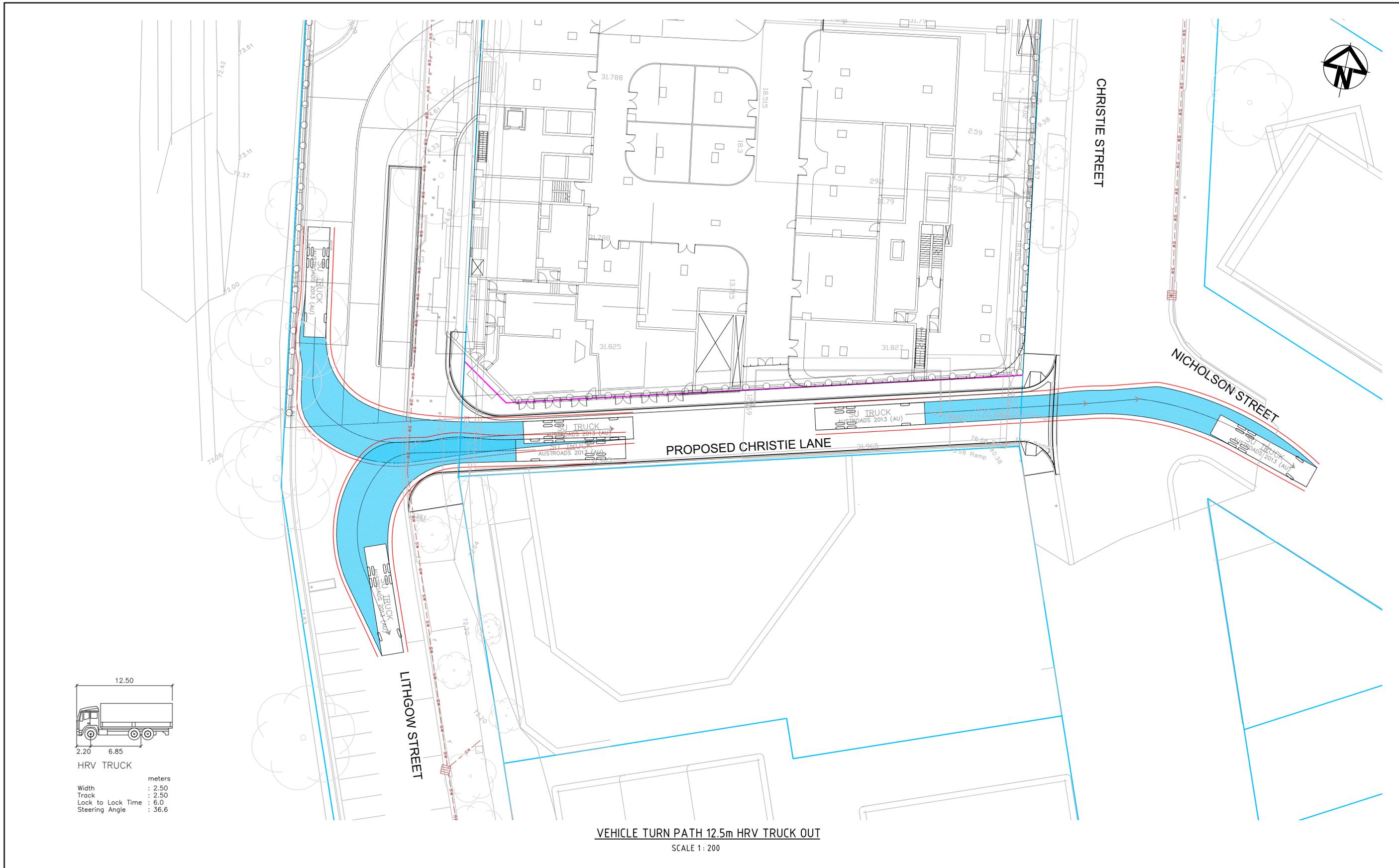
Project  
**88 CHRISTIE STREET  
ST LEONARDS**

Title  
**VEHICLE TURN PATH  
PLAN  
SHEET 3**

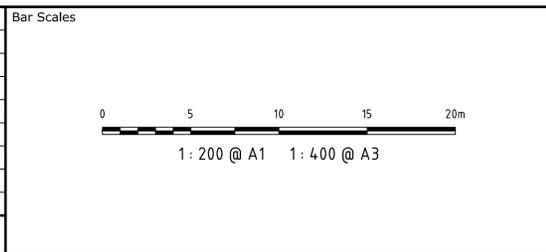
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Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION		A1
Drawing No.	17-481	Project No.	D



Issue	Description	Date
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B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17
P1	ISSUED FOR INFORMATION	08-11-17



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Grid	MGA	Checked	JP
Height Datum	AHD	Approved	

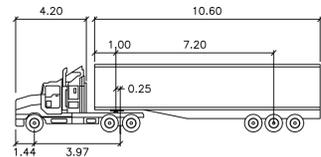
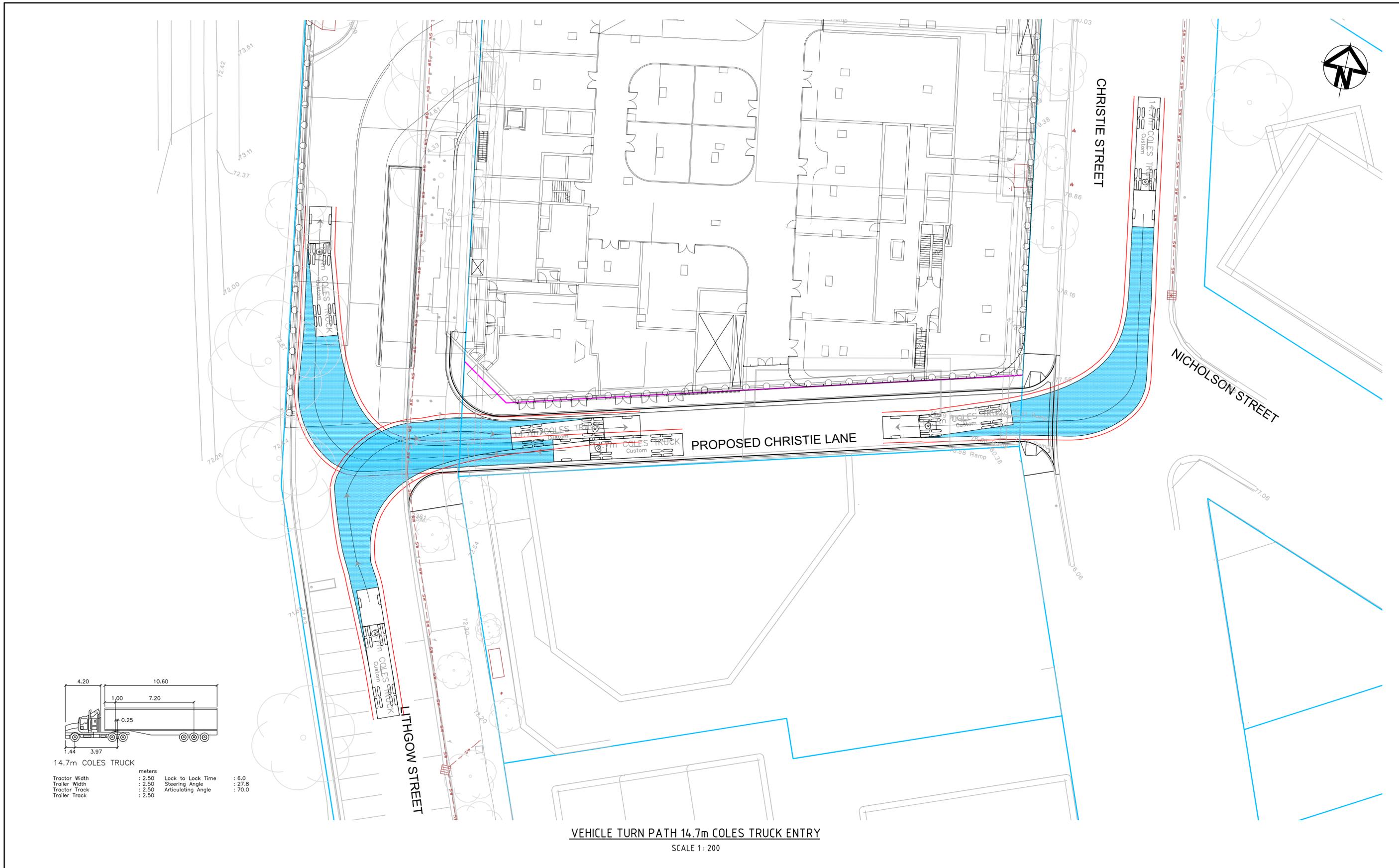
Project  
**88 CHRISTIE STREET  
ST LEONARDS**

Title  
**VEHICLE TURN PATH  
PLAN  
SHEET 4**

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Status	<b>FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION</b>	A1
Drawing No.	DAC43	Issue
Project No.	17-481	D

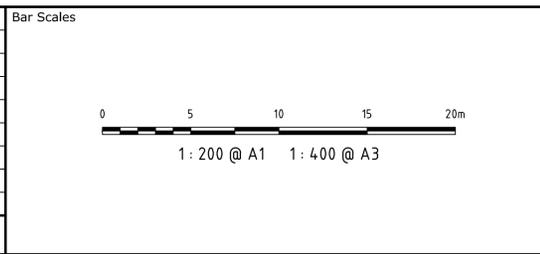


**14.7m COLES TRUCK**

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

Issue	Description	Date
D	RE-ISSUED FOR DA APPROVAL	22-12-17
C	ISSUED FOR DA APPROVAL	13-12-17
B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17



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Grid	MGA	Designed	GB
Height Datum	AHD	Checked	JP
		Approved	

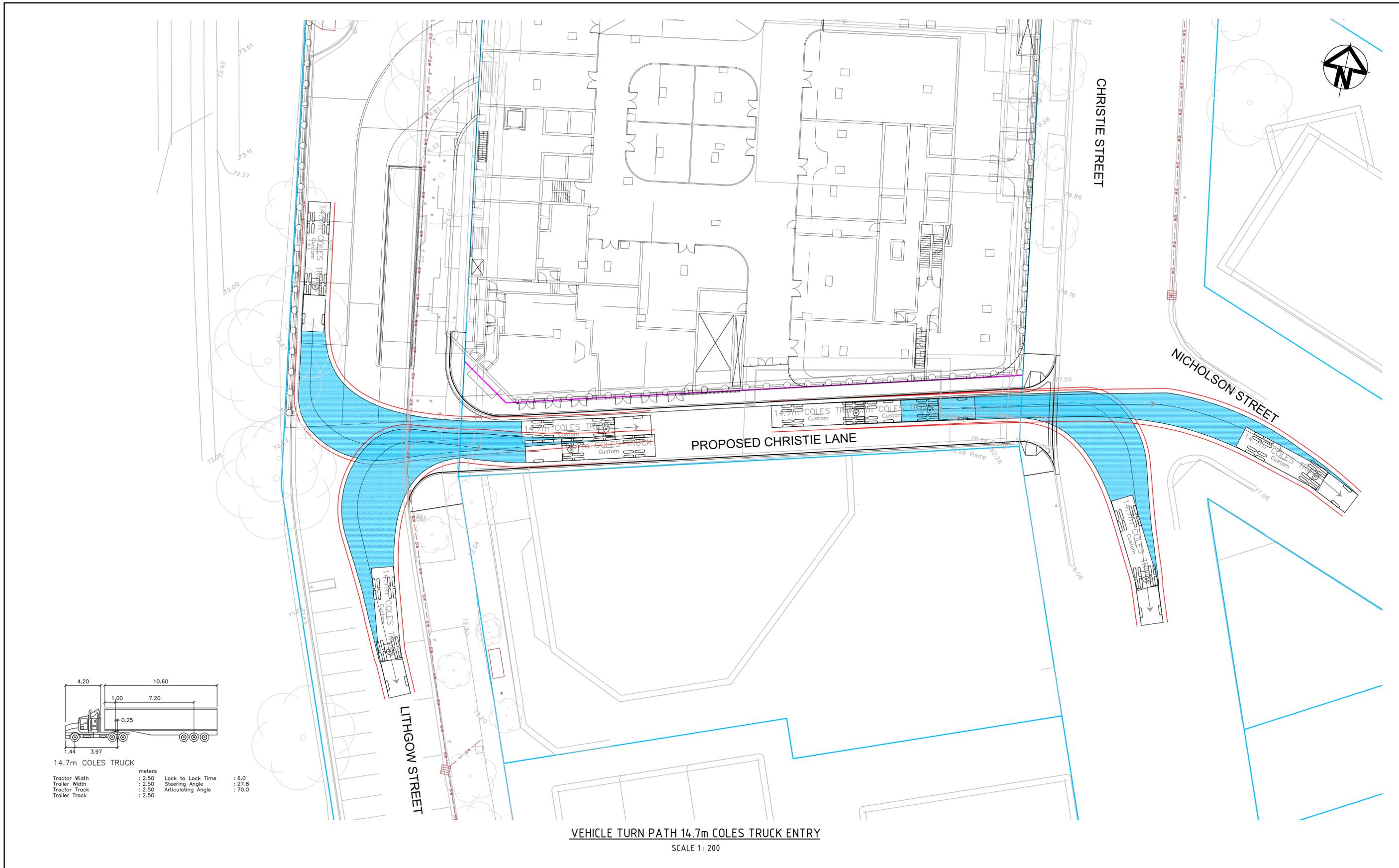
Project  
**88 CHRISTIE STREET  
ST LEONARDS**

Title  
**VEHICLE TURN PATH  
PLAN  
SHEET 5**

Civil Engineers and Project Managers

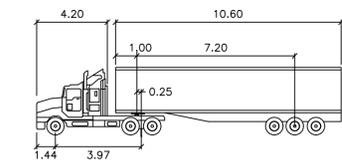
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Status	<b>FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION</b>		A1
Drawing No.	17-481	Project No.	D



VEHICLE TURN PATH 14.7m COLES TRUCK ENTRY

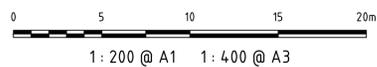
SCALE 1 : 200



14.7m COLES TRUCK

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

Bar Scales



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Client



Scales

1 : 200 @ A1

Grid

MGA

Height Datum

AHD

Drawn

Designed

Checked

Approved

TS

GB

JP

Project

88 CHRISTIE STREET  
ST LEONARDS

Title

VEHICLE TURN PATH  
PLAN  
SHEET 6

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Status FOR APPROVAL

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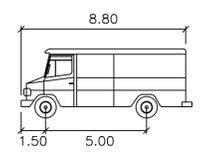
Drawing No. DAC45

Project No. 17-481

Issue D

A1

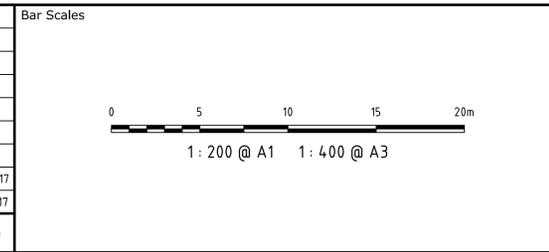
Issue	Description	Date
D	RE-ISSUED FOR DA APPROVAL	22-12-17
C	ISSUED FOR DA APPROVAL	13-12-17
B	DRAFT DA ISSUE	08-12-17
A	DRAFT DA ISSUE	24-11-17



SERVICE VEHICLE  
 meters  
 Width : 2.50  
 Track : 2.50  
 Lock to Lock Time : 6.0  
 Steering Angle : 38.7

FOR CONTINUATION REFER TO DRAWING DAC48

Issue	Description	Date
B	RE-ISSUED FOR DA APPROVAL	22-12-17
A	ISSUED FOR DA APPROVAL	13-12-17



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Scales	1 : 200 @ A1	Drawn	TS
		Designed	GB
Grid	MGA	Checked	JP
Height Datum	AHD	Approved	

Project  
**88 CHRISTIE STREET  
 ST LEONARDS**

Title  
**TEMPORARY LITHGOW  
 STREET ADJUSTMENT  
 PLAN SHEET 1**

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Status	<b>FOR APPROVAL</b>	A1
	<b>NOT TO BE USED FOR CONSTRUCTION</b>	
Drawing No.	DAC47	Issue
Project No.	17-481	B

