



New Primary School at Warnervale for SSD Application

Strategic Design (Pre-Construction) Road Safety Audit

Prepared for:

Billard Leece Partnership

12 December 2019

The Transport Planning Partnership

New Primary School at Warnervale for SSD Application

Strategic Design (Pre-Construction) Road Safety Audit

Client: Billard Leece Partnership

Version: 01

Date: 12 December 2019

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| Version | Date | Prepared by | Reviewed by | Approved by | Signature |
|---------|----------|-------------|---------------|---------------|---|
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| 02 | 12/12/19 | Doris Lee | Wayne Johnson | Wayne Johnson |  |

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A. STRATEGIC DESIGN DRAWINGS

1 Road Safety Audit Summary

| | |
|-----------------------|---|
| Audited project: | New Primary School at Warnervale |
| Client: | Billard Leece Partnership |
| Project manager: | Kelsey Godwin-Smith |
| Email address: | kelsey@blp.com.au |
| Telephone: | 0439 288 596 |
| Audit Team: | Wayne Johnson (level 3 lead road safety auditor) Doris Lee (level 3 road safety auditor) |
| Audit type: | Strategic Design (Pre-Construction) Road Safety Audit |
| Commencement meeting: | N/A |
| Audit date: | 10 December 2019 |
| Completion meeting: | N/A |

The objective of this road safety audit is to examine and identify road safety concerns for the proposed road changes associated with the strategic design of a new primary school located adjacent to Warnervale Road at Warnervale.

The findings of the road safety audit have been detailed in Section 4.3 of this report.

2 Introduction

2.1 Background

Construction of a new primary school is being proposed at 75 Warnervale Road, Warnervale. The school is to accommodate 460 students from kindergarten to Year 6 and will include an off-street car park for staff and visitors, a drop-off/pick-up area and bus facilities.

The subject of this Strategic Design (Pre-Construction) Road Safety Audit is the changes to road facilities on Warnervale Road. Key features of the proposal include:

- Pedestrian crossing on Warnervale Road
- Bus bays on both sides of Warnervale Road
- Footpath on both sides of Warnervale Road
- A roundabout on Warnervale Road
- Two vehicular access points to the school on Warnervale Road with separate access to:
 - Off-street car park and drop-off/pick-up area
 - Visitor parking spaces and delivery loading bay.

2.2 Audit Objective

The objective of this Audit is to ensure that there are no fundamental flaws in the proposal in relation to road safety that may cause road safety issues and would be costly to address at a later date both in terms of cost and time.

2.3 Procedures and Reference Material

The procedures used are described in the following guidelines:

- Roads and Maritime Services' 2011 Guidelines for Road Safety Audit Practices
- Austroads Guide to Road Safety 2019: Part 6 Managing Road Safety Audits
- Austroads Guide to Road Safety 2019: Part 6A Implementing Road Safety Audits.

Austroads checklist was used by the audit team as a reference in this road safety audit. Key elements examined included:

- General topics – traffic mix, access to property and developments
- Design issues
- Intersections
- Environmental constraints

- Other matters.

2.4 Audit Team

The RSA was carried out by the following team:

- Wayne Johnson – level 3 road safety auditor (lead auditor)
- Doris Lee – level 3 road safety auditor (team member).

3 Road Safety Audit Program

3.1 Commencement Meeting

A formal meeting was not held.

3.2 Audit Location

Day time site inspection was carried out on Tuesday 10 December 2019 in fine weather conditions. A number of photographs and videos were taken.

3.3 Completion Meeting

A completion meeting is not required.

4 Road Safety Audit Findings

4.1 Introduction

Table 4.1 provides specific details of the audit findings and a risk rating as high, medium or low. The risk ratings have been based on the risk matrix presented in Table 4.1, which has been adopted from the standard Austroads Risk Matrix.

Table 4.1: Risk Matrix

| | Likelihood | Highly probable | Occasional | Improbable |
|----------|------------|-----------------|------------|------------|
| Severity | | | | |
| Major | | High | High | Medium |
| Moderate | | High | Medium | Low |
| Minor | | Medium | Low | Low |

The terms in Table 4.1 are described below.

Likelihood:

- Highly probable: It is likely that more than one crash of this type could occur within a five-year period.
- Occasional: It is likely that less than one crash of this type could occur within a five-year period.
- Improbable: Less than one crash of this type could occur within a 10-year period.

Severity:

- Major: The crash is likely to result in a fatality or serious injuries
For example, high/medium speed vehicle collision, high/medium speed collision with a fixed object, pedestrian struck at high speed, and cyclist hit by car.
- Moderate: The crash is likely to result in minor injuries or large scale of property damage
For example, some slow speed vehicle collisions, cyclist falls, and rear end crashes.
- Minor: The crash is likely to result in minor property damage or many near miss crash events
For example, some slow speed collisions, pedestrian walks into object (no head injury), and car reverses into post.

Priority:

- High: Very important, and needs to be addressed urgently.
- Medium: Important, and needs to be addressed as soon as possible.
- Low: Needs to be considered as part of regular maintenance/planning program.

4.2 Responding to the Audit Report

As set out in the road safety audit guidelines, the responsibility for the road rests with the project manager, not with the auditor. The project manager is under no obligation to accept the audit findings. Neither is it the role of the auditor to agree to, or approve the project manager's responses to the audit.

The audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager in conjunction with all other project considerations.

4.3 Road Safety Audit Findings




The audit findings are documented in Table 4.2 which provides:

- specific details of the road safety issues identified during the audit
- a risk level rating for each of the road safety audit findings.

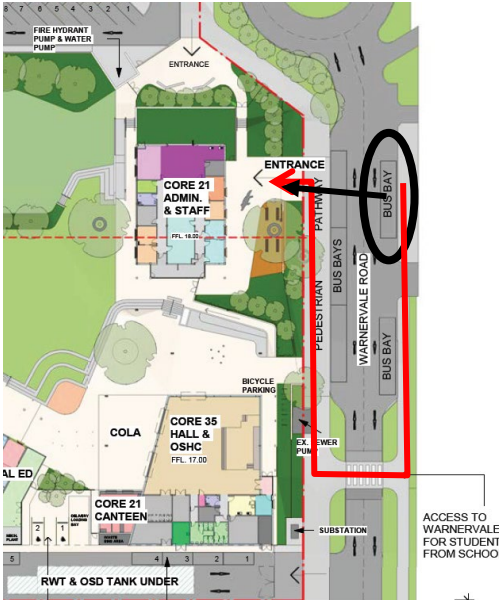

It should be acknowledged that positive attributes of the audited road section have not been discussed. Deficiencies that do not cause a safety problem are also not listed.

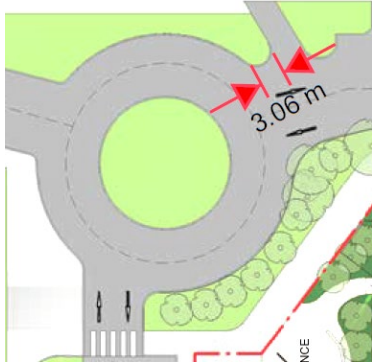

In-line with Roads and Maritime Services' best practice recommendations have not been included in the road safety audit findings.

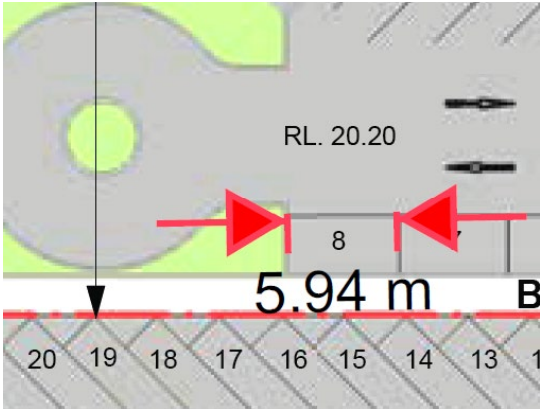
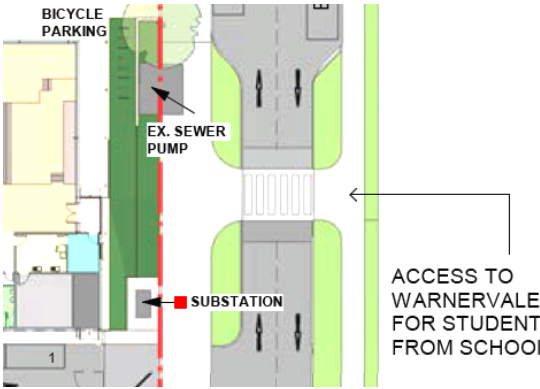
Table 4.2: Road Safety Audit Findings

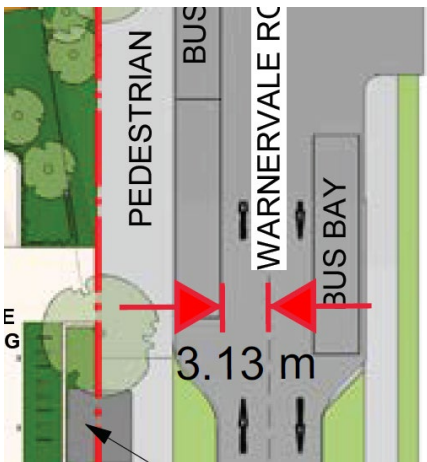
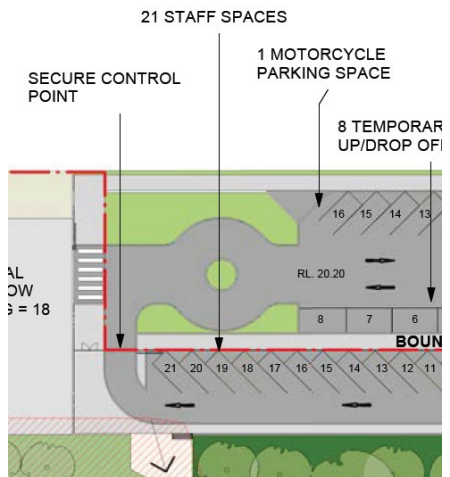
| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|--|---|--|------------|----------|-------------|-------------------|
| 1. | Proposed roundabout on Warnervale Road | <p>The proposed roundabout is located on a crest. Motorists' sight lines may be compromised and hence not expecting a roundabout on Warnervale Road.</p> <p>Furthermore, the design does not include a splitter island on any approaches to the roundabout to enhance visibility to the roundabout and deflect vehicles to curve around the roundabout island.</p> <p>Risk of motorists travelling straight through the roundabout island resulting in conflicts with other vehicles.</p> |  <p>Diagram above: strategic design of the roundabout</p>  <p>Photo above: Eastbound approach to the proposed roundabout location</p>  <p>Photo above: Westbound approach to the proposed roundabout location</p> | Occasional | Moderate | Medium | |

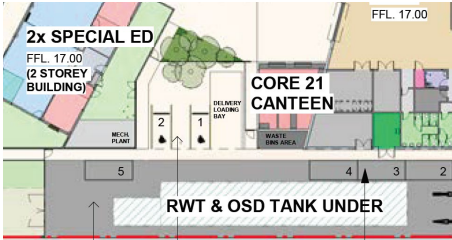
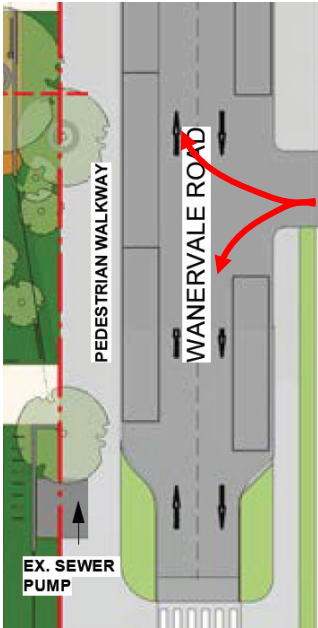
| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|---|--|---|------------|----------|-------------|-------------------|
| 2. | Proposed pedestrian crossing on Warnervale Road | <p>It is not clear whether lighting would be provided directly above the proposed pedestrian crossing on Warnervale Road.</p> <p>Insufficient level of illumination at a pedestrian crossing increases risks to pedestrians as motorists may not sight the crossing facility and the pedestrians on it during the night-time.</p> |  | Improbable | Major | Medium | |
| 3 | Proposed roundabout on Warnervale Road | <p>Warnervale Road on approach to the new roundabout comprises one travel lane. The new roundabout on Warnervale Road comprises two circulating lanes.</p> <p>Provision of two circulating lanes through the roundabout is unnecessary and may lead to lane change movements and motorists not reducing their travel speed whilst on the roundabout.</p> |  | Improbable | Major | Medium | |

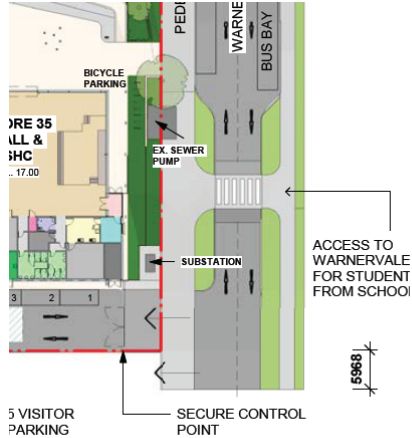
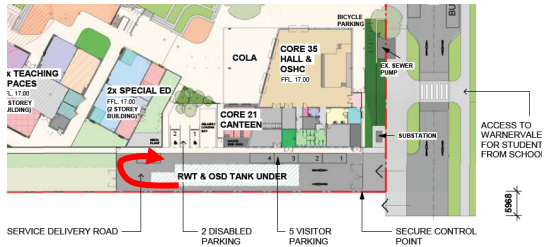
| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|---|--|---|------------|----------|-------------|-------------------|
| 4. | Proposed pedestrian crossing on Warnervale Road | <p>The proposed pedestrian crossing on Warnervale Road is located away from the main school entrance.</p> <p>Consequently, students alighting a bus at the westernmost bus stop on the north side of Warnervale Road may not use the proposed pedestrian crossing and may take the shortest route across Warnervale Road which may lead to incidents with vehicles on Warnervale Road.</p> |  | Improbable | Moderate | Low | |
| 5. | No. 50 Warnervale Road driveway | <p>The distance between the existing driveway of No. 50 Warnervale Road and the roundabout is approximately 3m which is less than the minimum requirement of 6m according to AS2890.1.</p> <p>In addition, there are no physical measures to prevent vehicles turning right into and out of the driveway adjacent to the roundabout.</p> <p>Risk of a vehicle entering the roundabout circulation lane directly from the No. 50 Warnervale Road driveway. This would increase traffic conflicts at the roundabout.</p> |  | Improbable | Moderate | Low | |

| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|---------------------------------------|--|---|------------|----------|-------------|-------------------|
| | | |  | | | | |
| 6. | Proposed bus zones on Warnervale Road | <p>The bus zone on the south side of Warnervale Road appears to be 45m to accommodate three buses. This is insufficient to enable a bus to manoeuvre into the third bus bay, and a bus to leave the second and third bus bay, when other bus bays are occupied.</p> <p>Furthermore, the length of the first bus zone on the north side of Warnervale Road is insufficient to enable a bus to draw out due to the kerb build out.</p> |  | - | - | Note only | |

| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|---|--|---|------------|----------|-------------|-------------------|
| 7. | Proposed off-street car park | Parking bay 8 appears to be approximately 6m long which is less than the minimum requirement of 6.2m as an obstructed end space according to AS2890.1. |  | - | - | Note only | |
| 8. | Proposed pedestrian crossing on Warnervale Road | The proposed pedestrian crossing may not meet the numerical warrant given the low pedestrian volumes across Warnervale Road. |  | - | - | Note only | |

| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|---------------------------------|---|---|------------|----------|-------------|-------------------|
| 9. | Travel lanes on Warnervale Road | The width of the travel lane on Warnervale Road appears to be 3.1m which is less than the minimum requirement of 3.25m for a bus route. |  | - | - | Note only | |
| 10. | Internal roundabout | Swept path analysis should be undertaken to confirm a B-99 passenger vehicle can turn-around within the proposed roundabout. |  | - | - | Note only | |

| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|--|---|---|------------|----------|-------------|-------------------|
| 11. | Internal roundabout | Swept path analysis should be undertaken to confirm that the largest service vehicle can enter and exit the school in a forward direction. |  | - | - | Note only | |
| 12. | Warnervale Rural Fire Brigade driveway | Swept path analysis should be undertaken to confirm that the largest service vehicle can exit Warnervale Rural Fire Brigade without encroaching the bus zone or centre line when turning left from the brigade. |  | - | - | Note only | |

| Item No. | Location | Descriptions of Findings | Design | Likelihood | Severity | Risk Rating | Designer Response |
|----------|--------------------------|--|---|------------|----------|-------------|-------------------|
| 13. | Bicycle parking | Bicycle parking is proposed within the proposed new school. However, no dedicated cycle facilities are provided for teachers who cycle to/ from school along Warnervale Road. |  | - | - | Note only | |
| 14. | Eastern school car park. | The eastern school car park does not provide any turnaround facilities within the car park. |  | - | - | Note only | |

5 Concluding Statement

The findings and opinions in the report are based on the examination of the specific road and environs, and might not address all concerns existing at the time of the audit.

The auditors have endeavoured to identify features of the road that could be modified in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as absolutely safe.

While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.



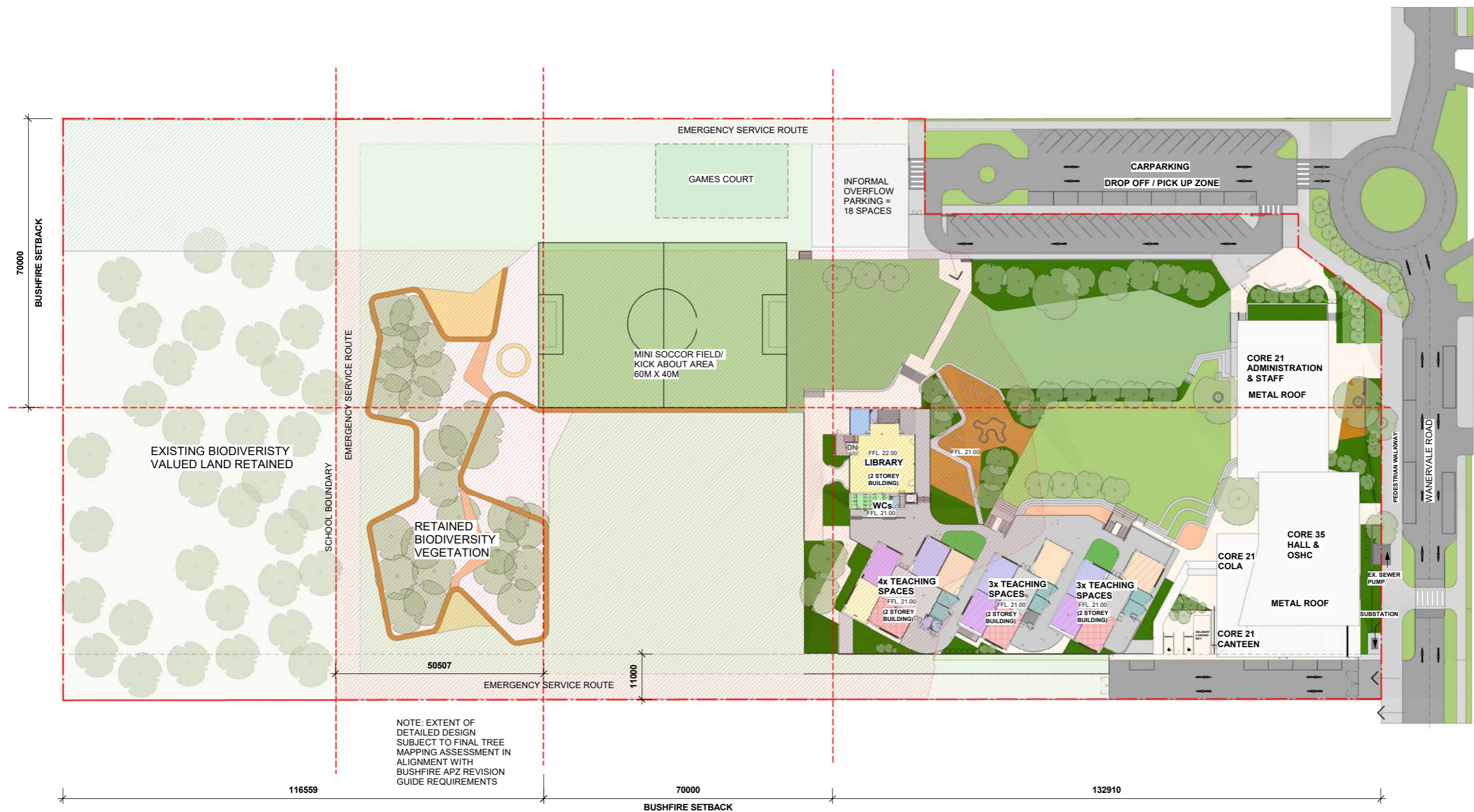
Wayne Johnson
Level 3 Lead Road Safety Auditor
The Transport Planning Partnership



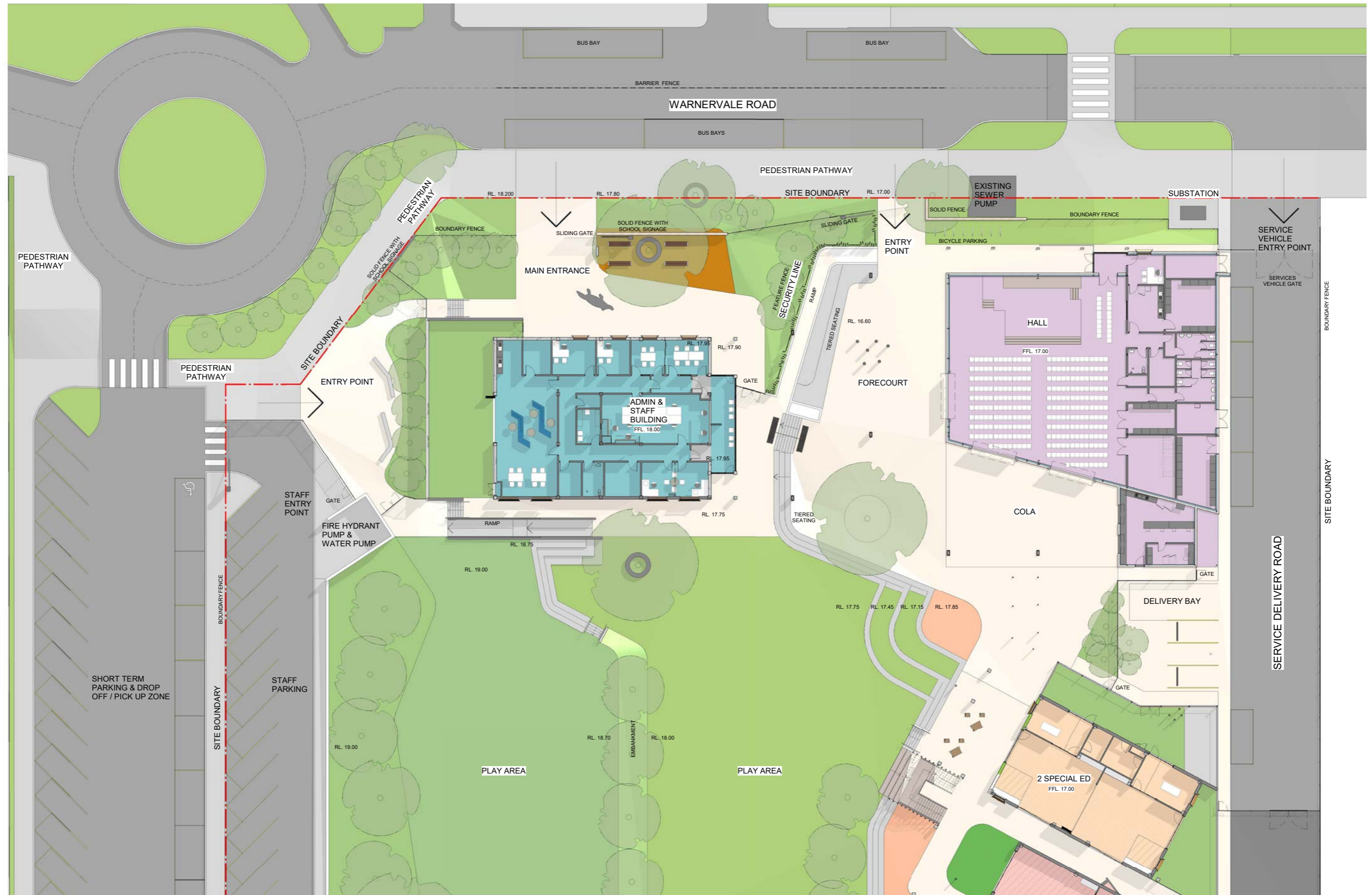
Doris Lee
Level 3 Road Safety Auditor
The Transport Planning Partnership

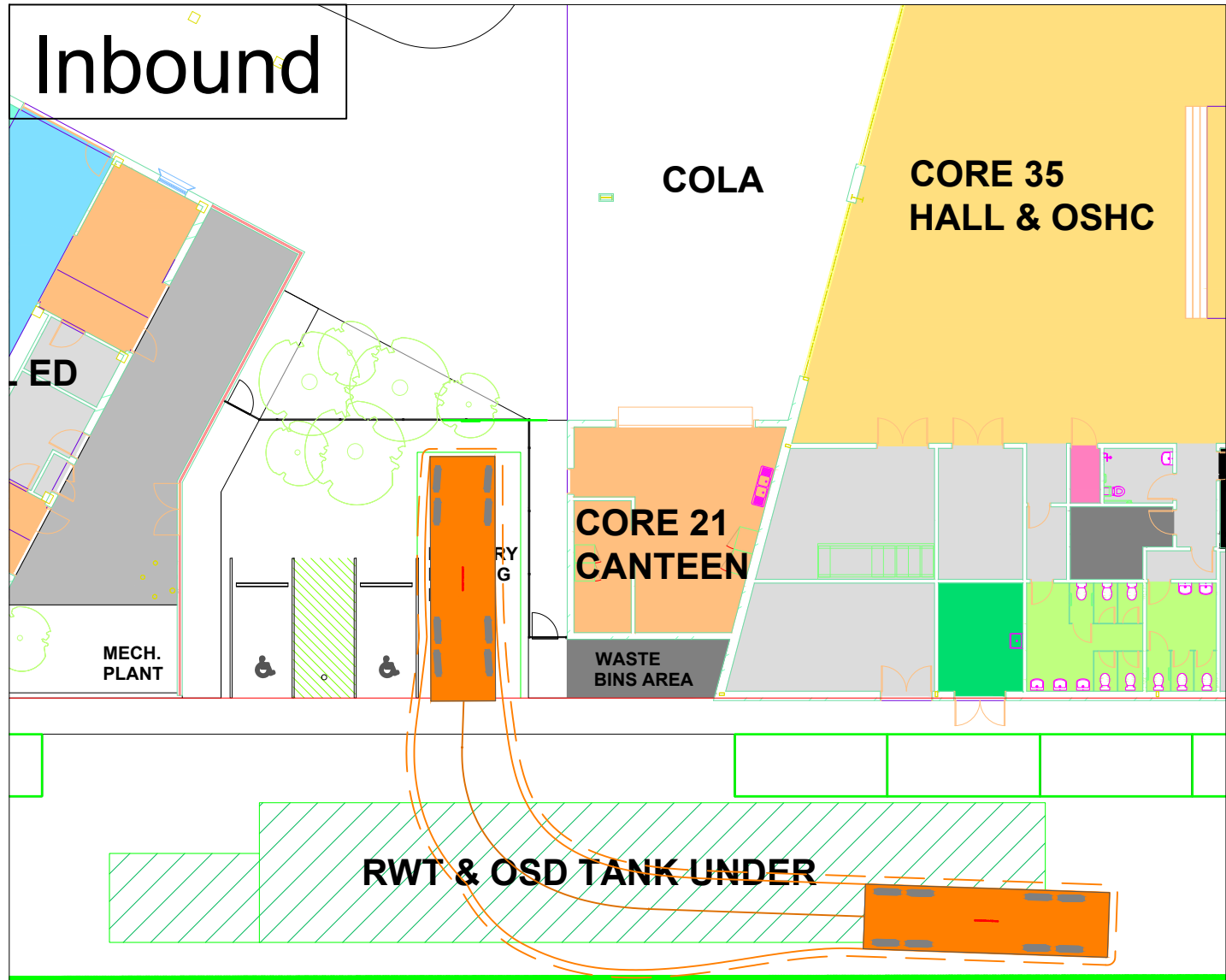
Appendix A

Strategic Design Drawings





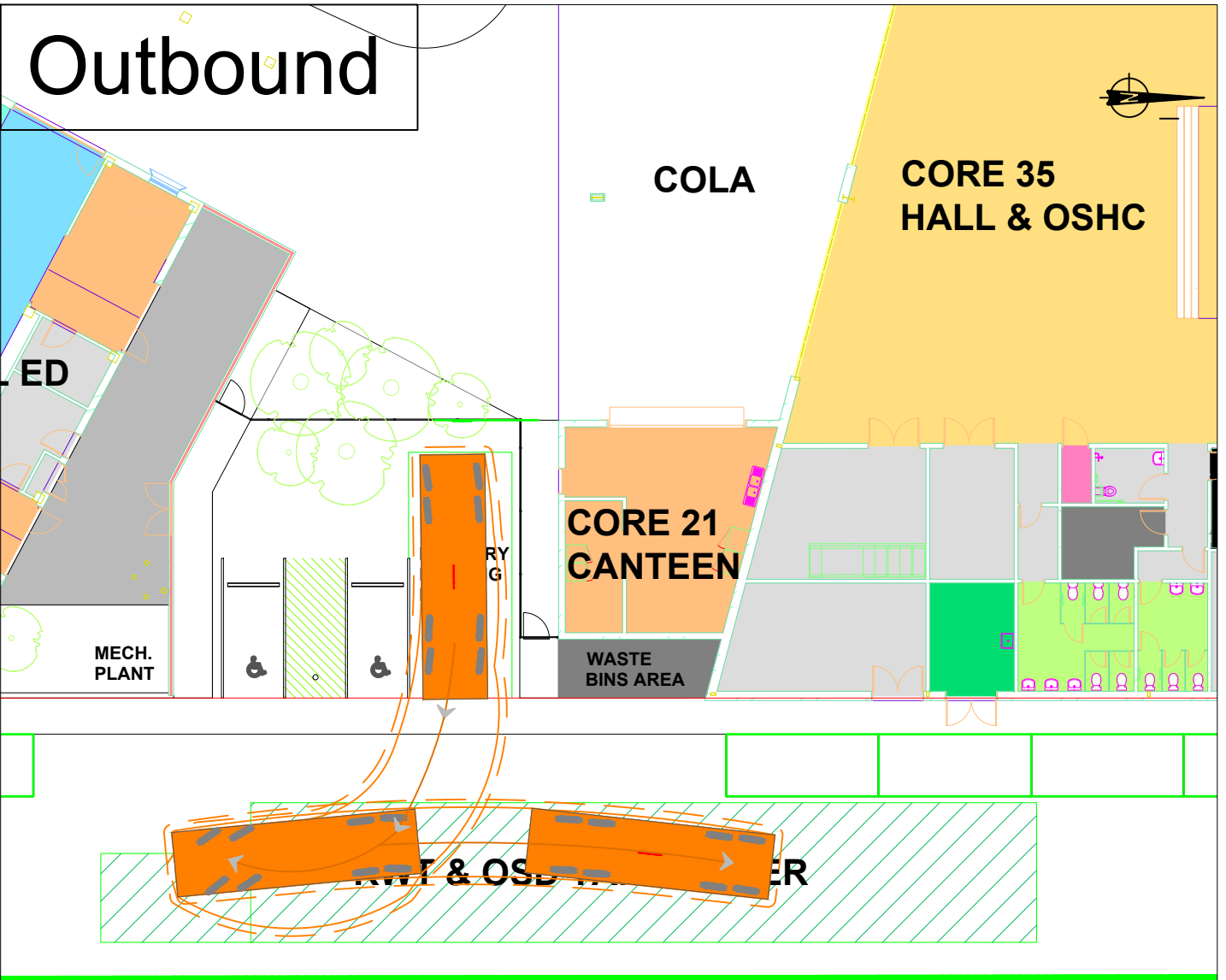




9.45 Front Lifting Truck

mm

Width : 2500
Track : 2220
Lock to Lock Time : 6.0
Steering Angle : 28.0

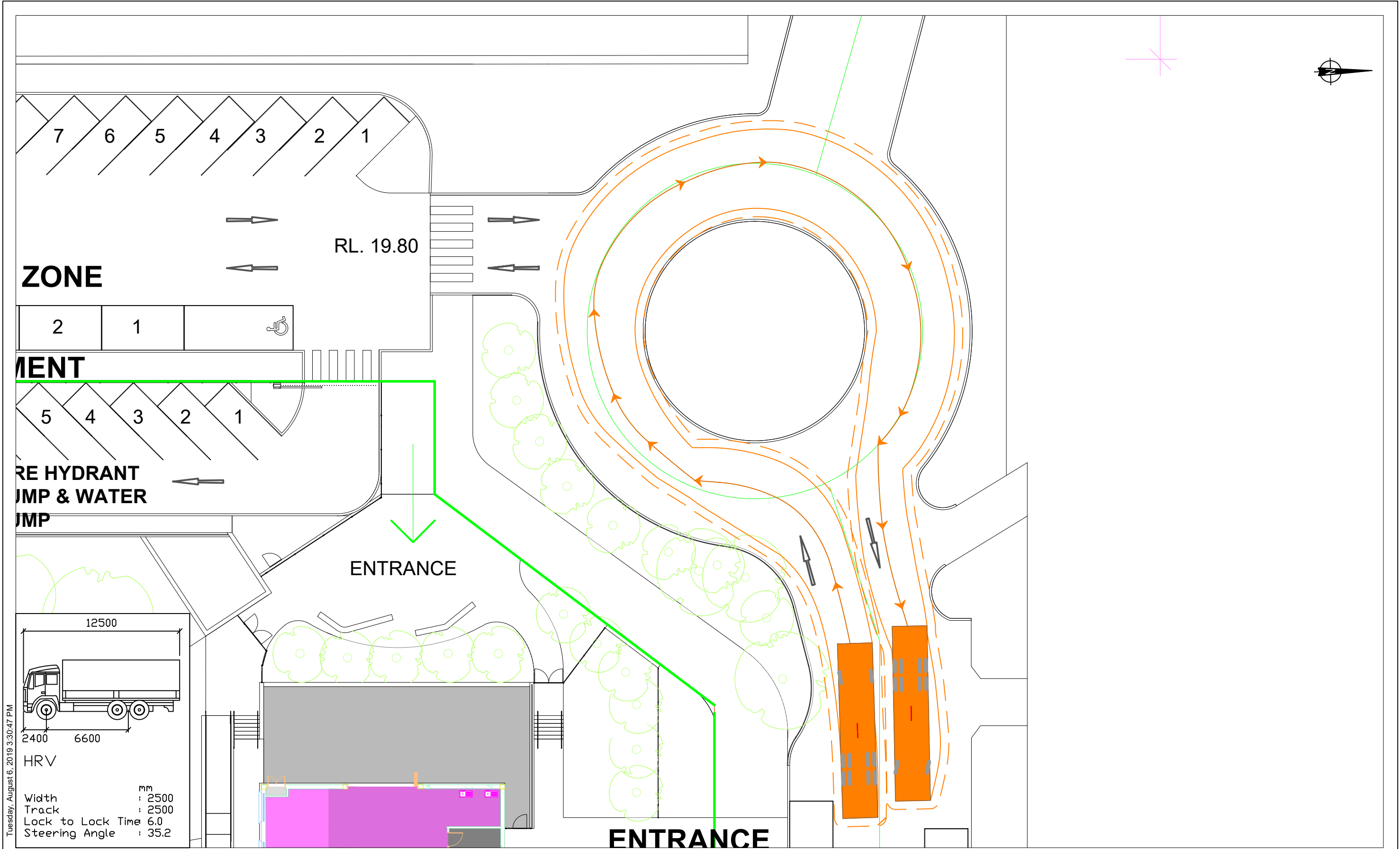


| REV | DATE | DRN | CHK | DESCRIPTION |
|-----|----------|-----|-----|-------------|
| 00 | 04/06/19 | DA | | |
| | | | | |
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Warnervale Public School
Swept Path Assessment
9.45 metres Front Loader (Waste Collection Truck)

| | | |
|------------------------------|-------------|-----|
| DRAWN: DA | --- | --- |
| DATE: 04-06-19 | STATUS: --- | |
| SCALE: 1:250 @ A3 | | |
| DWG NO:15536 - 02SB - 190604 | | |

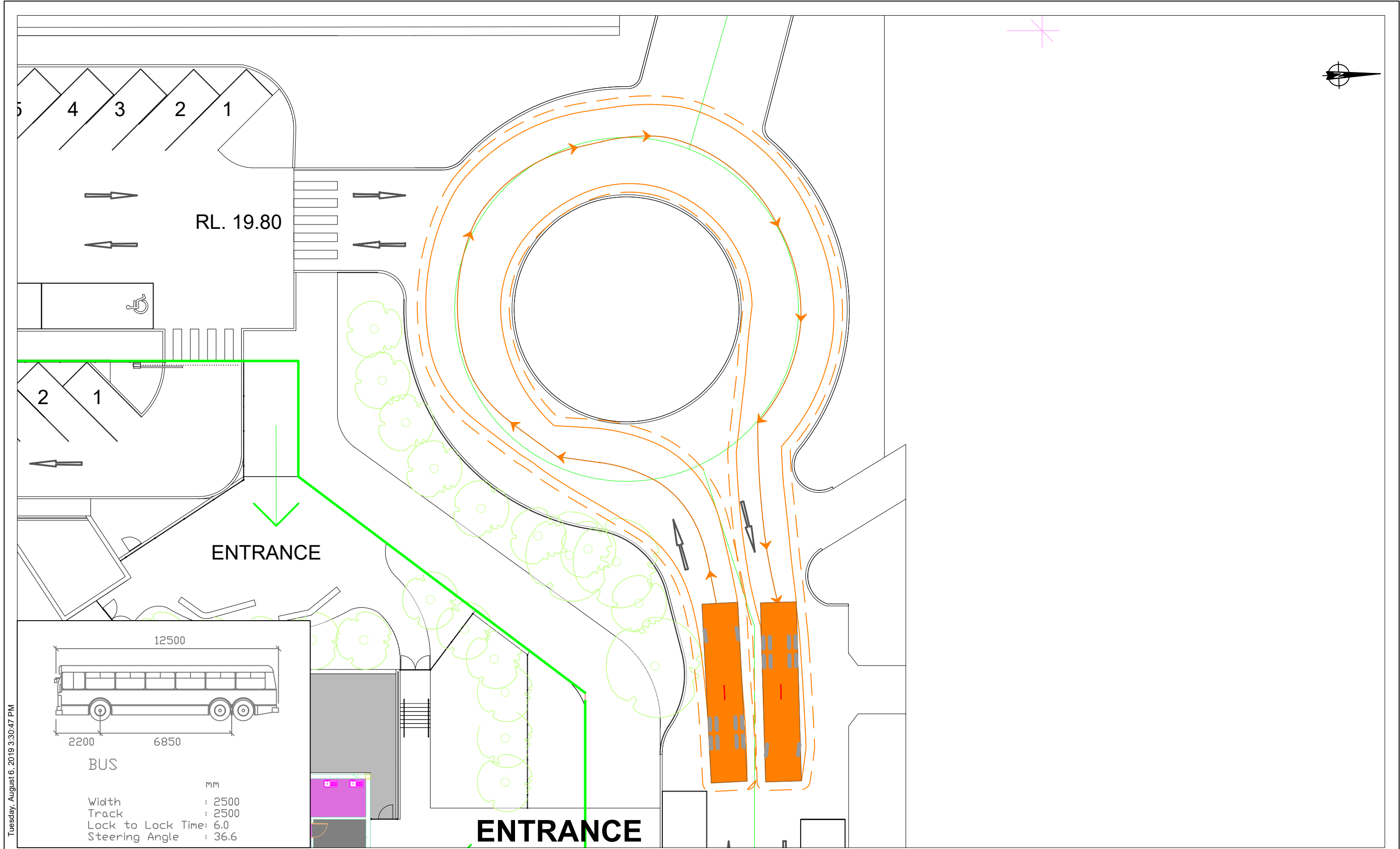




| REV | DATE | DRN | CHK | DESCRIPTION |
|-----|----------|-----|-----|-------------|
| 00 | 06-08-19 | DA | --- | --- |
| | | | | |
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New Primary School at Warnervale
Swept Path Assessment
12.5 metres Heavy Rigid Vehicle (HRV)

| | | |
|---------------------|-------------|-----|
| DRAWN: DA | --- | --- |
| DATE: 06-08-19 | STATUS: --- | |
| SCALE: 1:250 @ A3 | | |
| DWG NO:15536 - 02SE | | |



| REV | DATE | DRN | CHK | DESCRIPTION |
|-----|----------|-----|-----|-------------|
| 00 | 06/08/19 | DA | --- | --- |
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New Primary School at Warnervale
Swept Path Assessment
12.5 metres long School Bus

| | | |
|---------------------|-------------|-----|
| DRAWN: DA | --- | --- |
| DATE: 06-08-19 | STATUS: --- | |
| SCALE: 1:250 @ A3 | | |
| DWG NO:15536 - 02SE | | |

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