



# Bio Resource Building

University of Newcastle Callaghan Campus

Construction Pedestrian & Traffic  
Management Plan

4<sup>th</sup> May 2019

**SECA**solution 

Bio Resource Building, University of Newcastle  
Callaghan campus, University Drive, Callaghan, NSW

## Construction Pedestrian & Traffic Management Plan

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Client: Richard Crooks Construction

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## 1 Introduction

The approved Bio-Resource facility within the existing University of Newcastle Callaghan Campus has a condition of consent requiring a Construction Pedestrian & Traffic Management Plan (CPTMP) to be prepared to the satisfaction of Newcastle City Council and the RMS. Due to the nature of the work a CPTMP incorporating the required Traffic Control Plans (TCPs) is required to ensure road and pedestrian safety in particular is maintained for the duration of the construction works.

This CPTMP has been prepared for the construction works associated with the single stage construction of the new building on site.

The site is located within the suburb of Callaghan within the existing university campus as shown below in Figure 1-1.

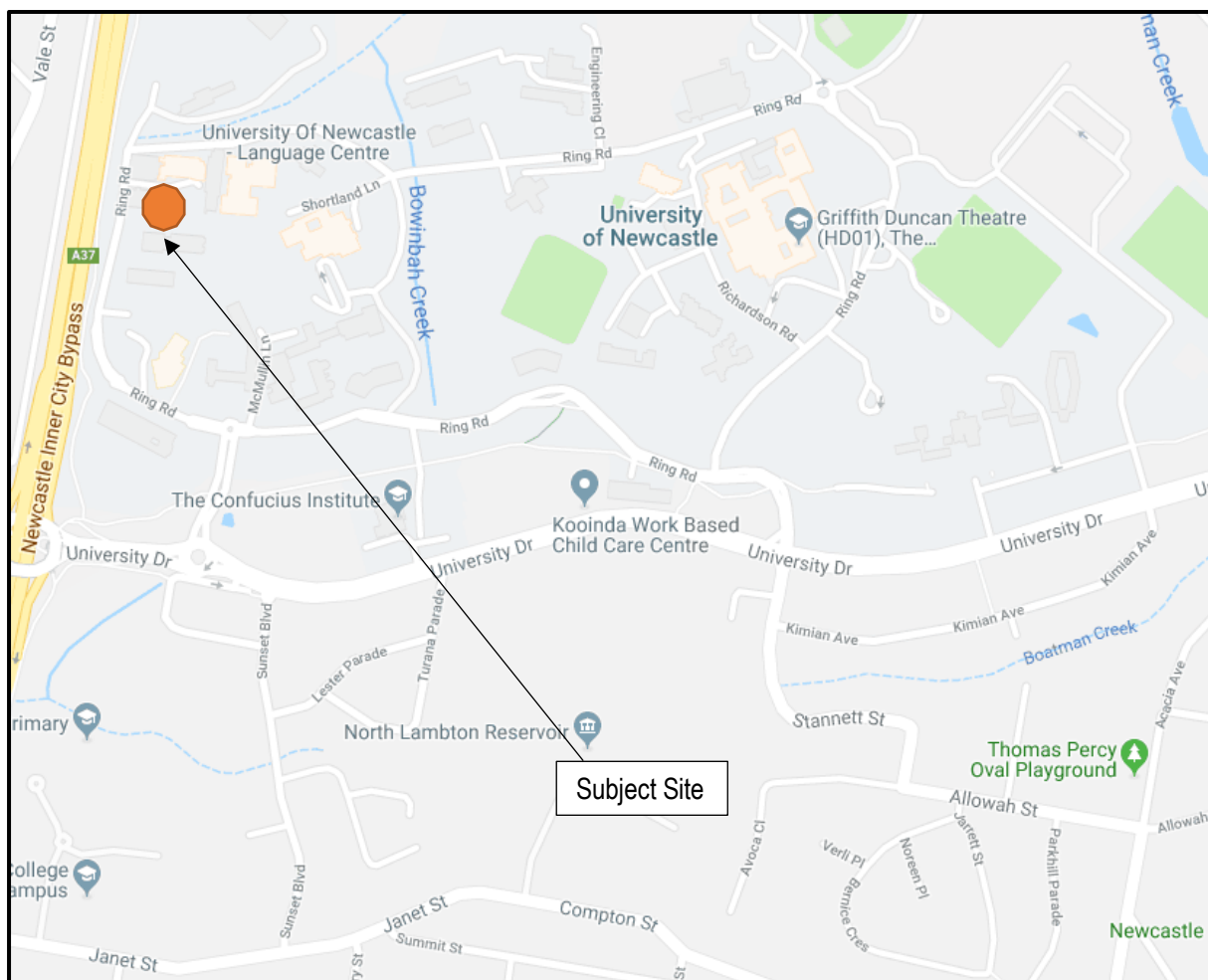


Figure 1-1 – Site Location

## 1.1 Existing Road Network and Local Characteristics

The major road through the locality is the **Newcastle Inner City Bypass** which has a north-south orientation and runs to the west of the site. It provides a high-quality road connection to the Pacific Highway / New England Highway and connections towards the industrial areas in Tomago and Thornton to the north and to Newcastle Road and the Newcastle Link Road to the south. It connects with University Drive via a grade separated interchange, with both northbound and southbound on/off ramps provided on the bypass. It has a speed limit of 90km/hr passing University Drive.

**University Drive** is a major through route providing a bypass around The University of Newcastle and linking the Newcastle Inner City Bypass to the wider Newcastle area. University Drive has two lanes of travel in each direction separated by a central median. There is a parking lane and cycling lane along both sides. It operates under the posted speed limit of 60km/hr.

The campus, and in turn the subject site, connects with University Drive via 4 separate access points. The western most connection is via a 3 way roundabout with partial traffic signal control to control delays / queues during peak periods. This western most access point is nearest the project site and allows for a short travel distance within the university campus for access to the subject site. It is therefore considered the most appropriate for access as part of this CPTMP.

The internal **Ring Road** within the university campus provides a single lane of travel provided in both directions and offers a low speed environment 40km/hr. It provides access to the various buildings and car parks located across the campus and allows access for the shuttle bus and other large heavy vehicles as required by the university.

Cyclists are able to use the road as required, with marked cycling lanes along both sides of University Drive passing the subject site.

## 1.2 Traffic Volumes and Road Operation

Traffic surveys undertaken by Seca Solution in 2019 provided traffic volumes for University Drive in the vicinity of the subject site. Two way traffic flows west of the western entry 2698 in the AM peak (8.00-9.00) (eastbound 1942/westbound 756) whilst in the PM peak (4.00-5.00) flows were 2565 (798 eastbound/1767 westbound). These flows are the highest at this point reflecting the campus demands for turning traffic inbound and outbound at this primary access point. Flows along University Drive, east of this point are lower.

University Drive has two lanes of travel in each direction, and as such has sufficient capacity for the daily and peak hour volumes observed. Observations on site show that the roundabout controlled intersection of University Drive and the western most access generally operates well with minimal delays and congestion. There are some delays during peak periods associated with university traffic but these occur over a short peak. Outside of the peak hours there are limited delays and congestion in this location.

## 1.3 Risk assessment

In the preparation of this CPTMP, a risk assessment has been completed. The major risk identified with the construction works traffic is associated with the interaction of traffic with pedestrians. The site will be isolated with a security fence around the perimeter that will stop all pedestrians from accessing the site. A pedestrian detour is provided around the site as shown in Appendix B. The risk assessment is included in Appendix C to this CPTMP.

## 2 Construction Activities

### 2.1 Methodology

The development allows for construction works, all located within the university campus, including:

- Site establishment
- Demolition of the existing buildings including access for heavy vehicles
- Construction of the new buildings including heavy vehicle access

The construction work will be completed in a single stage, with construction work to commence on 13<sup>th</sup> May 2019 and be finished on 8<sup>th</sup> October 2020. Initial works completed to date have been to provide a fence around the site only.

The location of the site allows for all construction traffic to enter via the roundabout controlled intersection of University Drive and the western access. This provides the shortest route and reduces impacts upon existing users across the campus.

All construction staff vehicles will be parked within the university campus as appropriate or on University Drive during the construction works as there is no parking available within the subject site.

### 2.2 Timing

The work will commence on site on 13<sup>th</sup> May 2019 and will be completed within 61 weeks by 8<sup>th</sup> October 2020.

### 2.3 Working Hours

**Construction hours** would be between 7:00am and 6:00pm Monday to Friday and 8.00 AM to 1.00 PM on a Saturday.

No construction work is to be carried out on a Sunday or public holiday. No construction work contributing to unacceptable noise levels or major deliveries are scheduled outside of the weekdays in line with EPA Guidelines.

Work may be undertaken outside these hours where the following occurs:

- The delivery of fill or material may occur outside these hours if required by the Police or other authorities.
- Council providing permission for working out of hours;
- It is required in an emergency to avoid loss of life, damage to property and / or to prevent environmental harm;
- The work is approved from the Construction Noise and Vibration Management Plan;
- Residents likely to be affected by the works are notified of the timing and duration of these works at least 48 hours prior to the commencement of the works.

### 2.4 Construction staff numbers

Staff demands for demolition shall 50 per day maximum which includes the management staff for Richard Crookes Construction. Peak staff demands during construction will be 100 per day, however this will vary and be much lower during low intensity stages of the construction. Construction staff vehicles will not be parked in the immediate locality of the construction site, with all construction staff parking to be directed to park on either University Drive, within the paid parking areas in the University or in the free parking at the eastern end of the university campus.

### 3 Traffic Management Assessment

Traffic will access the site via University Drive and the roundabout controlled intersection at the western access to the university. The vehicles will then turn left inside the campus and use the Ring Road to access the site with egress along Science Lane and left onto Ring Road. The site is located 1 kilometre west of the Newcastle Inner City Bypass, which provides connection to the Pacific Highway to the north and Newcastle Link Road to the south. An additional access route to the Pacific Highway is available to the east of the site via University Drive and Maud Street.

The access routes for heavy vehicles are shown to follow in Figure 3-1.

There will be no public access within the site during the construction works with a fence to be provided around the works and gates controlled by staff onsite to allow for construction traffic access only. The construction site footprint includes an area of existing staff only at-grade car parking along both the northern and southern side of the site along Science Lane and Medical Sciences Lane. These parking spaces are accessed via existing driveways within the site and so shall be temporarily unavailable with a security fence to prohibit both vehicle and pedestrian access.

The overall campus allows for a high number of pedestrian movements allowing access between the various buildings across the campus. The pedestrians also use the driveways and parking areas for access between the various buildings and the provision of the security fence around the construction site is an important element in maintaining pedestrian safety past the site.

The truck numbers associated with the construction work is low and it is considered that the movement of vehicles in and out of the site for construction works can safely occur with minimal delays to pedestrians and traffic in a safe manner. During the demolition stage of the project, there will be a requirement for truck and dog combinations to access the construction site – these will occur direct off the internal Ring Road with a right turn into the site. The trucks will then be loaded within the construction site then exit in a forward direction.

As part of the general construction work on site, there could be up to 5 trucks per hour required to access the site. These numbers could vary and on some days there may be no requirement for delivery vehicles to the site.



Photo 1 – View north along Ring Road. Construction site to right hand side of the photo

There will be three horizontal pours only, with 10-15 days in total with concrete activities allowing for the vertical pours which will see a high number of concrete trucks accessing the site. At this time the truck numbers could be in the order of 10 inbound per hour to access the site. These trucks will be managed off site to ensure there is no build-up of vehicles on the Ring Road.

No mitigation measures are required for traffic movements associated with the construction works.

As part of the construction activities, there will be a requirement for a crane to be located on site. In the initial stage of the set-up of the offices, this mobile crane will be located on the northern side of the site. This will be located on the existing medical sciences lane and will restrict vehicle movements at this time on this lane to one-way operation. At this time, Stop / Go control will be used on the connection between the laneway and the Ring Road to control vehicles entering and exiting the laneway to ensure that these movements occur in a safe manner. This laneway provides access to maintenance areas and the bin storage area only – the existing parking bays in this location will be temporarily removed as part of the site compound area. Existing traffic movements to these maintenance areas are very low.

There are waste bin collections required on Medical Science Lane which occur 2-3 times a week. Site personnel will manage the traffic flows on this laneway in co-ordination with the refuse truck driver. The refuse truck will be required to reverse out of the loading area due to lack of space to turn around. This will be managed and controlled by construction staff on site with pedestrians stopped from accessing this lane at these times. These waste collections typically occur in the early morning and as such typically do not interact with activities on site during normal work hours.



Photo 2 – View west along Medical Sciences lane. The site compound will reduce the width of this laneway and permit one-way traffic movements only. Parking on left hand side of the photograph will be temporarily removed as part of this project.



There will be minimal impact upon public transport services with no diversions required. There are no public bus services which access the campus in this location. There is a bus zone located on Ring Road to the immediate south of Science Lane – this bus stop is used by the regular campus shuttle bus that operates on site. The construction work shall not impact upon this bus stop.



*Photo 3 – Existing bus stop to immediate south of Sciences Lane to remain unaltered by the construction works*

There will be minimal impact for emergency vehicles, heavy vehicles or cyclists with no diversions required for normal work days. Pedestrians will be diverted around the site with appropriate directional signage and temporary footpaths. A fence provided around the full site construction zone shall exclude pedestrian access through the site and along its frontage.

Due to the timeframe of the works there will be minimal impact upon development within the locality of the site.

There will be minimal impact upon adjoining Council areas. Traffic routes in and out of the locality will be along the arterial road network which will experience minimal impacts due to the works.



Photo 4 – View east along Science Lane. All construction traffic will exit site compound via this laneway and turn left onto Ring Road

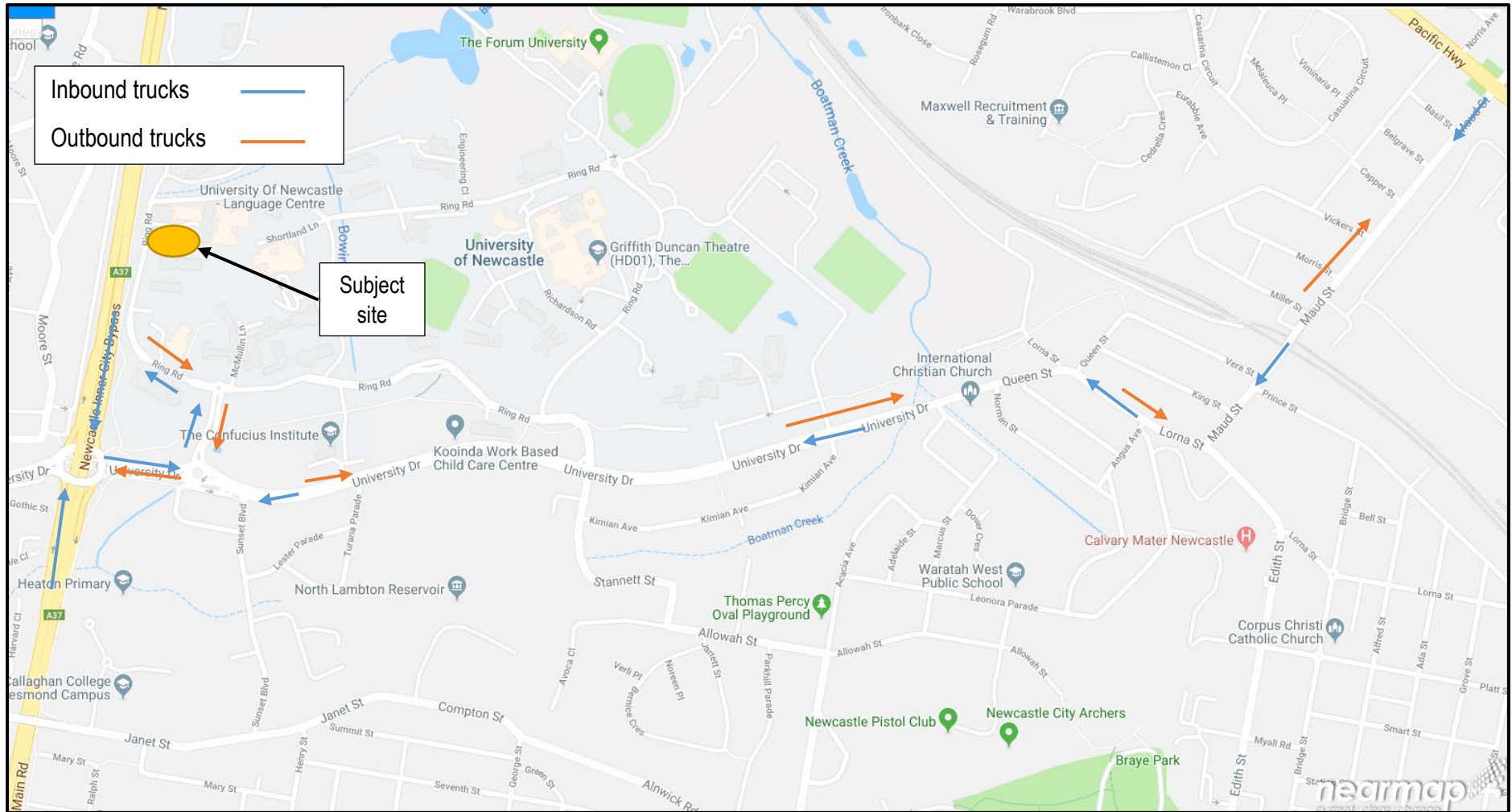


Figure 3-1 - Overview of primary heavy vehicle route associated with the construction works.

## 4 Traffic Control Plan

### 4.1 General

This TCP has been prepared to meet the requirements of the RMS Traffic Control at Work Sites Manual 2018. The plan covers the access requirements to the site including the safe passage of vehicles in and out of the subject site and for passing traffic in this location during the construction works.

At all times the Roads and Maritime Service's Traffic Control at Work Sites guidelines must be adhered to. Please refer to the RMS guidelines for traffic control matters not listed in this report.

### 4.2 Existing traffic conditions on Ring Road and within university campus

- 40km/hr posted speed limit;
- Peak period traffic on Ring Road adjacent to the site can be 200-300 vehicles per hour 2-way. Less than 50 outside of peak periods.

### 4.3 Cyclists and Pedestrians

Pedestrian demands along the western side of the site along Ring Road are very low, as this route does not provide a full length footway from Architecture Way south towards the site. There is a footpath on the western boundary of the site fronting Ring Road and the construction site fence will prohibit pedestrians from walking on this short length of path.

Observations on site show that the major pedestrian desire line is to the east of the site between the entry to the Medical Sciences building on Medical Sciences Lane and Chemist building / Basden Theatre area. There is an existing footpath to the east of the compound that runs under the tree cover in this area. This path will be partially retained with a temporary footpath to ensure that pedestrian access along this desire line is maintained at all times. These pedestrians then use Medical Sciences Lane to connect to the pedestrian entry point to the Medical Sciences building (west). The construction compound will maintain this pedestrian route for the duration of the construction work.

For the north-south movement along Ring Road past the site, the footpath will be closed and pedestrians will be diverted to use Medical Sciences Lane and the above pedestrian path. This gives a connection to Chemist Building and Basden Theatre. For connection to the bus zone to the immediate south of the compound on Ring Road pedestrians can walk along Sciences Lane to access this bus zone.

Cyclist movements along Ring Road in this location are catered for within the road carriageway and the proposed works shall not alter this arrangement.

### 4.4 General Traffic Control Considerations

The factors that have been considered in preparing this TCP are:

- During the construction work, all construction vehicle movements will enter the site direct off Ring Road, travel through the site and exit on a forward direction onto Science Lane.
- Construction staff parking will be located away from the construction site with no parking within the construction site.
- Loading/delivery will be completed within the construction compound and away from the public road.
- There will be no change to the speed zone along Ring Road for the duration of the construction works
- Pedestrian and cyclist considerations
- Location of machines/personnel on-site relative to roadway;
- Access to/from Work Site;
- Timing of works, and
- Safety of road users and site personnel.

The RMS Traffic Control at Worksites 2018 recommends safety barriers are considered if:

- The location will continue to be a work area for longer than two weeks. (Applicable)
- Traffic speeds are likely to be greater than 80 km/hr. (Not applicable)
- AADT exceeds 5000 vehicles for traffic lane nearest the works. (Not applicable)
- The work area is less than 3 metres clear of traffic on straights (less on tight curves) (Applicable in part)
- Personnel do not have other protection, such as operating plant. (Applicable)

The location and nature of the work will NOT require safety barrier to be installed along Ring Road .

#### 4.5 Traffic Control – Signage and Line Marking

The TCP provides Work Site definition. Temporary signage required as part of the works are included due to the nature of the passing traffic, access for construction traffic to the compound and the location and nature of the works.

All signs shall be placed on the road and made secure against wind and shall be covered when not in use and removed outside of working hours. The signs shall be uncovered before any trucks access the site. This can be co-ordinated between the truck driver and the site manager via mobile phone as required.

A copy of this TCP must be on site at all times during the road and public domain construction work.

#### 4.6 Daily Checklist

In accordance with the Roads and Maritime Services of New South Wales 'Traffic Control at Worksites' guidelines, the site foreman / manager should complete a daily traffic control checklist and this checklist should be filed for future reference.

Details on this checklist can be found at <https://www.rms.nsw.gov.au/business-industry/partners-suppliers/documents/technical-manuals/traffic-control-at-worksites-manual.pdf>

#### 4.7 Contractors Contact Details

Project Manager: Bear Melvery  
Telephone: 02 9902 4612  
Mobile: 0434 307 810  
E-mail: [MelveryB@richardcrookes.com.au](mailto:MelveryB@richardcrookes.com.au)

#### 4.8 TCP Approval

This CPTMP and TCP will be submitted to the road authority for review and approval.

Details for lodging this TCP and the Construction Pedestrian Traffic Management Plan are:

**Newcastle City Council:**

Newcastle City Council Administration Offices, 282 King Street, Newcastle NSW 2300

**Roads and Maritime Services:**

RMS, 266 King Street Newcastle NSW 2300

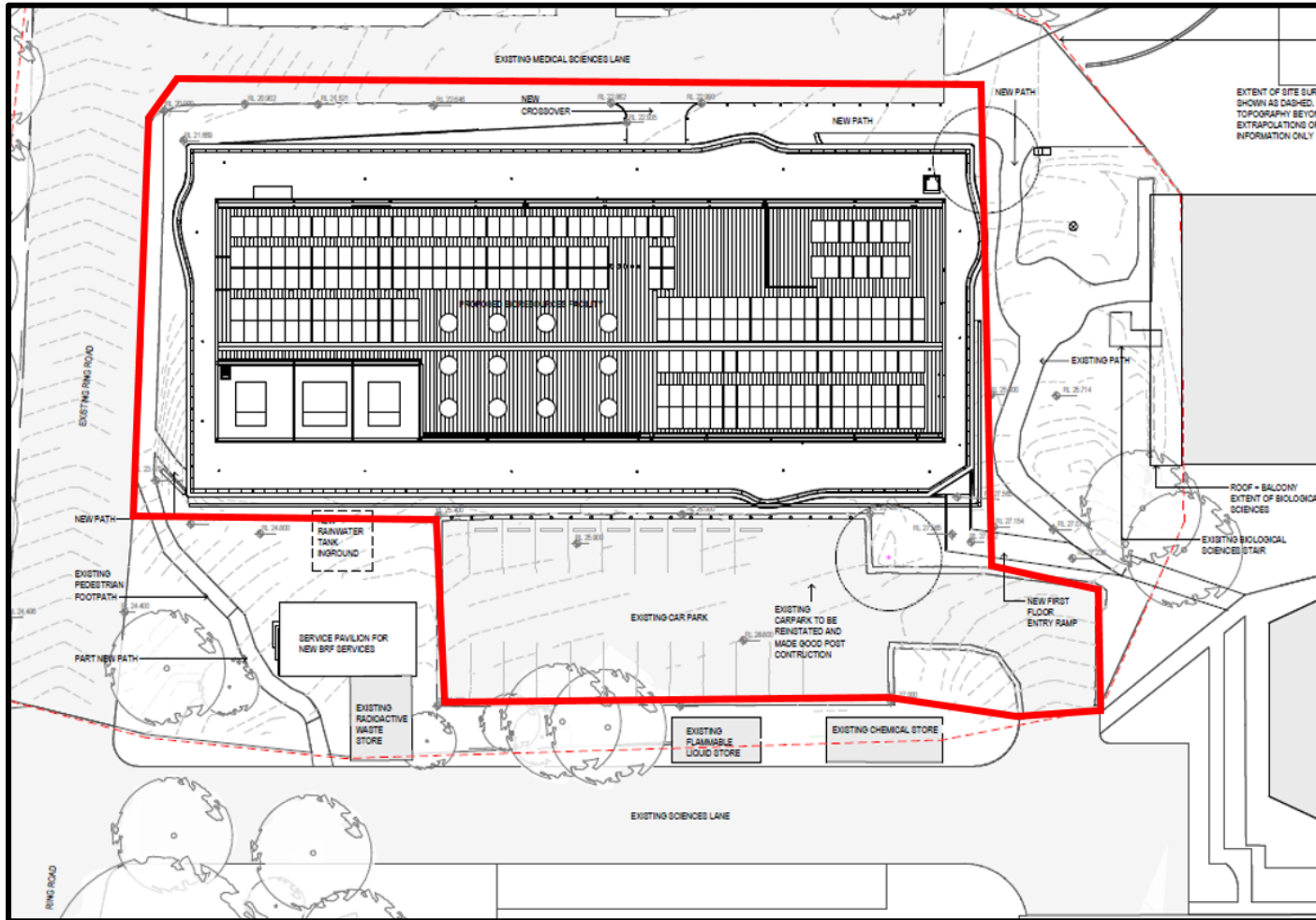
This Traffic Control Plan has been prepared and reviewed by suitable qualified professionals in accordance with the RMS Traffic Control at Work Sites Manual 2018 edition.



Sean Morgan (PWZTMP 0051749238)

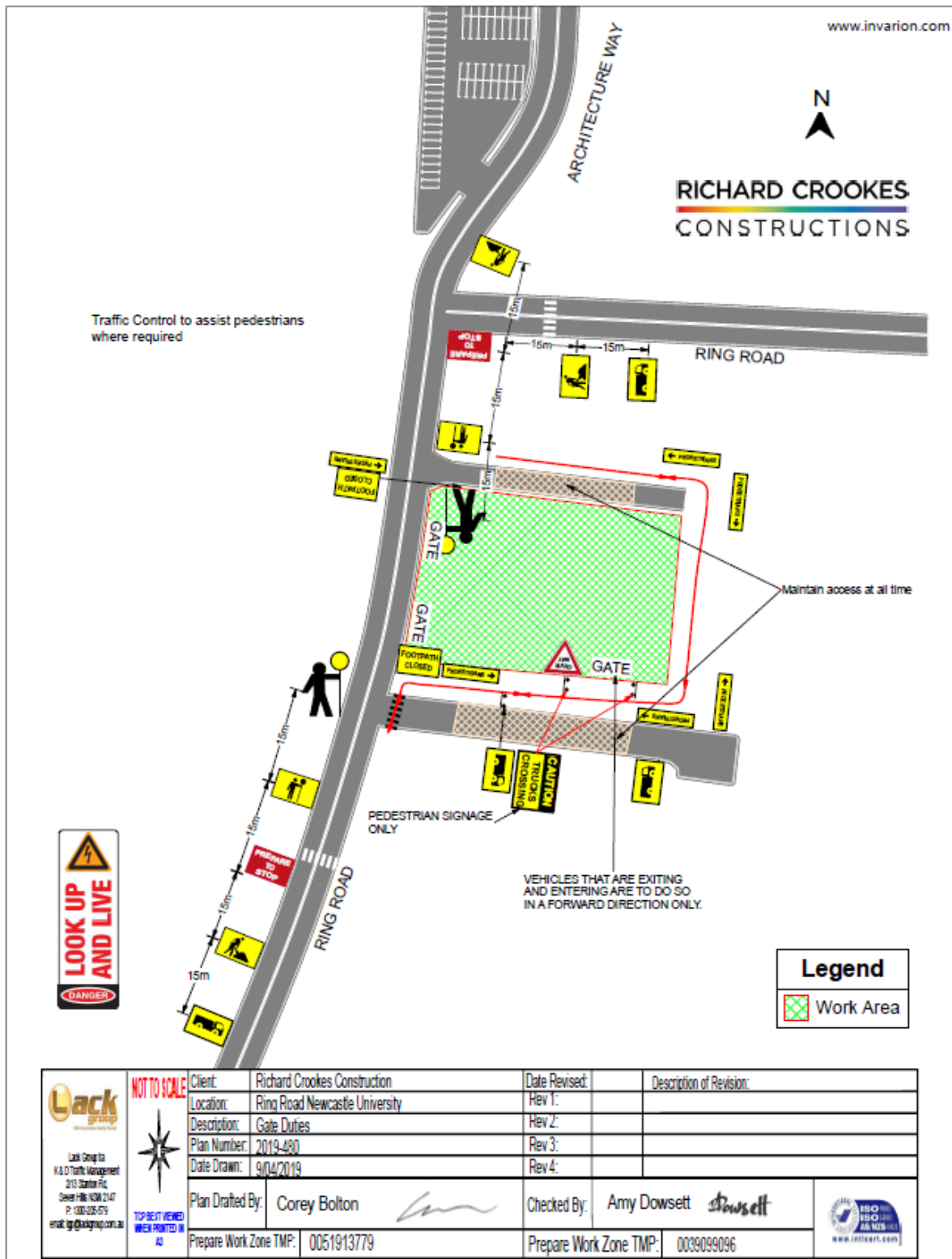
Director

Appendix A. Site compound Plan



Site Compound area shown in red – this will exclude all pedestrian and non-authorized vehicle access.

Appendix B. Site Traffic Control Plan





## Appendix C. Construction Traffic Work Risk Assessment

### WORKSITE HAZARD ASSESSMENT FORM

*Bio Resource Construction site, Callaghan University Campus*

**Project / Works Location:** Ring Road, Callaghan Campus

**Date Inspected:** 2<sup>nd</sup> May 2019

**Assessed by:** Sean Morgan

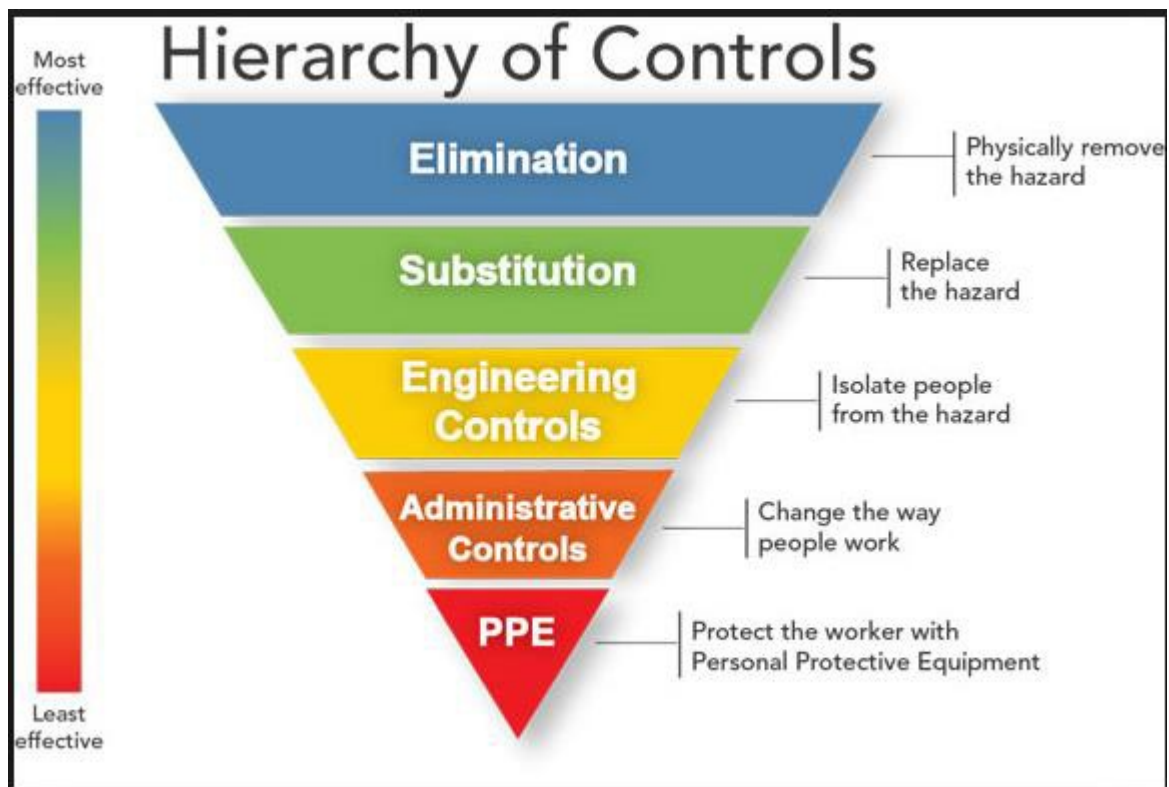
**Persons Consulted:** Cathy Thomas

**Relevant Standards and Legislation applicable to this risk assessment:**

- NSW WHS Act 2011
- NSW WHS Regulation 2017
- NSW RMS Traffic Control At Work Sites (TCAWS) manual July 2018
- Australian Standard AS:1742

<u>Site Specific Hazards</u>	<u>Risks</u>	<u>Controls</u>	<u>Residual Risk</u>	<u>Responsible Persons</u>
Provision for unloading of trucks	Workers struck by vehicle	<p><i>Isolation</i></p> <ul style="list-style-type: none"> <li>• ALL deliveries to be undertaken within the construction compound</li> </ul> <p><i>Administrative</i></p> <ul style="list-style-type: none"> <li>• Workers to receive site induction including applicable unloading procedures</li> <li>• Workers to hold General Construction Induction (White Card).</li> <li>• All drivers to receive site induction</li> </ul> <p><i>PPE</i></p> <ul style="list-style-type: none"> <li>• Site PPE requirements to be followed.</li> </ul>	Low	<ul style="list-style-type: none"> <li>• Project Manager</li> <li>• Site Foreman</li> <li>• Truck drivers</li> <li>• Traffic Engineering Consultants</li> </ul>
	Pedestrian struck by vehicle	<p><i>Isolation</i></p> <ul style="list-style-type: none"> <li>• Pedestrians detoured around site work site with suitable protective hoardings and signage.</li> </ul> <p><i>Administrative</i></p> <ul style="list-style-type: none"> <li>• NSW RMS approved TCP to be in place at all times.</li> <li>• Analysis of pedestrian</li> </ul>	Low	<ul style="list-style-type: none"> <li>• Project Manager</li> <li>• Site Foreman</li> <li>• RMS Approved Traffic Controllers</li> <li>• Traffic Engineering consultants</li> </ul>

<u>Site Specific Hazards</u>	<u>Risks</u>	<u>Controls</u>	<u>Residual Risk</u>	<u>Responsible Persons</u>
		detour options undertaken and confirmed detouring through work site to be most appropriate option.		
	Truck collision with vehicle	<p><i>Administrative</i></p> <ul style="list-style-type: none"> <li>NSW RMS approved CPTMP &amp; TCP to be in place at all times.</li> <li>All trucks can enter and exit the site in a forward direction.</li> <li>Workers and drivers to receive site induction.</li> <li>Workers to hold General Construction Induction (White Card).</li> </ul> <p><i>PPE</i></p> <ul style="list-style-type: none"> <li>Site PPE requirements to be followed.</li> </ul>	Low	<ul style="list-style-type: none"> <li>Project Manager</li> <li>Site Foreman</li> <li>RMS Approved Traffic Controllers</li> <li>Truck drivers</li> <li>Traffic Engineering consultants</li> </ul>
Pedestrians traversing work site	Pedestrian injury	<p><i>Isolation</i></p> <ul style="list-style-type: none"> <li>Pedestrian detour around site with security fence</li> </ul> <p><i>Administrative</i></p> <ul style="list-style-type: none"> <li>Pedestrian detour to be inspected regularly for safety.</li> <li>Appropriate signage shall be present, including delineation of any specific hazards within detour.</li> </ul>	Low	<ul style="list-style-type: none"> <li>Project Manager</li> <li>Site Foreman</li> <li>RMS Approved Traffic Controllers</li> </ul>
Traffic Conditions	Queuing traffic prevents trucks exiting work zone	<p><i>Administrative</i></p> <ul style="list-style-type: none"> <li>RMS accredited traffic controls to control traffic on Ring Road to allow for entry and exit to the site</li> </ul>	Low	<ul style="list-style-type: none"> <li>Project Manager</li> <li>Site Foreman</li> <li>RMS Approved Traffic Controllers</li> <li>Traffic Engineering Consultants</li> </ul>



## 5 things to do before implementing risk controls

**Assess the risk controls** for any hazards that may result from their implementation and conduct a risk assessment. If necessary, rethink or rework the control to prevent it creating other hazards in your workplace.

**Advise affected workers** of the control and **train** them in the procedures surrounding the control.

**Amend checking, reporting and auditing documents** to reflect the new control (e.g. maintenance records).

**Review the control regularly** to determine whether it is working to eliminate or reduce the original risk.

**Provide adequate supervision** to ensure controls are being implemented correctly.

The reason that this part of the process is so important is that you need to make sure that a new control does not create a problem in your workplace in the process of trying to fix the original problem.

Table 1 - Severity (Consequence)

Environment / Personal Injury	Severity (Consequence)	
		Safety
1. Can cause significant or high, and irreversible, damage to the individual /environment	Death, or permanent disability of a person, unable to return to normal work duties Extensive damage / loss (greater than \$100,000)	
2. Can lead to high but reversible damage to the individual /environment	Serious injury requiring time off work or more than 4 weeks alternative duties Significant damage/major financial loss (> \$50,000 up to \$100,000)	
3. Can cause significant (not high) but reversible damage to the individual /environment	Medical treatment required (e.g. attends doctor or physio) Requires temporary alternative duties for less than 4 weeks Appreciable damage / loss (>\$10,000 up to \$50,000)	
4. Can result in minor but reversible damage to the individual /environment	First aid treatment e.g., applying ice to bruise or slight strain Minor levels of damage / loss (>\$1,000 up to \$10,000)	
5. Not of significance	No injuries, Minimal damage / loss with a value up to \$1,000	

Table 2 - Probability (Likelihood)

Probability (Likelihood)	
A. Common occurrence – Almost Certain	Consequence is expected to occur in most situations
B. Known to occur – Likely	Consequence will probably occur in most situations
C. Could occur or "I've heard of it happening" - Possible	Consequence could occur at some time
D. Not likely to occur – Unlikely but possible	Consequence may occur at some time
E. Practically impossible - Rare	Consequence may occur under exceptional situations

Table 3 - Qualitative Risk Analysis Matrix

Severity	Probability				
	A	B	C	D	E
1	Very High	Very High	High	Moderate	Moderate
2	Very High	High	High	Moderate	Low
3	High	High	Moderate	Low	Low
4	High	Moderate	Low	Low	Very Low
5	Moderate	Low	Low	Very Low	Very Low

HAZARDS RATED MODERATE OR ABOVE ARE DEEMED TO BE SIGNIFICANT  
 ANY SIGNIFICANT RISK MUST BE CONTROLLED BEFORE THE WORK IS UNDERTAKEN.