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University of New England – Tamworth Campus | 545 Peel Street, Tamworth

CPTED Review

Prepared for
University of New England

Date
23 October 2024

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A	16 October 2024	Draft
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1. Introduction

1.1 Preliminary

This Crime Prevention Through Environmental Design (CPTED) Review has been prepared by Architectus Australia Pty Ltd (Architectus) for the proposed educational establishment to be known as the University of New England (UNE) Tamworth Campus at 545 Peel Street, Tamworth (the site).

This review has been prepared to support a Crown Development Application (DA) submitted to Tamworth Regional Council (Council) to assist in assessing the likely safety and security impacts of the proposed development on the site and surrounding area. This report provides a range of recommendations and mitigation measures to improve safety and security of the development within the locality and is structured as follows:

- Section 1: Introduction;
- Section 2: The proposal;
- Section 3: Methodology for preparation of this CPTED review;
- Section 4: Review of the site and its surrounding context;
- Section 5: Local community and crime profile;
- Section 6: Assessment of the proposed development against CPTED principles; and
- Section 7: Conclusion and Recommendations.

This review has been prepared in accordance with Crime Prevention and the Assessment of Development Applications ('Safer by Design Guidelines'), published by the NSW Police.

This review is based on the Architectural Drawings prepared by Architectus and the associated plans and documentation provided as part of the DA (DA2024-0192).

1.2 The Subject Site

The site is located at 545 Peel Street, Tamworth (Part Lot 73 in Deposited Plan 1107041). The site has an area of 11,120m^2 and was previously occupied by a concrete hardstand velodrome track. The velodrome is currently being demolished and the site is being levelled under DA approval DA2024-0277.

The site is located in the Tamworth City Centre adjacent to the Peel River and a shared pedestrian/cycling track (to its south west) that runs along the river atop an earth-mound embankment flood defence levee. To the east of the site is Peel Street and the Eastpoint Woolworths Supermarket. To the south is the New England Highway (including the George Fielder Bridge), the Australian Country Music Hall of Fame museum and a Hungry Jack's restaurant. To the north is Roderick Street and a mix of commercial and industrial uses. Refer to images of the site and surrounding context at **Figure 1** and **Figure 2**.

Figure 1 Site aerial photograph showing former velodrome – January 2024
The site is outlined red. Source: Nearmap

Figure 2 Aerial View of Tamworth – August 2024
The site is outlined in red. Source: Nearmap

1.3 Policy and Guidance Framework

This review has taken into consideration the following policy and guideline documents:

NSW Crime Prevention and Assessment of Development Applications (2001)

The NSW Crime Prevention and Assessment of Development Applications was published in 2001 by what is now recognised as the Department of Planning, Housing and Infrastructure. These guidelines were established to assist consent authorities in assessing developments in relation to crime risk and minimisation and provide guidance for applying the CPTED principles to minimise the risk of crime within developments.

Tamworth Regional Crime Prevention Plan 2023-2028

The Tamworth Regional Crime Prevention Plan 2023-2028 (the TRCP Plan) outlines Council's commitment to promoting Tamworth as a safe and vibrant city, emphasising the importance of educating the community across all age groups and collaboration between relevant stakeholders. The Plan is directly linked to the Tamworth Regional Blueprint 100 – A future vision.

The TRCP Plan sets the following vision: *"Our region will be thriving, modern and prosperous, with compassion for our people, reverence for our culture, and respect for nature Council's vision is for our residents to be empowered to live safe, active lives while feeling connected to the broader community. We see a community that has the tools and ability to confront difficult issues, while knowing their rights and values are respected."*

Council has established the Tamworth Regional Council Crime Prevention Working Group to oversee the TRCP Plan and develop various measures to make the community safe.

The TRCP Plan documents views expressed by community members and states that the community requests that Council prioritises the following crime prevention initiatives:

- Fostering a resilient and connected community to increase safety;
- Increased services for youth and the elderly;
- An expansion of CCTV coverage into more vulnerable areas of the region;
- Improved lighting, roads and pathways to ensure safety while travelling;
- Safe design of the region including recreation facilities and new developments;
- The promotion of crime prevention and safety education to the community;
- Support for housing for the disadvantaged and/or vulnerable community members;
- Development of programs to connect disengaged youth with appropriate services; and
- Creation of programs aimed at connecting with disengaged youth.

Having consulted with stakeholders, analysed available data and considered community views and perceptions of crime, the plan sets the following community safety objective:

- Objective 1 – Safe spaces; and
- Objective 2 – Safe people.

The plan also sets the following four priority offences to target during the current term:

- Motor vehicle theft;
- Stealing from motor vehicles;
- Break and enter – dwellings; and
- Malicious damage.

<u>Tamworth Regional Blueprint 100 – A Future Vision</u>

The Tamworth Regional Blueprint 100 (Blueprint 100) is an adopted overarching strategic document that encompass Council's Local Strategic Planning Statement, the Growth Management Strategy and other council initiatives. It seeks to guide future land use within the Region towards a population of 100,000 people. It will ensure that there is sufficient infrastructure and opportunities for jobs growth and great places for people to live.

Blueprint 100 sets the following relevant priority themes:

- 2. Facilitate smart growth and housing choices: Enable efficient growth options, a range of affordable housing choices, vibrant centres, and productive employment areas;
- 4. Build resilient communities: Resilient urban and rural communities whose current and future needs are met through the effective delivery of services; and
- 5. Connect our region and its citizens: A well connected, efficient and safe movement network that serves businesses and commuters, as well as citizens who opt to walk and cycle.

Of particular relevance to this CPTED review, Blueprint 100 calls for increased activity within the city centre to create the critical mass required for a stronger night-time economy. With more shops and restaurants opening till later and more activities on the street to create a more vibrant and safer city centre at night (Priority 2.3).

It also promotes safe and inclusive public space through better urban design (Action 4.11.1).

Tamworth Regional Development Control Plan 2010

The Tamworth Regional Development Control Plan 2010 (the DCP) contains several objectives and controls to promote CPTED. The following controls are considered relevant in this CPTED review:

General development specifications – Other types of development:

- Outdoor lighting - All developments shall demonstrate compliance with AS4282 Control of Obtrusive Effects of Outdoor Lighting.

Discretionary development standards:

- 1.18 Design Principles –

  (a) Design should maximise surveillance with clear sightlines between public and private places, effective lighting of public places and landscaping that makes places;

  (b) Physical and symbolic barriers should be used to attract, channel or restrict the movement of people to minimise opportunities for crime and increase the effort required to commit crime;

  (j) Optimise safety and security, both internal to the development and for the public domain;

- 1.26 Parking and Access – (c) Parking areas should be visually attractive and constructed, designed and situated so as to encourage their safe use; and

- 1.32 Outdoor Lighting – (c) Lighting selection and location should improve safety and reduce crime and fear.

Refer to **Section 6** of this report for an assessment of the proposal against the abovementioned policies and guidelines.

2. The Proposal

The proposed development, being a Crown Development Application (the DA), comprises the following works:

- Detailed earthworks;
- Construction of first UNE Campus building (4 storeys);
- Construction of on-site car park (53 spaces);
- Landscaping and tree / shrub planting; and
- Installation of infrastructure associated with the development.

The components of each floor of the building are described below:

Ground Floor (GFA of approximately 649m^2):

- Amenities and kitchenette;
- Teaching spaces;
- Care space (First Aid / Parent / Counselling Rooms);
- Communications room;
- Staff rooms;
- Service / storage rooms;
- Lift; and
- Student breakout areas.

Level 1 (GFA of approximately 663m^2):

- Amenities and Kitchenette;
- Teaching Spaces (Simulation);
- Care Space;
- Community Space;
- Cultural Centre;
- Service Spaces;
- Lift; and
- Student breakout areas / Concierge.

Level 2 (GFA of approximately 520m^2):

- Amenities and kitchenette;
- Teaching spaces;
- Student breakout areas;
- Service spaces; and
- Lift.

Level 3 (GFA of approximately 360m^2):

- Amenities and kitchenette;
- Staff area;
- Teaching spaces;

- Student breakout areas;
- Service spaces; and
- Lift.

UNE's vision for the new Tamworth Central campus is to create an environment with shared spaces that can perform multiple functions. The design of the building aims to be as flexible as possible, to accommodate UNE current needs, and to be able to adapt to UNE future needs.

The proposed site layout is provided at **Figure 3** below. It demonstrates that pedestrian site access will be provided via Roderick Street, as well as connecting to the shared pedestrian/cycle network to the west of the site. Vehicle access would be via Peel Street with at-grade parking for 53 vehicles provided at the southern side of the site. Plant rooms are proposed adjacent to Peel Street.

Figure 4 – Figure 6 below provide artist impressions of the proposed building and site design and illustrate how it will fit with its setting.

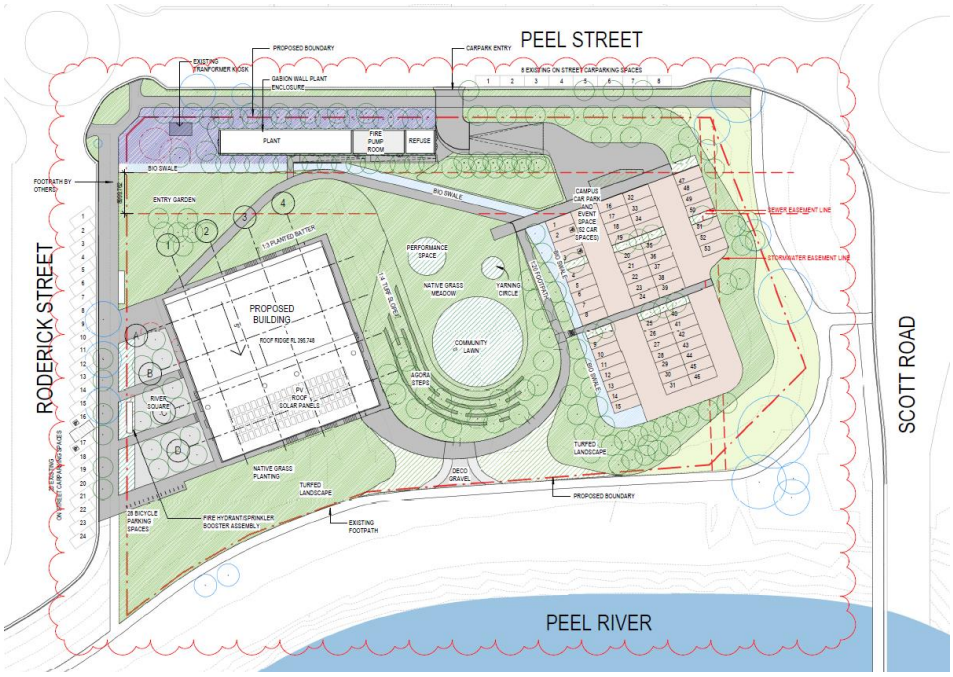


Figure 3 Proposed Site Plan
Source: Architectus

Figure 4 Architect's impression of the proposal from the south
Source: Architectus

Figure 5 Architect's impression of the proposal from the east
Source: Architectus

Figure 6 Architect's impression of the proposal from the west
Source: Architectus

Landscaping

The site will also be improved by landscaping with native and drought tolerant trees and shrubs. A total of 53 sealed at-grade car spaces (including three accessible car spaces) will be provided to service the proposed development.

Key landscape features include:

- Landscaped campus entry, network of footpaths and connections to regional shared path network and riverbank;
- Campus heart (open common) with amphitheatre steps;
- Yarning circle;
- Performance space;
- Landscaped bio-swale;
- Wayfinding signage including pedestrian and vehicle directional signage;
- Paved building perimeter forecourts;
- Planting of 167 new trees
- Open at-grade car parking for 53 vehicles which duplicates as a space for temporary street pop-ups and activities/events; and
- External spaces publicly accessible 24/7 with no fencing.

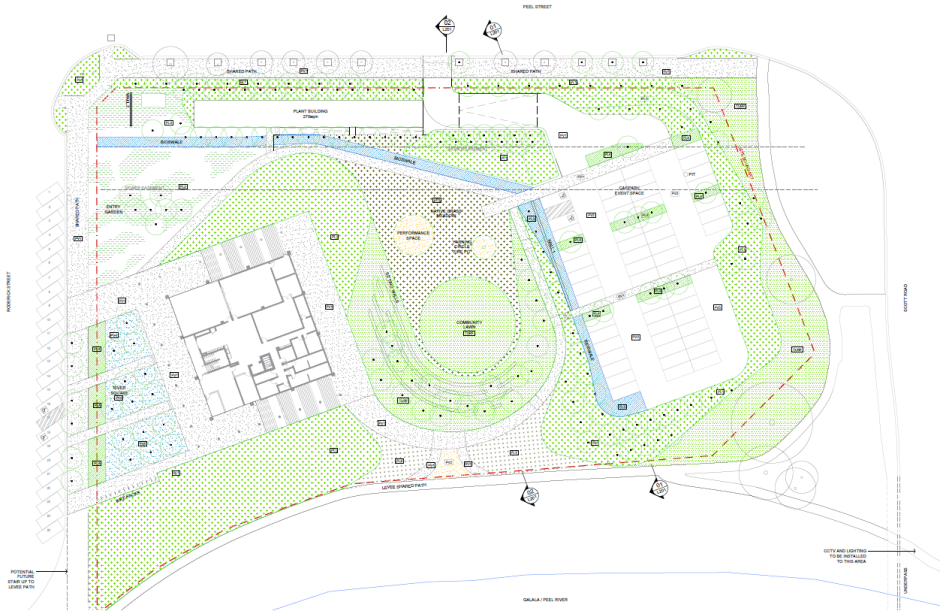


Figure 7 Landscape Plan
Source: Tyrell Studios

Lighting

External lighting is provided across and around the site for safety, security and amenity reasons. A Lighting Report was prepared by ADP Consulting to inform a lighting scheme for the site (provided at **Appendix A**). The report considered the relevant Australian Standards being:

- AS4282: Control of the Obtrusive Effects of Outdoor Lighting;
- AS/NZS 1158.3.1: Lighting for Roads and Public Spaces - Pedestrian Area (Category P); and
- AS/NZS 1158.1: Lighting for Roads and Public Spaces - Vehicle Area (Category V).

In addition to requirements to comply with Australian Standards, the location and selection of lighting has been informed with consideration for sky glow, light spill, energy efficiency, low maintenance, weather proofing and vandal resistance.

Lighting is proposed across all external spaces and along Peel Street, along the shared path to the south of the site and in the underpass underneath George Fielder Bridge as shown in **Figure 8** and **Figure 9** below.

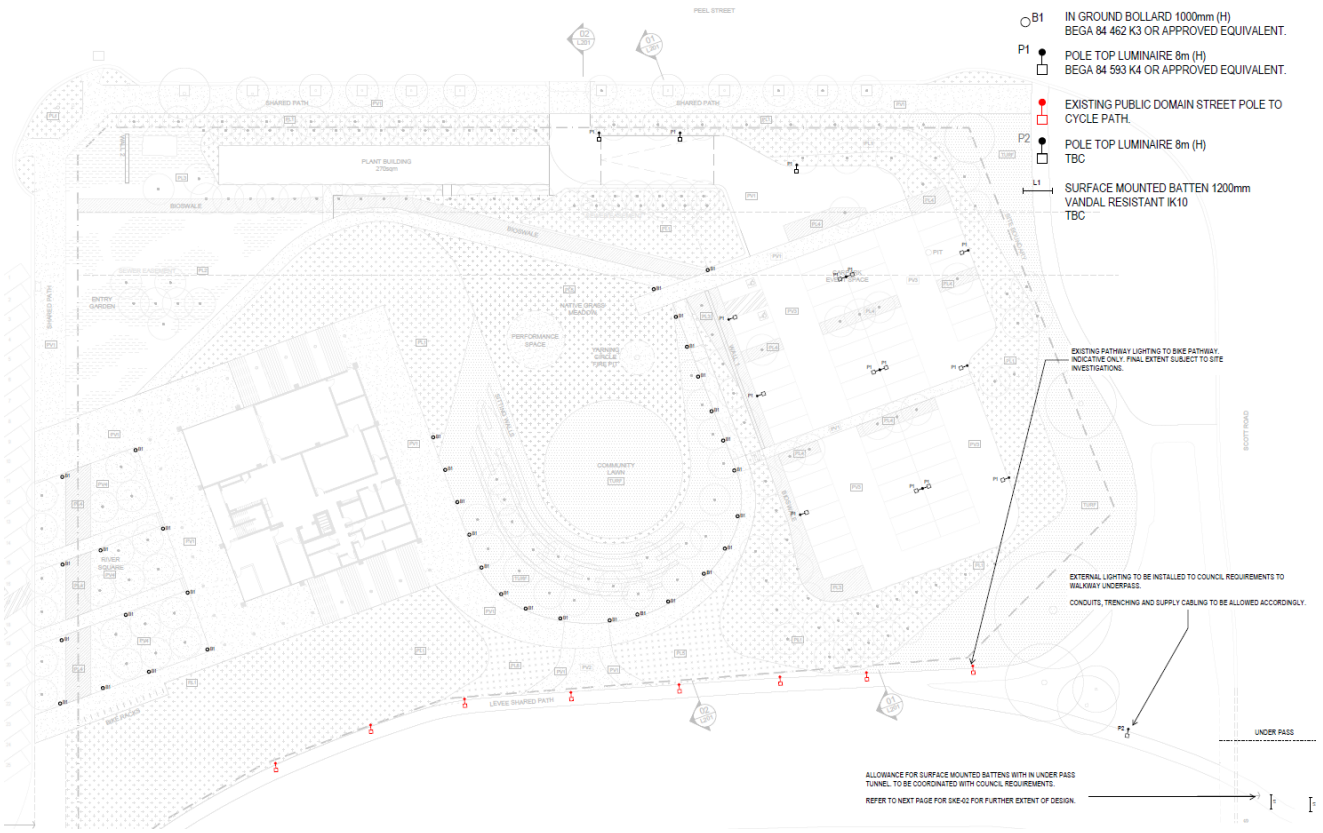


Figure 8 External Lighting Layout Plan – UNE site
Source: ADP Consulting

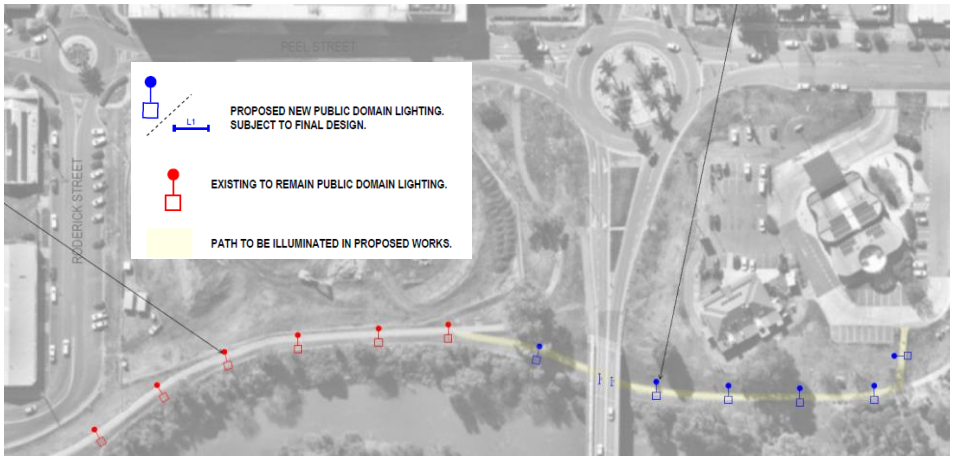


Figure 9 External Lighting Layout Plan – Shared path
Source: ADP Consulting

Further external lighting details are provided in the External Lighting Strategy prepared by Erco Lighting provided at **Appendix B** to this report.

The proposal is to illuminate external spaces with a combination of inground up-lights, surface mounted wash-lights, ceiling mounted downlights, external illumination through internal lighting and pole mounted low-glare beam lights (see **Figure 10**).

It is proposed that external lighting located outside of the site boundaries would be installed in accordance with Council specifications and dedicated to Council for their ongoing operation and maintenance.

Figure 10 Footpath lighting concept
Source: Erco Lighting

CCTV

ADP Consulting have prepared a CCTV Cameras Field of Vision Report provided at **Appendix C**. The report details the quantity and locations of external CCTV cameras proposed to ensure security and surveillance standards are adequately met in external spaces. A total of 19 cameras and proposed across the site and along the adjacent shared path. The proposed locations and field of vision associated with external spaces are shown in **Figure 11** and **Figure 12**.

It is proposed that CCTV cameras located outside of the site boundaries would be installed on poles along the shared path in accordance with Council specifications and dedicated to Council for their ongoing operation and maintenance.

Figure 11 External CCTV field of vision – Site
Source: ADP Consulting

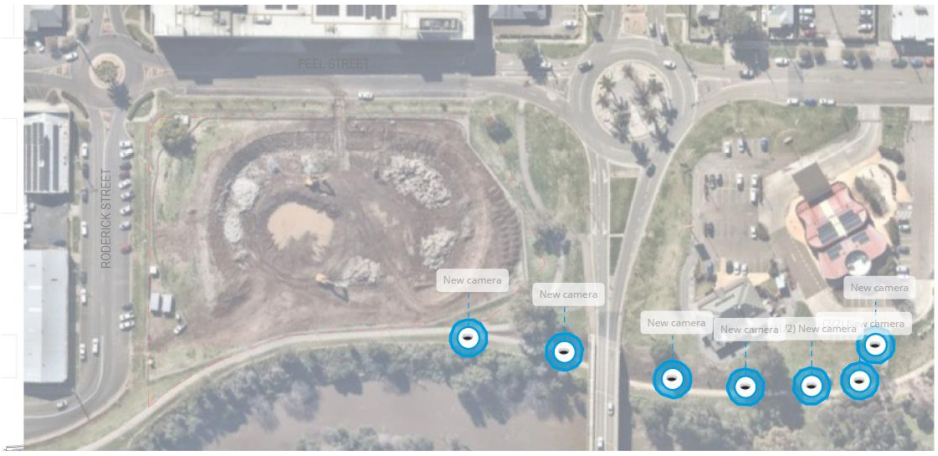


Figure 12 External CCTV camera locations – Share path
Source: ADP Consulting

The design and placement of internal CCTV cameras will be considered as part of the broader site scheme at a later stage. The current documentation does not address details related to internal CCTV integration, allowing for a more comprehensive approach to security coordination within the overall project development at the appropriate time.

Operating hours

It is intended that the opening hours of the University Campus for students and staff will be 6am to 11pm, seven days a week. The operating hours are consistent with surrounding enterprises including commercial premises that operate within the Eastpoint Shopping Centre and in the Tamworth CBD.

The design concept has considered how the site might be activated over the course of the whole day. Students might, for example, start with a 7am walk along the river, have breakfast on site, undertake teaching/study/social activities in and around the building throughout the day, attend night classes and utilise outdoor spaces for formal and informal activities late into the evening.

It is proposed that security guards will be present on site outside of core hours.

The development will cater to a total of 299 students and 31 staff members.

Travel methods

The Traffic Impact Assessment prepared by TTW (November 2023) summarises site access and anticipated travel routes and methods. Initiatives have been proposed to encourage active transport options and reduce private vehicle mode share. The site is located within the town centre of Tamworth and is well connected to the wider pedestrian and cyclist networks including being adjacent to the shared path along Peel River that connects to all major areas of Tamworth. A total 28 bicycle parking spaces are proposed to facilitate cycling to campus.

Limited proposed on-site and adjacent on-street parking will further encourage waling, cycling and bus use, activating local paths and streets around the southern end of the Tamworth CBD.

3. Methodology

3.1 Overview

This review has been prepared using the following methodology:

- Undertake a desktop review of the site and DA documentation to understand the site and its context;
- Review community profile and local crime statistics;
- Undertake a safety, risk and crime analysis of the area, extracting relevant data from the NSW Bureau of Crime Statistics to gauge current issues in the local area;
- Assess the development against Safer by Design principles taking into consideration the local context, community profile and local crime occurrence; and
- As a result of the above, make recommendations necessary to enhance safety, security and crime prevention.

3.2 CPTED Principles

The following CPTED principles, taken from the NSW Police's *Safer by Design* guidelines, have been applied to developing site specific design principles for the proposed development. These include the following principles:

- Surveillance;
- Access control;
- Territorial reinforcement; and
- Space management.

Surveillance

Natural surveillance is about creating environments that keep intruders under observation. The design of physical features can direct activities and people in such a way so that maximum visibility and positive interaction occurs among legitimate users of space. Creating clear sightlines is core to providing natural surveillance.

The Safer by Design guidelines state in relation to the principle, 'Surveillance':

"The attractiveness of crime targets can be reduced by providing opportunities for effective surveillance, both natural and technical".

Quality surveillance can be achieved or improved by considering the following design principles:

- Clear sightlines between public and private places;
- Streets and public spaces that can be observed from nearby buildings;
- Effective lighting of public places;
- Spaces that facilitate entrapment are eliminated;
- Attractive and well maintained landscaping that is well lit, offers clear sightlines and prevents offenders finding a place to hide or entrap victims; and
- Activation of the space or surrounding areas that encourages regular and diverse use of the space.

Access Control

Access control is about decreasing opportunities for crime, by controlling access to a crime target and by creating a perception of risk to an offender.

The Safer by Design guidelines state in relation to the principle 'Access control':

"Physical and symbolic barriers can be used to attract, channel or restrict the movement of people. They minimise opportunities for crime and increase the effort required to commit crime.

By making it clear where people are permitted to go or not go, it becomes difficult for potential offenders to reach and victimise people and their property. Illegible boundary markers and confusing spatial definition make it easy for criminals to make excuses for being in restricted areas. However, care needs to be taken to ensure that the barriers are not tall or hostile, creating the effect of a compound."

Effective access control can be achieved by creating:

- Landscapes and physical locations that channel and group pedestrians into target areas;
- Public spaces which attract, rather than discourage people from gathering; and
- Restricted access to internal areas or high-risk areas (like car parks or other rarely visited areas), often achieved through the use of physical barriers.

Territorial Reinforcement

Territorial reinforcement is about clearly defining private space from semi-public and public space in order to create a sense of ownership. Design attention is required to ensure that territorial reinforcement is not achieved solely through physical barriers, such as gates and enclosures.

The Safer by Design guidelines state in relation to the principle 'Territorial reinforcement':

"Community ownership of public space sends positive signals. People often feel comfortable in, and are more likely to visit, places which feel owned and cared for. Well used places also reduce opportunities for crime and increase risk to criminals.

If people feel that they have some ownership of public space, they are more likely to gather and to enjoy that space. Community ownership also increases the likelihood that people who witness crime will respond by quickly reporting it or by attempting to prevent it."

Territorial reinforcement can be achieved through:

- Design with a clear distinction between public and private spaces by using physical barriers (e.g. fences) and symbolic barriers (e.g. vegetation);
- Design that encourages people to gather in a public space and to feel some responsibility for its use and condition;
- Environmental markers (e.g. signage, walkways, pavers, lighting, bollards and fencing) which define intended use and ownership; and
- Regular maintenance of vegetation, infrastructure, and prompt removal of graffiti and vandalism.

Space Management

Space management involves the formal supervision, control and care of urban space and the development itself. Public perceptions are shaped by the appearance of a place. A well maintained urban environment is important in supporting user confidence and helping to control vandalism, crime and fear of crime.

The Safer by Design guidelines state in relation to the principle 'Space management':

"*Popular public space is often attractive, well maintained and well used space. Linked to the principle of territorial reinforcement, space management ensures that space is appropriately utilised and well cared for*."

Space management strategies include:

- Site cleanliness;
- Vandal resistant materials and fixtures;
- Rapid repair of vandalism and graffiti;
- Well maintained landscaping;
- Well maintained pedestrian and car park lighting; and
- Well maintained public infrastructure (e.g. seats, signs, bollards etc.).

4. Site and Context

4.1 The Site

The site is located at 545 Peel Street, Tamworth (Part Lot 73 in Deposited Plan 1107041) and has an area of 11,770m^2

The site is currently vacant. Demolition of the former Prince of Wales Velodrome and site preparation works (to create a level site) are currently underway, as approved under DA 2024-0277 (see **Figure 13**).

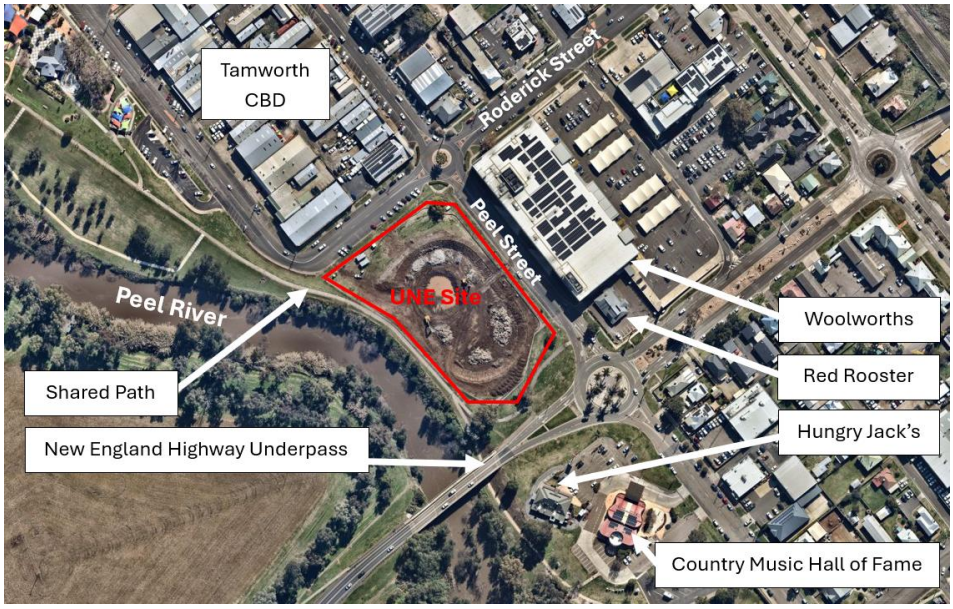


Figure 13 Aerial view of site – August 2024
Site outlined in red. Source: Nearmap

4.2 Surrounding Development and Local Context

The site is located in the Tamworth City Centre adjacent to the Peel River and a shared pedestrian/cycling track (to its south west) that runs along the river atop an earth-mound embankment flood defence levee. The path continues under the New England Highway (George Fielder Bridge) to the Parade Bridge to the south and north through Bicentennial Park, under the Oxley Highway to Marius Street and Jewry Street where it crosses the Peel River. Elements of the path in proximity to the site is shown in **Figure 14 - Figure 17** below.

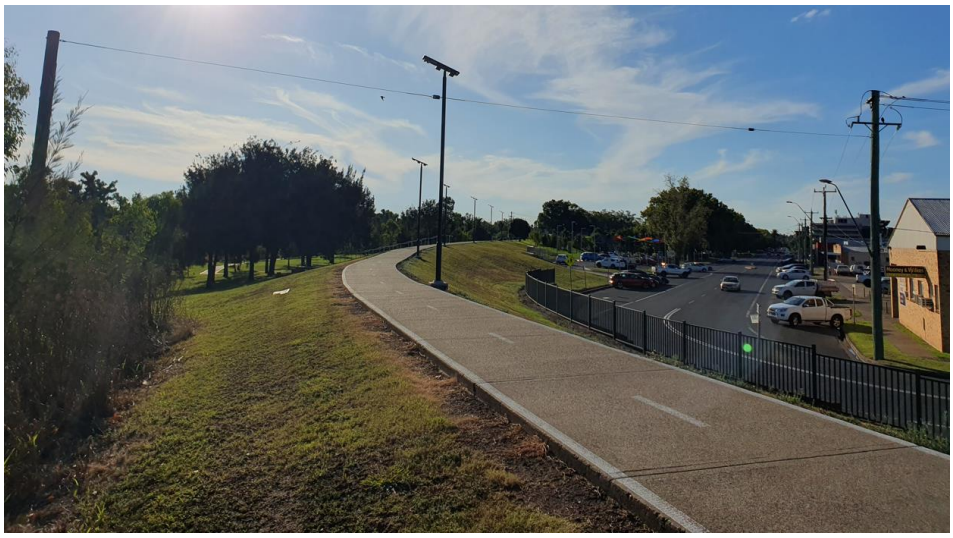


Figure 14 Shared path with lighting atop flood levee (at southern end of Roderick St)
Source: Architectus

Figure 15 Shared path underpass under New England Highway
Source: Architectus

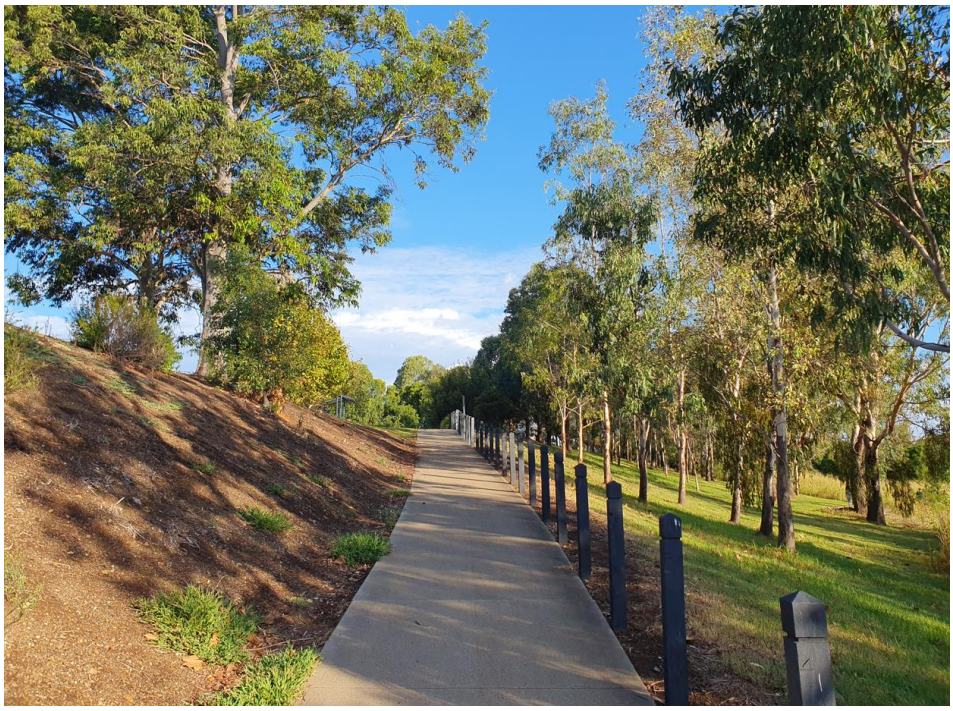


Figure 16 Shared path on southern side of underpass (without lighting)
Source: Architectus

Figure 17 Peel River Walk signage adjacent to site (with graffiti)
Source: Architectus

To the east of the site is Peel Street and the Eastpoint Woolworths Supermarket and Dan Murphy's bottle shop. Access to the supermarket and a large at-grade car park is orientated to the east of the building. The building presents a blank wall with loading dock access facing the site as shown in **Figure 18** below. Accordingly, it offers poor activation and surveillance to Peel Street.

A Red Rooster restaurant is in the southern corner of the Eastpoint Woolworths site. The restaurant offers some limited/distant surveillance from its dining area over the UNE site. Woolworths is open until 10pm every night except Sundays (9pm) and Red Rooster is open until 10pm, 7 days/week.

Figure 18 Eastpoint Woolworths Supermarket – western façade adjacent to UNE site
Source: Architectus

To the south is the New England Highway (including the George Fielder Bridge), the Australian Country Music Hall of Fame museum and a Hungry Jack's restaurant (see **Figure 19**). Hungry Jacks is open until Midnight on Fridays and Saturdays and until 11pm on all other days. It offers some limited surveillance over the site.

Figure 19 Hungry Jacks restaurant and Australian Country Music Hall of Fame
Source: Architectus

To the north of the site is Roderick Street and a mix of commercial and industrial uses in one and two storey development (see **Figure 20**). Uses include the Advanced Fitness gym which is accessible 24/7 and the Home of Strength gym which runs group classes from 5:30am on weekdays.

Figure 20 Peel Street in Tamworth CBD looking south towards the site
Source: Architectus

The site is located at the southern end of the Tamworth CBD with a diverse mix of retail, employment, services, community, cultural and public/civic uses. In addition to the night-time economy uses on adjacent sites, the wider CBD contains a collection of late-night venues including bars and pubs, hotels and restaurants.

There are CPTED risks being located on the periphery of a CBD, with river on other side, and limited passive surveillance from adjoining uses.

The site is located at the southern end of Bicentennial Park, a regional active and passive open space which stretches for 850m along the eastern bank of the Peel River. The park contains Tamworth Regional Playground, a large outdoor gym, amenities block, sports oval and walking/cycling paths which connect to the regional network of shared paths.

5. Local Community Profile

5.1 Overview

Identifying the profile of the local community is important in building an understanding of potential issues, tensions and incidence of crime.

This section provides an overview of the Tamworth community profile (both suburb and LGA), which will form a lens through which the CPTED principles are developed and the proposal is reviewed.

5.2 Tamworth City and Tamworth Regional LGA Profile

Tamworth Regional Council is an LGA in New South Wales, located 410km northwest of Sydney with a population of 63,000, a median age of 39 and an unemployment rate of 4.5% (2021 Census).

Situated along the Peel River, Tamworth (city) is the largest and most populist centre in the New England region of NSW. The broader region supports several core industries including agriculture, construction, education and transport with Tamworth (city) as the key attractor of the LGA hosting a range of businesses, retail outlets, and cultural events. The city is serviced by Tamworth train station, connecting the town northeast to Armidale, or down south to Sydney.

Below is a summary of key statistics for the Tamworth (city) sourced from the Australian Bureau of Statistics 2021 Census (area code UCL112018):

- Tamworth was observed to have a population of 35,415;
- Composition of common ancestries in the area are Australian 41%, English 37.2%, Australian Aboriginal 14.2%, Irish 10.5%, and Scottish 8.6%;
- A majority of residents (81.3%) were born in Australia;
- The median age of people in Tamworth was 37 years;
- In 2021, 15.7% of the population were attending tertiary or technical education institutions, considerably higher than the national average of 3.2%;
- In 2021, 57.3% of the population were part of the labour force;
- In 2021, 81.9% of the population live in separated private dwellings with 40.8% of occupied dwellings being rented;
- Most common mode of journey to work was by car (63.7%).
- Higher levels of unemployment (5.7%) in the city compared to NSW (4.9%);
- Personal median weekly income of $750 is slightly lower when compared to the NSW median of $813, and family median income of $1,706 is lower than the State median of $2,185; and
- Renter households with rent payments greater than 30% of household income make up 33.8%, which is marginally lower than NSW average (35.5%).

5.3 Crime Occurrence in the Tamworth Regional LGA

The table below provides a comparison of crime occurrences in the Tamworth Regional LGA to help quantify the local crime profile as sourced from the NSW Bureau of Crime Statistics and Research (BOCSAR). Note that hotspot mapping for Tamworth (city) is provided in **Section 5.5** below.

The crime data generally indicates that the development of the proposed building should ensure CPTED principles are embedded in the design to maintain the current stable environment, particularly given the high level of pedestrian activity in the locality.

Table 1 Crime incidence profile for Tamworth Regional LGA

Crime Offence	Tamworth Regional LGA June 2023 to June 2024	Tamworth Regional LGA 48 Month Trend	Regional NSW June 2023 to June 2024	Regional NSW 48 Month Trend
Assault				
Domestic violence assault	647	+44.7%	17,434	Stable
Non-domestic assault	428	Stable	14,544	Stable
Assault Police	30	Stable	1,103	Stable
Homicide				
Murder	1	Not counted	29	Stable
Attempted murder	0	Not counted	1	Not counted
Murder accessory, conspiracy	0	Not counted	0	Not counted
Manslaughter	0	Not counted	3	Not counted
Robbery				
Robbery	16	Not counted	677	Stable
Sexual offences				
Sexual assault	150	Stable	4,973	Stable
Sexual touching, sexual act and other sexual offences	110	Stable	3,864	Stable
Theft				
Break & enter dwelling	549	Stable	11,386	Stable
Break & enter non-dwelling	87	Stable	5,063	Stable
Motor vehicle theft	205	Stable	7,740	+10.9%
Steal from motor vehicle	335	Stable	13,552	Stable
Steal from retail store	338	Stable	11,469	+26.9%
Steal from a dwelling	200	Stable	7,019	Stable
Steal from person	29	Not counted	652	Stable
Other theft	208	Stable	8,272	+6.8%
Malicious damage to property	780	Stable	24,754	Stable
Other offences				

Abduction & kidnapping	8	Not counted	94	Stable
Arson	95	Stable	3,111	Stable
Criminal intent	91	Stable	1,384	Stable
Intimidation, stalking and harassment	676	+32.8%	22,777	+8.0%
Liquor Offences	37	Stable	2,730	-18.9%
Offensive conduct	40	-35.5%	1,392	-10.8%
Other offences against the person	20	Not counted	684	Stable
Prostitution offences	1	Not counted	10	Not counted
Trespass	268	Stable	6,777	+9.3%

5.4 Analysis of Community and Crime Profile

The Tamworth Regional LGA is relatively stable in relation to crime incidents indicators, with almost all categories of crime remaining fixed in terms of frequency of occurrence.

The following criminal offences were observed to be increasing in the LGA:

- Domestic violence assault: Over the course of two years (June 2022-June 2024) cases of domestic violence throughout Tamworth have increased by 44.7%. The proposed development does not have a residential component and would have no direct relationship with domestic violence assaults.
- Non-domestic assault: As shown in **Figure 22**, incidents of non-domestic assault are mapped as being above average immediately surrounding the site. Considering 428 cases of non-domestic assault were tracked over the past 48 months, potential social issues within the locality may be of concern. As such, various CPTED principles will be incorporated into the final design, such as increased lighting, video surveillance, activation and passive surveillance, and appropriate site management.
- Intimidation, stalking and harassment: Over the course of two years (June 2022-June 2024) cases have increased by 32.8%. Effective lighting and surveillance will help to deter this criminal behaviour in proximity to the site. Activation of the site as proposed will significantly improve surveillance in the area compared to the existing situation.
- Malicious damage to property: As shown in **Figure 27**, incidents of malicious damage to property are above average at the site and surrounding. Between June 2023 – June 2024, 780 cases were reported in the LGA. To address this, the final proposal design will incorporate CPTED principles such as effective lighting, increased active surveillance, and use of public spaces and clear sightlines to encourage passive surveillance.
- Liquor offenses: The Tamworth Regional LGA has experienced a relatively low court of liquor offenses in the 48 months to June 2024. The UNE site is located at the southern end of the Tamworth CBD, near several liquor licensed premises. This has been considered in this CPTED assessment despite the relatively low and stable rate of liquor related crime across the LGA.

5.5 Hotspot Mapping

The NSW Bureau of Crime Statistics and Research provides additional locational hotspot mapping for select criminal offence types in the Tamworth Regional LGA.

Hotspots indicate areas of high crime density (number of incidents per 50m x 50m) relative to crime concentrations across NSW. It should be noted that hotspots are common to medium to high density urban areas and do not necessarily indicate a need for extraordinary design responses.

Density of offences relating to the subject site is provided for the following criminal offences. **Figure 21** - **Figure 27** below for relevant hotspot maps (the site is indicated by a blue dot).

Table 2 below provides a summary of offenses recorded on site over the course of 12 months to June 2024.

Table 2 Criminal offence density for 545 Peel Street (June 2023 - June 2024)

Select offence type	Density of offences
Assault	
Domestic assault	Nil
Non-domestic assault	Medium
Robbery	Nil
Theft	
Break & enter dwelling	Low
Break & enter non-dwelling	Medium
Steal from motor vehicle	Low
Malicious damage to property	High

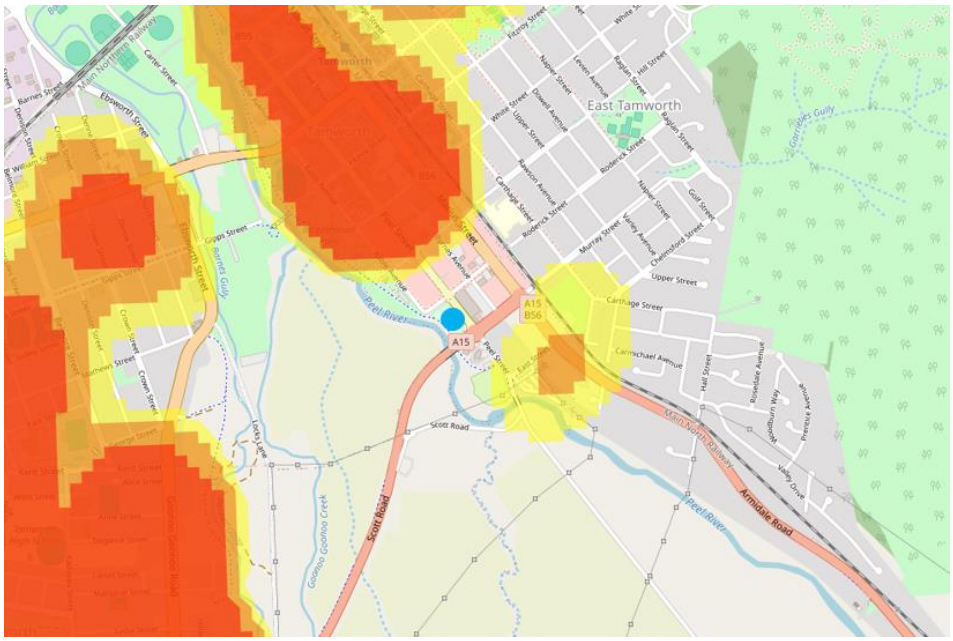


Figure 21 Hotspot map – Domestic assault
The site is indicated by a blue dot. Source: BOSCAR

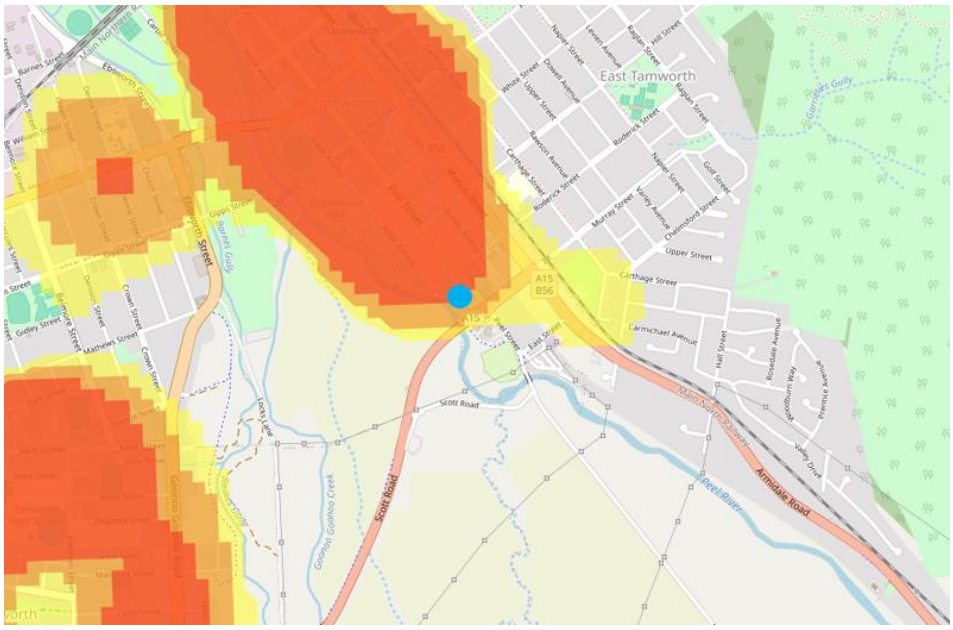


Figure 22 Hotspots map – Non-domestic assault
The site is indicated by a blue dot. Source: BOSCAR

Figure 23 Hotspots map – Robbery
The site is indicated by a blue dot. Source: BOSCAR

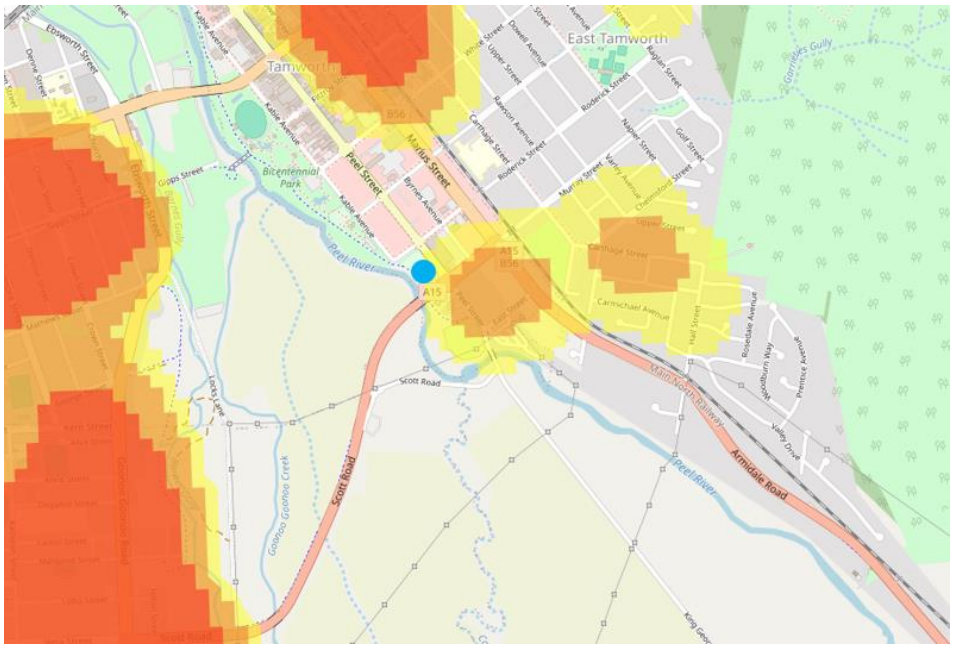


Figure 24 Hotspots map – Break & enter dwelling
The site is indicated by a blue dot. Source: Source: BOSCAR

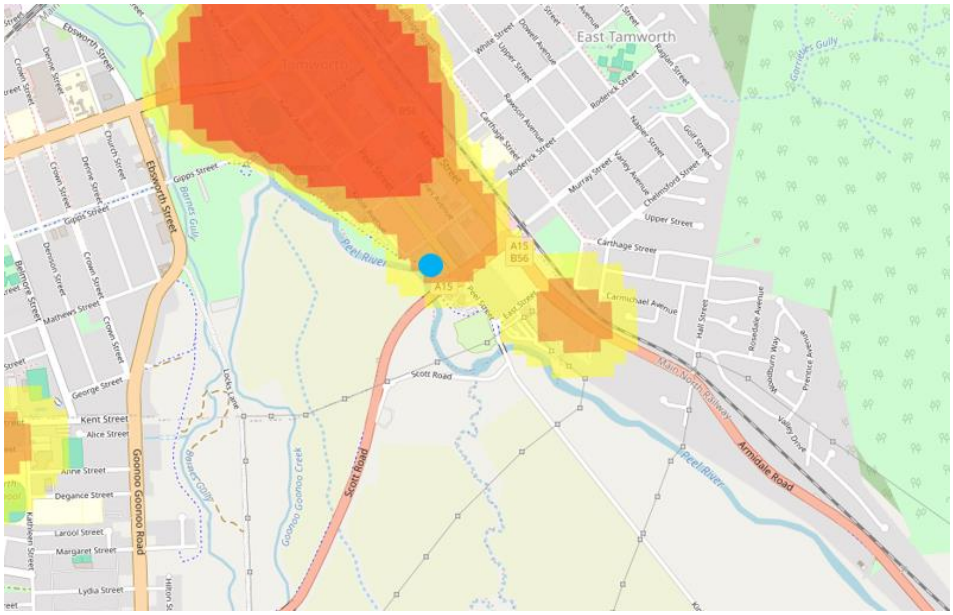


Figure 25 Hotspots map – Break & enter non-dwelling
The site is indicated by a blue dot. Source: BOSCAR

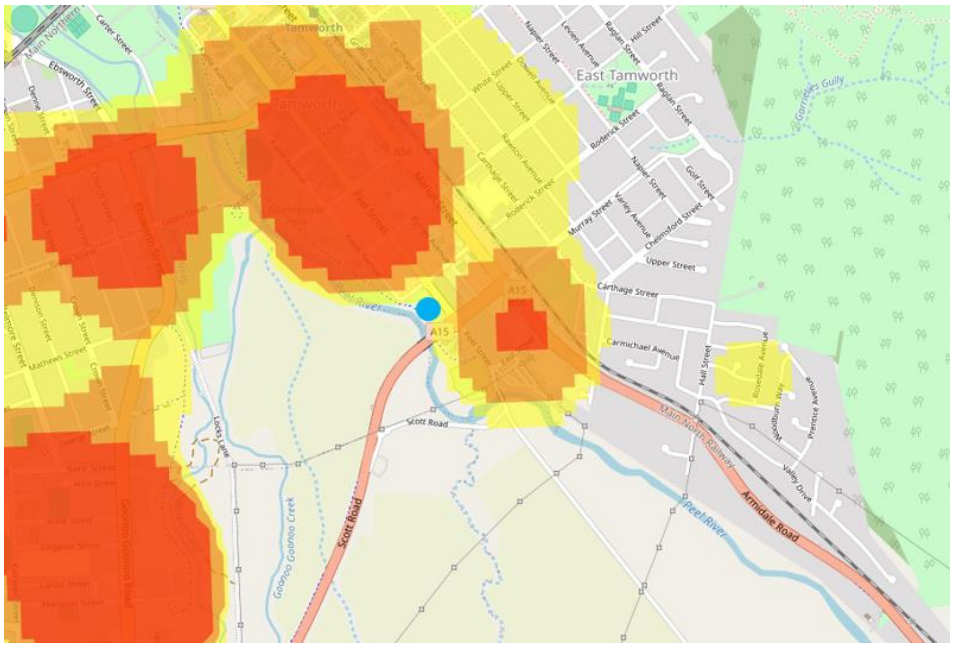


Figure 26 Hotspots map – Steal from motor vehicle
The site is indicated by a blue dot. Source: BOSCAR

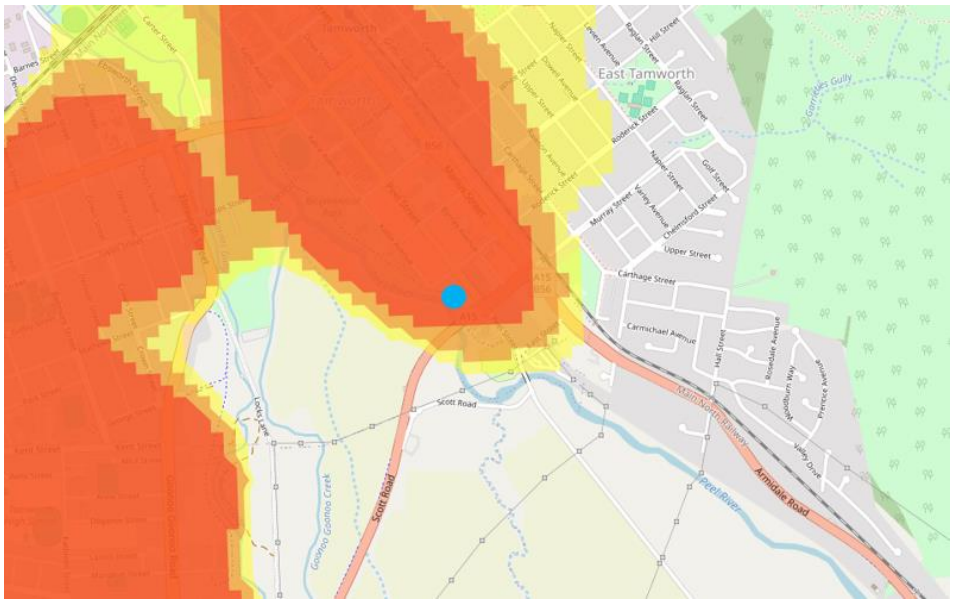


Figure 27 Hotspots map – Malicious damage to property
The site is indicated by a blue dot. Source: BOSCAR

6. CPTED Review

6.1 Overview

This section of the report assesses the proposed development against the following CPTED principles referred to in the Safer by Design Guidelines:

- Surveillance;
- Access control;
- Territorial reinforcement; and
- Space management.

These guidelines require consent authorities to ensure that development provides safety and security to users and the community.

Additionally, this CPTED review has considered the applicable policy and guidance framework as summarised in **Section 1.3** of this report.

An assessment of the proposal against CPTED Principles and Tamworth Regional Council policies and guidelines is provided below.

6.2 Surveillance

Overview

The CPTED guidelines state in relation to the principle 'Surveillance':

"The attractiveness of crime targets can be reduced by providing opportunities for effective surveillance, both natural and technical.

Good surveillance means that people can see what others are doing. People feel safe in public areas when they can easily see and interact with others. Would be offenders are often deterred from committing crime in areas with high levels of surveillance.

From a design perspective, 'deterrence' can be achieved by:

- *Clear sightlines between public and private places;*
- *Effective lighting of public places; and*
- *Landscaping that makes places attractive, but does not provide offenders with a place to hide or entrap victims."*

Assessment

The site, as with any site within the Tamworth region is at risk to a range of criminal activities identified in the LGA's crime profile including vandalism, theft and non-domestic assault. The site (or parts of the site due to its size/depth) benefits from its location and topography as it is passively observed from adjacent late-night fast-food restaurants, the busy New England Highway and traffic associate with the Woolworths supermarket and the CBD which connects to the New England Highway via Peel Street.

The proposal provides design features to mitigate crime and increase surveillance, including the integration of active uses late into the evening which promote increased site activity. A vibrant public domain and public interface will maximise passive surveillance across the site, to surrounding streets and footpaths.

The development presents an opportunity to improve amenity and safety of the site and surrounds through improved outdoor lighting, CCTV surveillance, and appropriate site management, thereby discouraging criminal activity through the site, along surrounding streets and on footpaths around the development.

Entry points to the building and paths through the site are clearly demarcated which assists wayfinding and more easily identifies those who might be loitering or on site

without legitimate purpose. The formal points of access into the site are shown in **Figure 28** below.

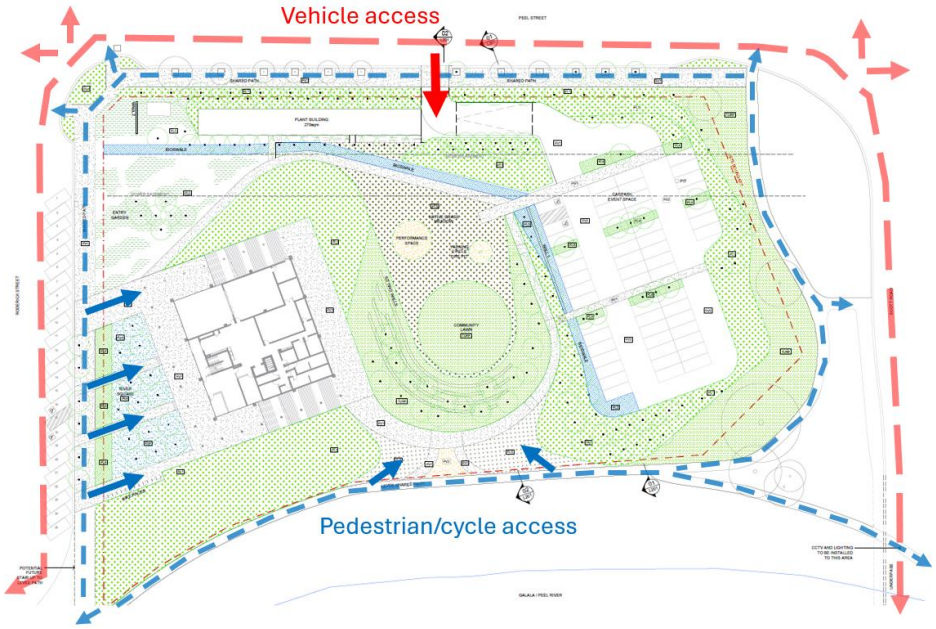


Figure 28 Formal site access points
Source: Tyrell Studios (annotated)

The proposal will engender an improvement over the existing vacant circumstance of the site, which in its current form has poor lighting and poor street activation which does little to discourage crime or anti-social behaviour.

The development will utilise a CCTV system to monitor the following specific areas of the site, as recommended by ADP Consulting:

- Car park;
- Vehicle entry point;
- On-site footpaths;
- Off-site shared path and riverfront;
- Building forecourts; and
- Throughout the building including at the main lobby entry and inside the lift.

The CCTV system will utilise high resolution colour cameras with audio and a broad field of view. The system will operate on a 24-hour basis with all footage stored for an appropriate period by means of network hard drive storage devices.

The adjoining riverside shared path is appropriately lit along its interface with the site and to the north as it continues through Bicentennial Park. The path is not directly lit as it extends south from the site under George Fielder Bridge as shown in **Figure 29** below. The proposal represents an opportunity to improve lighting and surveillance in the underpass and immediate approaches.

The southern face of the flood levee embankment is a less visible location. Accordingly, improved lighting and increased activation of the path and adjacent site is a valuable improvement that the proposal will achieve.

Ultimately people will make their own choices regarding the attractiveness of following the shared path under the underpass or to cross over the New England Highway at road level. This CPTED review recommends measures to ensure both paths are appropriately illuminated to ensure both options are as safe as possible and give sufficient comfort to all users to encourage its activation for improved passive surveillance.

Figure 29 Riverside shared path and New England Highway underpass
Source: Architectus

Building entries and forecourts will be highly illuminated as recommended by Erco Lighting. The open nature of the landscape design allows for a broad field of view around the building perimeter, both from inside the building and from external spaces around the site.

The open car park is in the best position on site to capitalise on passive surveillance from passing traffic. Appropriate lighting, landscape design and CCTV positioning will help prevent criminal and anti-social behaviour in and around this space.

The proposed floor plans and elevations illustrate that the straight walls, absence of 'nooks', placement of windows and uses within the building, in tandem with appropriate lighting, ensure forecourts around the building perimeter, external spaces across the site, and adjacent riverside shared path are appropriately surveyed by building users. The ground and first floor of the building are entirely wrapped by floor-to-ceiling windows except where partially/full underground (see **Figure 30**). The upper floors have an entirely glass façade on the southern elevation overlooking the river (and riverside path).

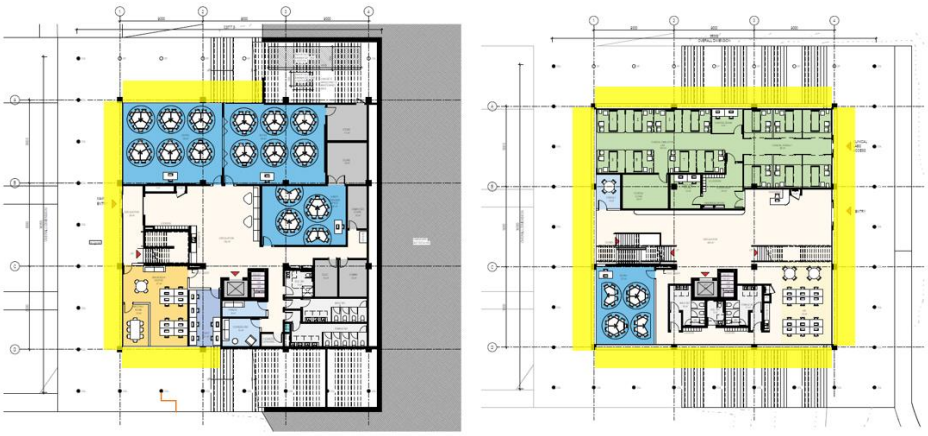


Figure 30 Floor Plans – Ground floor (left) and first floor (right)
Active frontages are highlighted in yellow
Source: Architectus

Recommendations

It is recommended that:

- CCTV cameras be installed in accordance with ADP Consulting's recommendations.

- Lighting should be installed in accordance with ADP Consulting's recommendations and Erco Lighting's design, and the relevant Australian Standards (AS4282 and AS/NZS 1158).
- Effective lighting be provided to the shared way adjacent to the site and in the underpass under the New England Highway.
- Except for proposed new and retained trees, landscaping on site is to be maintained to a density and height that allows clear sight lines through the site and beyond to the street and shared paths from the street.
- Security guards be on site outside of core hours.

6.3 Access Control

Overview

The CPTED guidelines state in relation to the principle 'Access control':

"Physical and symbolic barriers can be used to attract, channel or restrict the movement of people. They minimise opportunities for crime and increase the effort required to commit crime.

By clearly indicating areas that people are permitted to go or avoid, it becomes more difficult for potential offenders to reach and victimise people and their property. Illegible boundary markers and confusing spatial definition enable criminals to justify their presence in restricted areas. Notwithstanding, care should be taken to ensure that barriers are not tall or hostile, creating the effect of a compound.

Effective access control can be achieved by creating:

- *landscapes and physical locations that channel and group pedestrians into target areas;*
- *public spaces which attract, rather than discourage people from gathering; and*
- *restricted access to internal areas or high-risk areas (like car parks or other rarely visited areas). This is often achieved through the use of physical barriers."*

Assessment

The campus has been designed to create an open, welcoming environment with a host of shared spaces, multiple functions, with a high-quality public domain. The campus fosters a vibrant student community and provides access to numerous extracurricular activities, clubs, and societies to maximise its activation from 6am to 11pm, seven days a week.

The only private, secure access is associated with entry into the building outside of core hours. This approach provides an appropriate CPTED response as it will maximise activation of the site and travel around this immediate setting to maximise surveillance and safety while ensuring there are safe and secure spaces outside of core hours when the site is darker and potentially less activated.

During evening periods, the upper levels of the building will be closed to students, and they will only be able to access the ground and first floor. This will improve security and site management.

CCTV and lighting have been designed to appropriately cover building entry points. Security will be on site outside of core hours to monitor building access and activities across the site.

Recommendations

It is recommended that:

- Building access should be secure outside of core hours with swipe cards or pin code control.
- Building and plant rooms should be secure to prevent trespass and break-in.

- Security guards be on site outside of core hours.

6.4 Territorial Reinforcement

Overview

The CPTED guidelines state in relation to the principle 'Territorial reinforcement':

"Community ownership of public space sends positive signals. People often feel comfortable in, and are more likely to visit, places which feel owned and cared for. Well used places also reduce opportunities for crime and increase the risk to criminals.

If people feel that they have some ownership of public space, they are more likely to gather and to enjoy that space. Community ownership also increases the likelihood that people who witness crime will respond by quickly reporting it or by attempting to prevent it.

Territorial reinforcement can be achieved through:

- *design that encourages people to gather in public space and to feel some responsibility for its use and condition; and*
- *design with clear transitions and boundaries between public and private space clear design cues on who is to use space and what it is to be used for. Care is needed to ensure that territorial reinforcement is not achieved by making public spaces private spaces, through gates and enclosures."*

Assessment

As discussed in **Section 6.3** above, the campus has been designed to create an open, welcoming environment with a host of shared spaces, multiple functions, with a high-quality public domain. The only private, secure access is associated with entry into the building. This approach provides an appropriate CPTED response as it will maximise activation of the site and travel around this immediate setting to maximise surveillance and safety.

The late-night uses of the campus will activate the site and complement the existing benefits of adjacent restaurants and passing traffic, assisted by new lighting, that ensure the location is appropriately surveyed.

Access control into the building (lower levels only) outside of core hours will assist territorial reinforcement. Proposed wayfinding signage will clearly demarcate paths and entry points to more readily identify those who might be loitering or on site without legitimate purpose.

Recommendations

It is recommended that:

- The development should provide a clear delineation of public and private space, (clearly indicate when building access will be restricted to access to staff and students only).
- Effective wayfinding signage should be provided at entry/exit points to public spaces and through the site.

6.5 Space Management

Overview

Regarding the principal of 'Space Management', the Safer by design guidelines state the following:

"Popular public space is often attractive, well maintained and well used space." Linked to the principle of territorial reinforcement, space management ensures that space is appropriately utilised and well cared for. Adequate space management creates spaces which look safe and clean which encourage increased usage of public spaces. Spaces which are well cared for, discourage crime and anti-social behavior.

Space management strategies include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out pedestrian and car park lighting and the removal or refurbishment of decayed physical elements."

Assessment

The proposed development contributes to creating a more attractive and well-maintained public space by redeveloping a currently underutilised site, including public domain improvements.

The limited presence of blank walls on the building, especially at lower levels, maximises sight lines in and out of the building facades. Active frontages and activation of the site more generally provide passive surveillance onto external spaces and will discourage acts of vandalism, littering and other anti-social behavior.

Recommendations

Recommendations for achieving efficient space management are as follows:

- Graffiti and vandalism should be removed/ repaired as soon as practicable following such incidents.
- Any burnt out lighting should be replaced as soon as practicable.
- Landscaping should be maintained to a high standard on a regular basis.
- Waste is to be managed with regards to an Operational Waste Management Plan and the cleanliness of the public domain should maintained consistently throughout the year.

6.6 Tamworth Policy and Guidelines Assessment

Table 3 below provides an assessment of the proposal against relevant objectives and controls under the Tamworth Regional Crime Prevention Plan 2023-2028, the Tamworth Regional Blueprint 100 and the Tamworth Regional Development Control Plan 2010.

Table 3 Tamworth regional Council Policies Compliance Assessment

Development Aspect	Development Control	Complies	Assessment of Proposal
Tamworth Regional Crime Prevention Plan 2023-2028			
Objective 1 – Safe spaces	Design and maintain public places to discourage crime and enhance public safety.	Yes	CPTED design initiatives including space management is reviewed in **Section 6** of this report.
Objective 2 – Safe people	Working with our partners our goal is to ensure every community member feels safe in all aspects of their life.	Yes	Perceptions of safety and security is important for changing behaviours – to discourage anti-social behaviour and to encourage people to use a space fully. The proposal is designed to maximise activation of the site late into the evening to create a more welcoming and inviting space, and in turn, improving passive surveillance and 'safety in numbers'.
Targeting priority offences	The plan sets the following four priority offences to target during the current term: - Motor vehicle theft. - Stealing from motor vehicles. - Break and enter dwellings. - Malicious damage.	Yes	The open car park is in the best position on site to capitalise on passive surveillance from passing traffic. Appropriate lighting, landscape design and CCTV positioning will help prevent criminal and anti-social behaviour in and around this space. No dwellings are proposed. Break and enter into the building and plant rooms, and malicious damage will

Development Aspect	Development Control	Complies	Assessment of Proposal
			be prevented by maximising site activation, appropriate lighting and surveillance and detailed in this report.
Tamworth Regional Blueprint 100 – A future vision			
Vibrant centres (Surveillance)	Priority 2.3 - A strong and vibrant Tamworth City Centre	Yes	The proposal creates a highly active student and visitor hub on an abandoned site. The proposal increases activity within the city centre to improve the critical mass required for a stronger night-time economy, improving passive surveillance in and around the site.
Build resilient communities	Action 4.11.1 - safe and inclusive public space through better urban design	Yes	CPTED design initiatives to create safe and inclusive public space is reviewed in **Section 6** of this report.
Tamworth Regional Development Control Plan 2010			
Lighting	General development specifications – Other types of development: All developments shall demonstrate compliance with AS4282 Control of Obtrusive Effects of Outdoor Lighting. Discretionary development standards: 1.32 Outdoor Lighting – (c) Lighting selection and location should improve safety and reduce crime and fear.	Yes	Lighting design has been informed by a specialist lighting consultant. Lighting of the proposed new building and associated public domain will be consistent with the associated DCP objectives.
Surveillance	Discretionary development standards: 1.18 Design Principles – (a) Design should maximise surveillance with clear sightlines between public and private places, effective lighting of public places and landscaping that makes places.	Yes	Passive and electronic surveillance is maximised across the site and to at adjacent shared path and underpass as detailed in **Section 6.2** of this report.
Territorial reinforcement	Discretionary development standards: 1.18 Design Principles – (b) Physical and symbolic barriers should be used to attract, channel or restrict the movement of people to minimise opportunities for crime and increase the effort required to commit crime.	Yes	The campus has been designed to be open and welcoming to maximise site activation to achieve significant CPTED benefits as detailed in this report. Appropriate access control into the building is proposed as detailed in **Section 6.3** of this report.
General	Discretionary development standards: 1.18 Design Principles – (j) Optimise safety and security, both internal to the development and for the public domain. 1.26 Parking and Access – (c) Parking areas should be visually attractive and constructed, designed and situated so as to encourage their safe use.	Yes	Safety and security for the site and surrounds has been maximised through appropriate site activation, surveillance, access control, territorial reinforcement and space management as detailed in this report. The proposed car park is appropriately design with soft landscaping to improve its visual attractiveness without significantly obscuring visual surveillance across the space.

7. Conclusion

This report provides an assessment of the proposed construction of a new educational establishment building and landscaping at 545 Peel Street, Tamworth against the Crime Prevention Through Environmental Design Principles.

The proposal is considered to present significant opportunities to ameliorate the occurrence of crime in the surrounding area through considered, safety-led design, subject to the following recommendations:

Prior to Occupation

- CCTV cameras should be installed across the site and in the adjacent underpass in accordance with the recommendations of ADP Consulting, including in the underpass under George Fielder Bridge.
- Lighting should be installed in accordance with ADP Consulting's recommendations and Erco Lighting's design, and the relevant Australian Standards (AS4282 and AS/NZS 1158), including in the underpass under George Fielder Bridge.
- Building access should be secure outside of core hours with swipe cards or pin code control.
- The development should provide a clear delineation of public and private space, (clearly indicate when building access will be restricted to access to staff and students only).
- Wayfinding signage should be provided at entry/exit points to public spaces and way finding signage through the site.
- Buildings and plant rooms should be secure to prevent trespass and break-in.

Operational Phase and Ongoing Management

- Security guards be on site outside of core hours.
- Graffiti and vandalism should be removed/repaired as soon as practicable following such incidents.
- Any burnt out lighting should be replaced as soon as practicable.
- Waste is to be managed with regards to an Operational Waste Management Plan and the cleanliness of the public domain should maintained consistently throughout the year.
- Except for proposed new and retained trees, landscaping on site is to be maintained to a density and height that allows clear sight lines through the site and beyond to the street and shared paths from the street.
- Regular cleaning of public space and collection of rubbish.

Note that the above measures are capable of being reasonably accommodated, either through the implementation of conditions of consent or through ongoing management of the site (e.g. through adoption of a Campus Management Plan).

As detailed within this report, the proposal will result in a significant activation and improved surveillance over existing site context. The proposed development is considered acceptable from a CPTED perspective, and with application of recommended mitigation measures, is not considered to have a detrimental impact on the safety and security of the new University Campus and surrounding area.

Appendix A

Lighting Report (ADP Consulting)

ADP
Consulting : Engineering

Consultant Advice Notice

From	Monica Eaton	**Advice No.**	CAN No-E-1
Project	UNE Tamworth	**Project No.**	SYD2353
Date	23 October 2024	**Pages**	1/15
Subject	Lighting DA Report	**Revision:**	2

Distribution to:

Attention	Company	Email

DA Lighting Report

1.1 INTRODUCTION

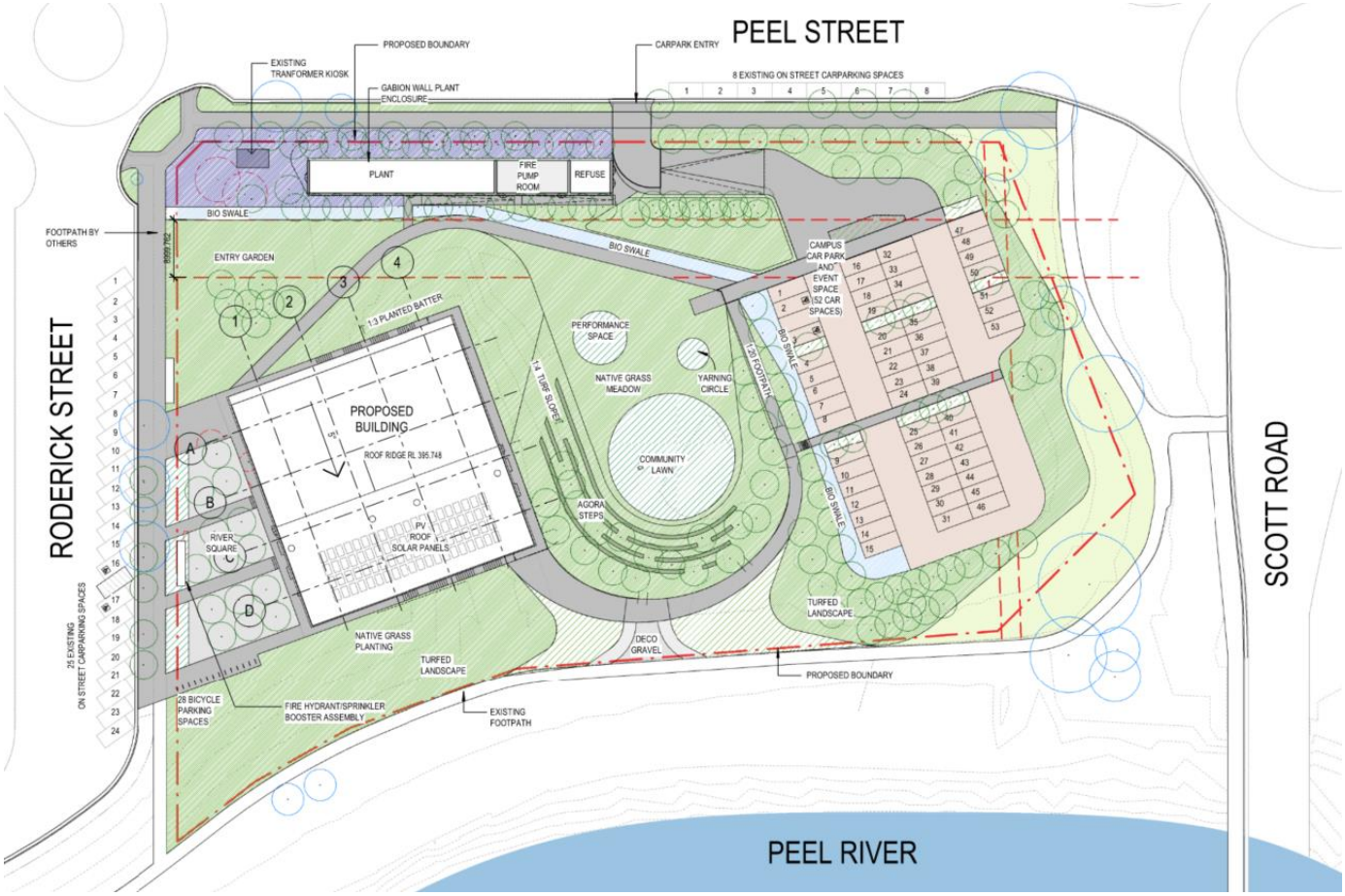
The proposed development is a new University of New England facility located at Peel Street, Tamworth in a large lot residential zone. The proposed site will service the community of Tamworth City which has a steady stream of traffic and nearby local areas including residential, primary production and general industrial.

The development will provide the local community cultural centre providing essential amenities for the local and nearby areas.

The project will consist of the following:

- Main Education and Cultural Hub
- External Amphitheatre/ culture grounds
- Parking areas
- Pedestrian walkways

Figure 1 Proposed Site Plan



1.2 APPLICABLE AUSTRALIAN STANDARDS FOR PUBLIC LIGHTING

The relevant Australia standards to be considered for any external lighting design and strategy are as follows;

- AS4282: Control of the Obtrusive Effects of Outdoor Lighting:
- AS/NZS 1158.3.1: Lighting for Roads and Public Spaces - Pedestrian Area (Category P):
- AS/NZS 1158.1: Lighting for Roads and Public Spaces - Vehicle Area (Category V):

These standards play a crucial role in ensuring that external lighting installations in Australia meet the necessary safety, functionality, and environmental criteria. Compliance with these standards helps promote responsible lighting practices that benefit the community while minimizing negative impacts on the surroundings. The external lighting strategy for UNE Tamworth will refer to these standards to ensure optimal outcome for both the community and development.

1.3 AS4282: CONTROL OF THE OBTRUSIVE EFFECTS OF OUTDOOR LIGHTING

AS4282: Control of the Obtrusive Effects of Outdoor Lighting aims to address the issues related to light pollution and the negative impacts of outdoor lighting on the environment, wildlife, and neighbouring properties. The primary goal of the standard is to provide guidance for designing and implementing external lighting systems that fulfill functional and safety requirements, while simultaneously avoiding any undesirable effects like light spillage, glare, or upward light projection.

The following considerations are assessed in the external lighting strategy for UNE Tamworth Campus;

- Lighting Zones:

- Define appropriate lighting levels for each zone, considering safety, security, and visual tasks.

> Light Fittings Selection
  - The minimization of glare and upward light.
  - Prioritize dark-sky friendly luminaires that direct light downward where it is needed.

> Lighting Control:
  - Implement intelligent lighting controls, such as timers, motion sensors, and dimmers, to reduce unnecessary illumination during off-peak hours.
  - Ensure manual overrides for specific scenarios or emergencies.

> Natural Environment Considerations:
  - Avoid direct lighting into environmentally sensitive areas, such as wildlife habitats and protected landscapes.
  - Minimize the impact on nocturnal animals by using motion-sensor activated lighting.

> Light Trespass:
  - Prevent light trespass into neighbouring properties by careful fixture placement and light direction.
  - Consult with neighbouring properties to address any concerns about lighting intrusion.

> Glare Control:
  - Strategically place fixtures away from direct lines of sight to minimize glare.
  - Conduct glare assessments during design and after installation to verify compliance.

> Community Engagement:
  - Engage with the local community and stakeholders to address concerns and receive feedback on the lighting strategy.

1.4 AS/NZS 1158.3.1: Lighting for Roads and Public Spaces

AS1158 is an Australian standard that focuses on road lighting and its design, aiming to ensure safe and efficient illumination on public roads. The focus is on achieving safe and efficient illumination for public roads.

The following considerations are assessed in the external lighting strategy for UNE Tamworth Campus

> Road Classification and Lighting Design
  - Identify and classify roads based on traffic volume, speed, and the surrounding environment.
  - Determine appropriate lighting levels and uniformity for each road classification, ensuring adequate visibility for road and pathway users.

> Light Fitting Selection:
  - Utilize external lighting fixtures that comply with AS1158 standards, providing the required illumination without excessive glare or light spillage.
  - Consider energy-efficient light sources to minimize environmental impact and operational costs.

> Glare Control:
  - Position light fittings and luminaires carefully to avoid direct glare into the line of sight of road users and nearby properties.
  - Use appropriate shielding and optical control to reduce glare and ensure a comfortable visual environment.

- Uniformity and Coverage:
  - Aim for uniform lighting distribution to minimize dark spots and ensure consistent visibility along the road. b.
  - Consider horizontal and vertical lighting uniformity to accommodate different road geometries and pedestrian areas.
- Road Intersection Lighting:
  - Provide additional lighting at road intersections to enhance visibility for turning traffic and pedestrians.
  - Apply appropriate luminance ratios to ensure adequate contrast for road signs and markings.
- Pedestrian Crossings:
  - Implement well-lit pedestrian crossings to enhance safety for pedestrians and drivers.
  - Use adequate lighting levels and uniformity to improve visibility during both day and night.
- Adaptive Lighting Control:
  - Integrate adaptive lighting control systems that can adjust lighting levels based on traffic flow, time of day, and weather conditions.
  - This ensures optimal lighting efficiency and minimizes energy consumption during low-traffic periods.
- Light Pollution Mitigation:
  - Direct light downward to avoid light pollution and unnecessary upward light projection.
  - Consider the surrounding environment and nearby properties to minimize any obtrusive effects of the lighting.

AS/NZS 1158 defines two lighting categories and their application broadly divided as follows:

Category V Lighting

Lighting which is applicable to roads on which the visual requirements of motorists are dominant, e.g. traffic routes. Subcategories range from V1 to V5.

Category P lighting

Lighting which is applicable to roads on which the visual requirements of pedestrians are dominant, e.g. local roads and to local area traffic management devices installed on such roads. Subcategories range from PR1 to PR5.

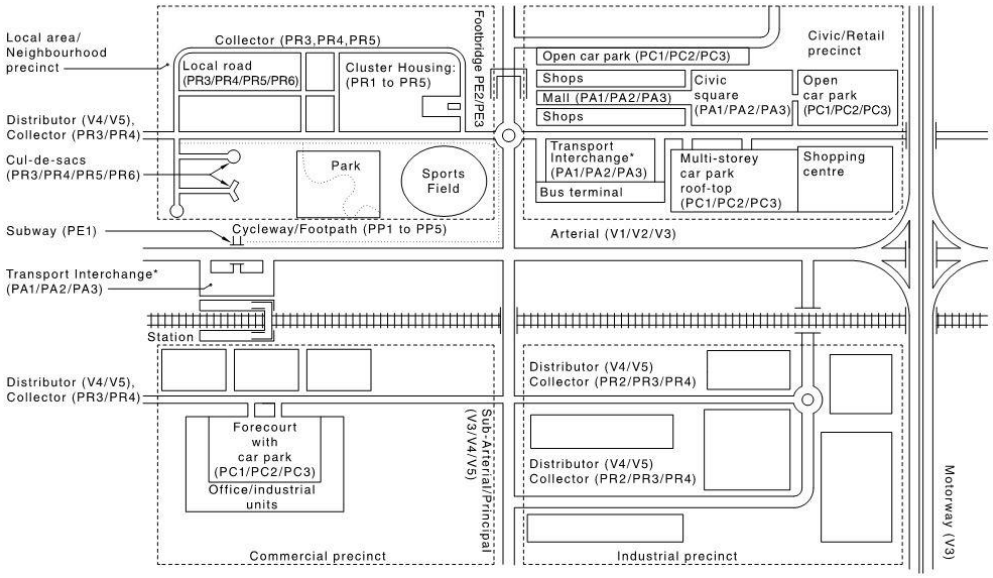
Relevant design methods, requirements and application guidance for each of the lighting categories above are given in subsequent Standards in the AS/NZS 1158 series as follows:

- Performance and installation design requirements for Category V lighting are specified in AS/NZS 1158.1.1
- Computer procedures for the calculation of light technical parameters for Category V and Category P lighting are given in AS/NZS 1158.2
- Guidance on the design, installation, operation and maintenance of Category V lighting is provided in AS/NZS 1158.1.3
- Guidance on the design, installation, operation and maintenance of Category P lighting is provided in AS/NZS 1158.3.1

The appropriate lighting category and subcategory for a particular road shall be determined in consultation with local councils as well as the road or traffic authority concerned.

Figure 2.1 in AS1158.1.1 below (as well as in AS1158.3.1) shows an example of various road/area types and an indication of the category and subcategory that would be typically applicable

Figure 2 AS1158 Categories



NOTE: Selection of the appropriate lighting subcategory for a road or public space is governed by council requirements and classifications of certain parameters

- When determining the appropriate lighting category and subcategory each separate element is assessed based on particular operational characteristic.
- The night-time usage shall also be considered as night usage could be different to the daytime usage of the road with respect to traffic density and the presence of pedestrians.

1.5 LIGHTING CATEGORY ASSESSMENT

Proposed UNE facility is assessed referencing Figure 2.1 determining the categories of the local area. Additionally, the sub-categories are assessed for local roads utilizing Table 2.1 and parking spaces utilizing Table 2.5.

There are parking spaces on all four sides surrounding the main control building.

The Lighting Category assessment process must take into consideration the following:

- Vehicular activity, i.e. vehicular traffic
- Pedestrian activity
- Risk of crime
- The need to enhance the surrounds, add interest and prestige to the area which helps the local business.

The vehicular traffic and the pedestrian activities are predicted to be low during night with the risk of crime being low.

ADP consulted AS1158 – Public Lighting standards to assess what lighting category the new public lighting scheme should be designed.

1.5.1 Lighting Sub-Category Assessment

ADP determined the following selection criteria for the local roads primarily for access to proposed Site.:

The areas are considered as local road primarily used for accessing abutting properties.

- Pedestrian activity: Low

> Risk of crime: Low

> Need to enhance prestige: N/A

Based on the above, the applicable lighting category for the local roads is PR5, obtained utilizing Table 2.1 of AS1158.3.1.2020.

TABLE 2.1

LIGHTING SUBCATEGORIES FOR ROAD RESERVES IN LOCAL AREAS

1	2	3	4	5	6
Type of road or pathway		Selection criteria[a,b]			Applicable lighting subcategory[c,d]
General description	Basic operating characteristics	Pedestrian/ cycle activity	Fear of crime	Need to enhance amenity	
Collector roads or non-arterial roads which collect and distribute traffic in an area, as well as serving abutting properties	Mixed vehicle and pedestrian traffic	N/A	High	N/A	PR1
		High	Medium	High	PR2
		Medium	Low	Medium	PR3[f] or PR4[f]
		Low	Low	Low	PR5
Local roads or streets used primarily for access to abutting properties, including residential, commercial and industrial precincts		N/A	High	N/A	PR1
		High	Medium	High	PR2
		Medium	Low	Medium	PR3[f] or PR4[f]
		Low	Low	Low	PR5
		N/A	N/A	N/A	PR6[e]
Common area, forecourts of cluster housing		N/A	High	N/A	PR1
		High	Medium	High	PR2
		Medium	Low	Medium	PR3[f] or PR4[f]
		Low	Low	Low	PR5

Refer to Table 3.3 of AS1158.3.1:2020 below for illumination levels corresponding to category PR5.

TABLE 3.3

VALUES OF LIGHT TECHNICAL PARAMETERS FOR ROADS IN LOCAL AREAS

1	2	3	4
Lighting subcategory	Light technical parameters (LTP)		
	Average horizontal illuminance[a,b] ($\bar{E}_h$) lx	Point horizontal illuminance[a,b] (E_{Ph}) lx	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})
PR1	7	2	8
PR2	3.5	0.7	8
PR3[e]	1.75	0.3	8
PR4[d,e]	1.3	0.22	8
PR5[d,e]	0.85	0.14	10
PR6[d]	0.7	0.07	10

ADP determined the following selection criteria for the outdoor car spaces:

> Night-time vehicle or pedestrian movements: Low

> Night-time occupancy rates (NTOR): >=25%, <=75%

> Risk of Crime: Low, referenced from NSW crime stats

Based on the above, the applicable lighting category for the car spaces including circulation roadways is PC3, Disabled parking will be PCD, PP3 is pedestrian pathways and designated pedestrian crossing will be PCX obtained utilizing Table 2.5 of AS1158.3.1.2020.

TABLE 2.5

LIGHTING SUBCATEGORIES FOR OUTDOOR CAR PARKS
(INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4
Type of area	Selection criteria[a,c]		
	Night time vehicle and/or pedestrian movements	Fear of crime	Applicable lighting subcategory[b]
Parking spaces, aisles and circulation roadways	High	High	PC1
	Medium	Medium	PC2
	Low	Low	PC3
Designated parking spaces specifically intended for people with disabilities	N/A	N/A	PCD
For any designated areas for pedestrians to cross	N/A	N/A	PCX

Table 3.4 of AS1158.3.1:2020 below for illumination levels corresponding to category PP3.

TABLE 3.4

VALUES OF LIGHT TECHNICAL PARAMETERS
FOR PATHWAYS AND CYCLIST PATHS

1	2	3	4	5
Lighting subcategory	Light technical parameters (LTP)			
	Average horizontal illuminance[a,b] $(\bar{E}_h)$ lx	Point horizontal illuminance[a,b,d] (E_{Ph}) lx	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})	Point vertical illuminance[a,b] (E_{Pv}) lx
PP1	10	2	5	1
PP2	7	1	5	0.3
PP3	3	0.5	5	0.1
PP4	1.5	0.25	5	0.05[e]
PP5	0.85	0.14	5	0.02[e]

Table 3.7 of AS1158.3.1:2020 below for illumination levels corresponding to category PC3, PCD and PCX.

TABLE 3.7

VALUES OF LIGHT TECHNICAL PARAMETERS FOR OUTDOOR
CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
Lighting subcategory	Light technical parameters (LTP)			
	Average horizontal illuminance[a,b] $(\bar{E}_h)$ lx	Point horizontal illuminance[a,b] (E_{Ph}) lx	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})	Point vertical illuminance[a,b] (E_{Pv}) lx
PC1	14	3	8	3
PC2	7	1.5	8	1
PC3	3.5	0.7	8	—
PCD[d]	—	≥14 and ≥$(\bar{E}_h)$ [d]	—	—
PCX[e]	21	5	8	—

1.5.2 Location consideration

The proposed development is situation in proximity to the main city centre on Tamworth. On the Peel Street perimeter of the site, a commercial/ retail precinct resides. However, Roderick Street contain residential property.

Any and all external lighting on Roderick Street is the be design in strict accordance with AS4282. The design is to ensure not direct line of sight from the residence to a light source of an external light fixture is present.

1.6 LIGHTING RECOMMENDATIONS

The new lighting scheme for the proposed UNE Tamworth Facility will meet the following design criteria:

- Category PR5 (Local roadways primarily used to enter the Proposed development), PC3 (Parking spaces and circulation roadways), PCD (Disabled spaces) and PCX (Designated pedestrian crossing) Lighting technical parameters of AS1158.3.1:2020.
- Limit spill light and glare to adjoining properties in accordance with the requirements of AS4282:2019 control of the obtrusive effects of outdoor lighting.
- Be energy efficient (use of LED technology).
- Low maintenance.
- Use of 4000K CCT lamps with higher than 80 color rendering indexes.
- Select vandal resistant, weatherproof luminaires.
- Select luminaires with low glare.
- Place luminaires where lighting is needed and where it complements the surrounds with strict adherence to section 3.7 of AS1158.3.1.2020 (Table 3.8 and 3.9).

Refer Appendix A – Preliminary Pole Locations for proposed layout to satisfy the above recommendations.

Monica Eaton

Electrical Engineer

ADP Consulting Pty Ltd

ADP Consulting : Engineering

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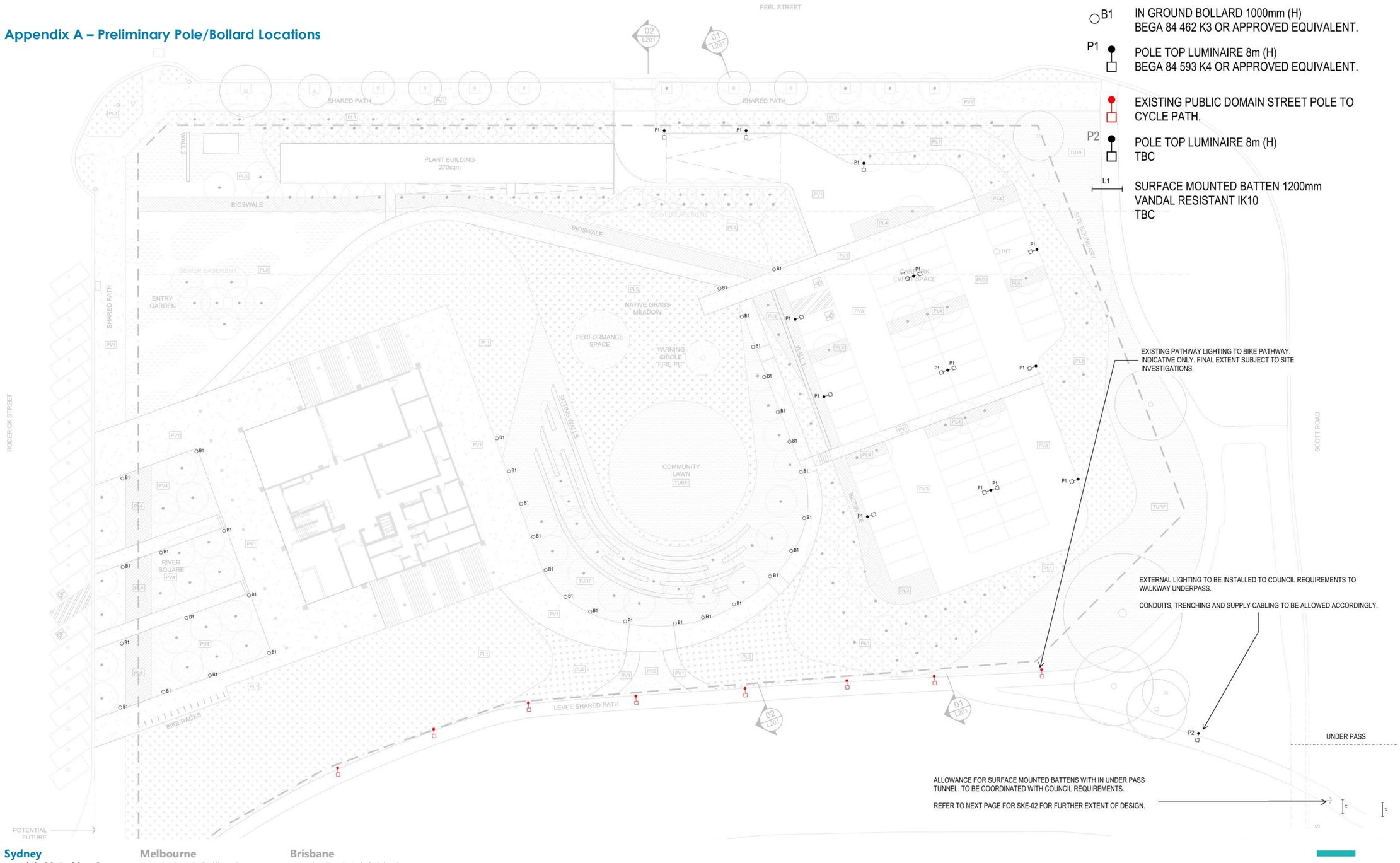
Appendix A – Preliminary Pole/Bollard Locations



LEGEND

B1 — IN GROUND BOLLARD 1000mm (H)
BEGA 84 462 K3 OR APPROVED EQUIVALENT.

P1 — POLE TOP LUMINAIRE 8m (H)
BEGA 84 593 K4 OR APPROVED EQUIVALENT.

EXISTING PUBLIC DOMAIN STREET POLE TO CYCLE PATH.

P2 — POLE TOP LUMINAIRE 8m (H)
TBC

L1 — SURFACE MOUNTED BATTEN 1200mm
VANDAL RESISTANT IK10
TBC

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Level 6, 33 Erskine Street
Sydney NSW 2000
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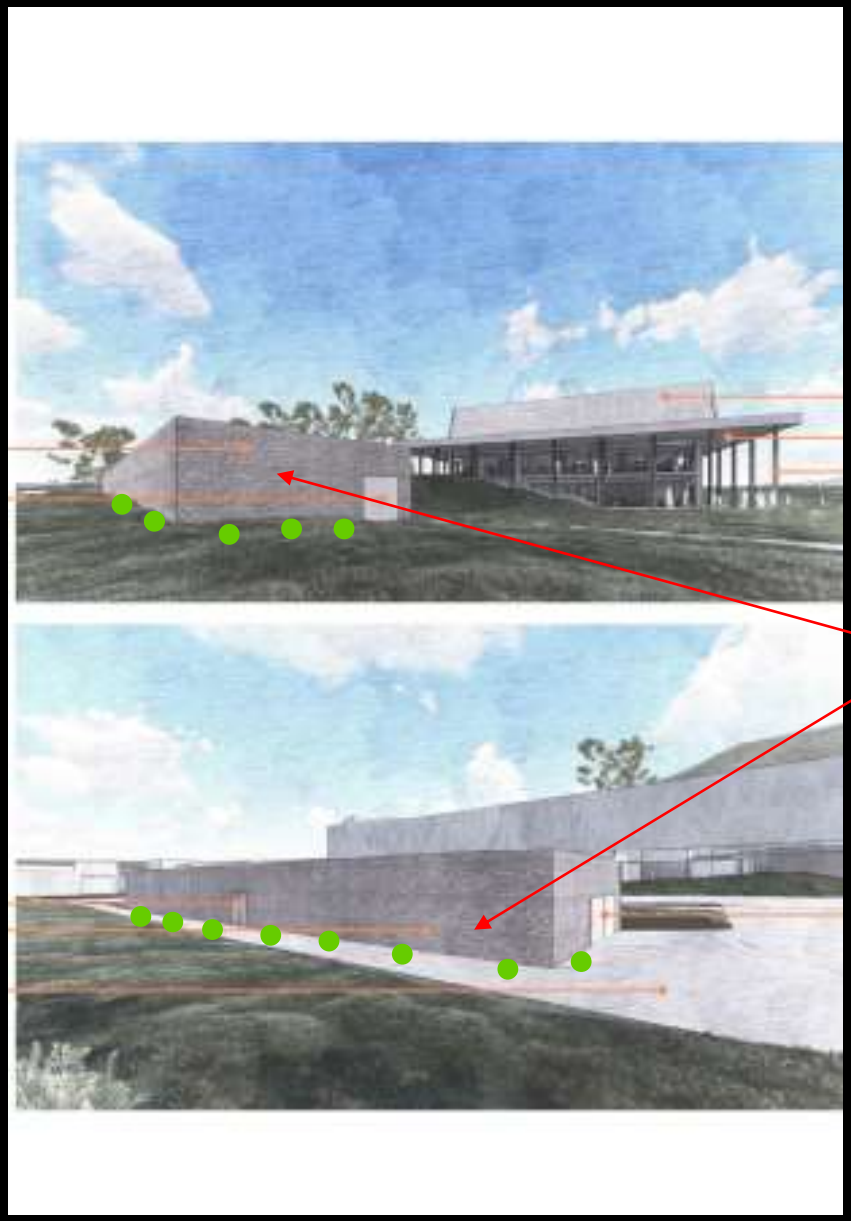
Melbourne
Level 13, 55 Collins Street
Melbourne VIC 3000
T. 03 9521 1195

Brisbane
Level 16, 15 Adelaide Street
Brisbane QLD 4000
T. 07 3088 4022

Appendix B

External Lighting Concept (Erco Lighting)

ERCO



Illuminate walls with Tesis inground uplights at approximately 2.4 metre spacing, depending on wall height

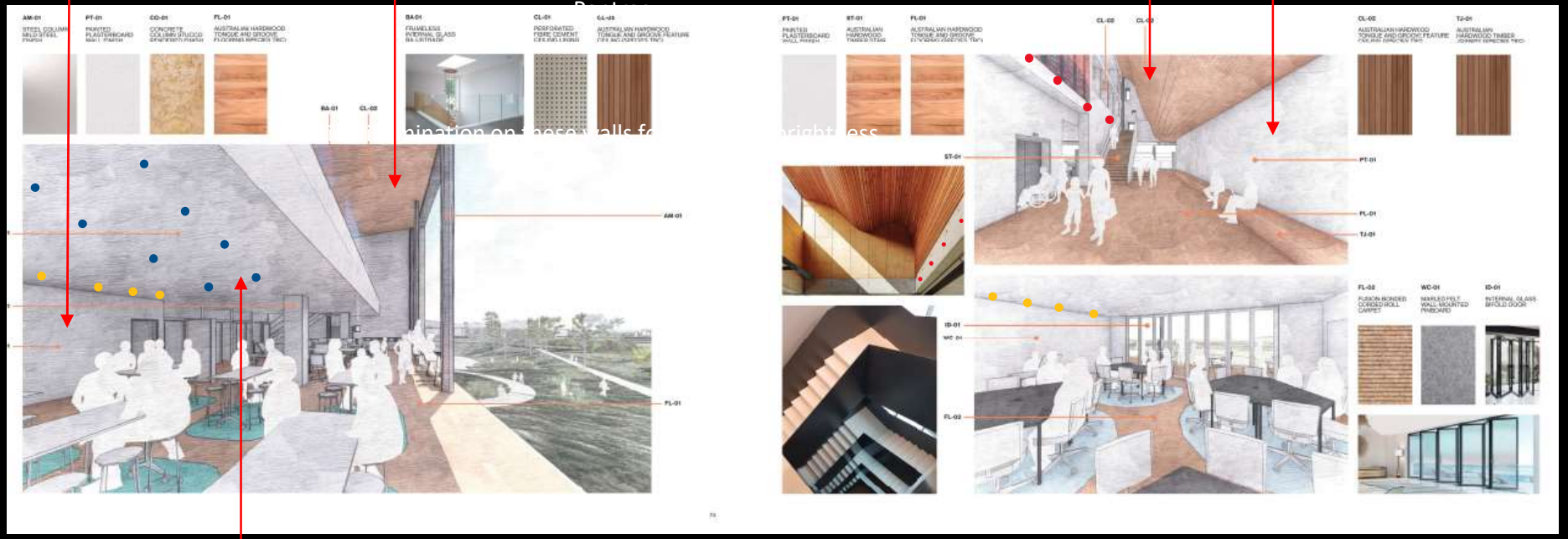
UNE Tamworth Central – Lighting Concept

ERCO

Vertical illumination

Ceiling washlights to illuminate timber ceiling finish and provide spatial height.

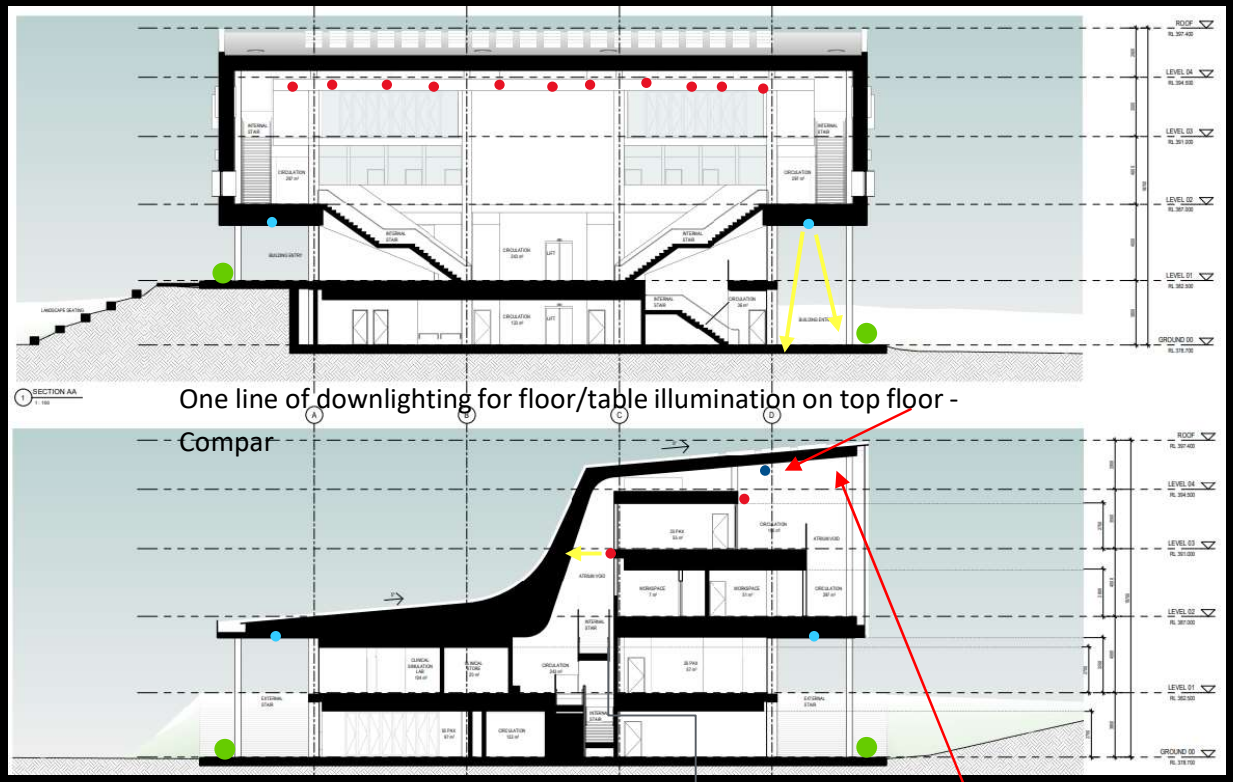
Vertical illumination – details required to determine mounting requirements



- Provide accents on desks/tables if fixed position via ‘spot’ lens Compar
- Circulation lighting using wideflood Compar for wide spacings
- Vertical illumination on walls with Compar wallwasher: 1/3 height of wall is offset, 1.3x that figure is the spacing required for even illumination

UNE Tamworth Central – Lighting Concept

ERCO



Illuminate timber ceilings with Pantrac ceiling washlight at appropriate spacing

Light walkways with IP65 Quintessence downlights

Compar as downlight and wallwasher where required

Tesis with narrow spot lens to light up columns

UNE Tamworth Central – Lighting Concept

ERCO

UNE Tamworth Central – Lighting Concept

ERCO

Illuminate soffit by recessed downlights – Quintessence
Spacing dependent on ceiling height and floor light level requirement

Illuminate structural columns here via uplights

Illuminate selected trees for depth and safety

UNE Tamworth Central – Lighting Concept

ERCO

*Illuminate selected trees for depth and safety

Illuminate structural columns and selected trees with Tesis inground uplights

UNE Tamworth Central – Lighting Concept

ERCO

Illuminate vertical elements inside for brightness, but also to create a beautiful appearance at night

Light ceiling architecture via Pantrac ceiling washlight.

Light columns with inground uplights

UNE Tamworth Central – Lighting Concept

ERCO

UNE Tamworth Central – Lighting Concept

Appendix C

CCTV Cameras Field of Vision Report (ADP Consulting)

ADP
Consulting : Engineering

UNE Tamworth Campus Expansion

CCTV Cameras External Field of Vision Report

Prepared for: UNE Tamworth

Project No: SYD2353
Date: 23 October 2024
Revision: 01

Project:	UNE Tamworth Campus Expansion
Location:	University of New England, Tamworth Centre, 24 Fitzroy Street Tamworth, NSW 2340
Prepared by:	ADP Consulting Pty Ltd Level 6, 33 Erskine Street Sydney NSW 2000
Project No:	SYD2353
Revision:	01
Date:	23 October 2024

Rev	Date	Comment	Author	Technical Review	Authorisation & QA
01	13.02.2024	Issued for Information	NY	RG	RG
02	21.10.2024	Update underpass	RG	RG	RG

ADP
Consulting : Engineering

Contents

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1. Introduction

1.1 Purpose

This CCTV Field of Vision (FOV) survey was conducted for UNE Tamworth Campus Expansion to confirm optimal CCTV camera locations for security and surveillance outside the building. This report includes the campus area.

The focus of the CCTV FOV survey includes:

> Installation of CCTV cameras on campus to ensure security and surveillance on campus grounds.

A FOV survey uses computer-based software to model the site and surrounding areas. This allows for the required coverage areas using floor plans to be outlined.

Axis Site Designer has been used for this survey. Axis Site Designer allows designers to select the quantity and locations of CCTV cameras and simulate their FOV on the site. In doing this, designers can select the correct quantities and locations of CCTV cameras to meet their FOV standards.

1.1.1 Objectives

The objectives of this document are to:

> Examine the FOV of cameras within the campus.

> Identify the best installation placement for the CCTV cameras that ensure security and surveillance standards.

1.1.2 Internal CCTV

Internal CCTV locations and design shall be completed in conjunction with the project team during the next project stages.

1.2 Reference Documentation

The CCTV camera placements and FOV study proposed for the site is based on the following drawings:

Table 1 Drawings List

Drawing Number	Sheet Title	Revision
DA0150(B)	Proposed Site Plan	B

1.3 Camera Quantities

Table 2 Camera Quantities

Floor	AXIS P3268-LVE	AXIS Q3538-LVE	Axis M4317-PLVE	Total
Proposed Site Plan	6	4	7	17
Total	**6**	**4**	**7**	**17**

1.4 Camera Models/Specifications

The following cameras have been used within this project and the specifications are as follows:

Table 3 CCTV Camera AXIS P3268-LVE & Q3538-LVE Specifications

General Specifications	AXIS P3268-LVE	AXIS Q3538-LVE
Camera	**Image sensor:** > 1/1.8" progressive scan RGB CMOS **Lens:** > Varifocal, 4.3–8.6 mm, F1.5 > Horizontal field of view: 100°–53° > Vertical field of view: 54°–30° > Minimum focus distance: 50 cm (20 in) > IR corrected, remote zoom and focus, P-Iris control	**Image sensor:** > 1/1.2" progressive scan RGB CMOS **Lens:** > Varifocal, 6.2–12.9 mm, F1.6–2.9 > Horizontal field of view: 103°–49° > Vertical field of view: 56°–28° > Varifocal, Remote focus and zoom, P-Iris control, IR corrected
Video	**Resolution:** > 3840x2160 to 160x90 **Frame rate:** > 25/30 fps with power line frequency 50/60 H **Pan/Tilt/Zoom:** > Digital PTZ, preset positions	**Resolution:** > Up to 3840x2160 **Frame rate:** With WDR: 25/30 fps with power line frequency 50/60 Hz Without WDR: 50/60 fps with power line frequency 50/60 Hz **Pan/Tilt/Zoom:** > Digital PTZ, optical zoom, preset positions > 2x optical zoom
Audio	**Audio streaming:** > Audio in, simplex, two-way audio via edge-to-edge technology **Audio input/output:**	**Audio streaming:** > Two-way, full duplex **Audio input/output:**

General Specifications	AXIS P3268-LVE	AXIS Q3538-LVE
	> External microphone input, line input, digital input with ring power, automatic gain control, network speaker pairing	> External microphone input or line input (balanced or unbalanced), line output, digital audio input > Microphone power: Microphone power 5V on tip, ring power 12V on ring, phantom power 12V on tip/ring
Mounting	Mounting bracket with junction box holes (double-gang, single-gang, and 4" octagon) and for wall or ceiling mount	Mounting bracket with junction box holes (double-gang, single-gang, 4" square, and 4" octagon)
Power	> Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 > Typical 5.5 W, max 11.2 W	> Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4 > Typical 9 W, max 23 W 10–28 V DC, typical 9 W, max 24 W
Connectors	> RJ45 10BASE-T/100BASE-TX PoE > I/O: 4-pin 2.5 mm (0.098 in) terminal block for 1 supervised digital input and 1 digital output (12 V DC output, max. load 25 mA)	> Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE > DC input, 3.5 mm mic/line in, 3.5 mm line out > Terminal block for two configurable supervised inputs / digital outputs (12 V DC output, max load 50 mA)

Table 4 CCTV Camera AXIS M4317-PLVE Specifications

General Specifications	AXIS M4317-PLVE
Camera	**Image sensor:** > CMOS **Lens:** > 1.1mm focal length > Horizontal field of view: 183° > Vertical field of view: 182°
Video	**Resolution:** > 2560x1440 to 192x172 **Frame rate:** > 360° overview only up to max resolution without WDR: 50/60 fps @ 50/60 Hz **Pan/Tilt/Zoom:** > Digital PTZ of view areas, digital PT of panorama, corner, corridor and quad views, preset positions, guard tours

General Specifications	AXIS M4317-PLVE
Audio	**Audio input/output:** > Audio features through portcast technology: two-way audio connectivity, voice enhancer
Mounting	Mounting bracket with junction box holes (double-gang, single-gang, and 4" octagon) ¼"-20 UNC tripod screw thread
Power	> Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 > Typical 5.7 W, max 12.95 W
Connectors	> RJ45 10BASE-T/100BASE-TX PoE > I/O: 4-pin 2.5 mm (0.098 in) terminal block for 1 supervised digital input and 1 digital output (12 V DC output, max. load 25 mA)

2. CCTV Cameras - Field of Vision (FOV)

2.1 Proposed Site

CCTV cameras quantity and locations for DA-0150

Figure 1 Proposed Site - CCTV Camera Locations

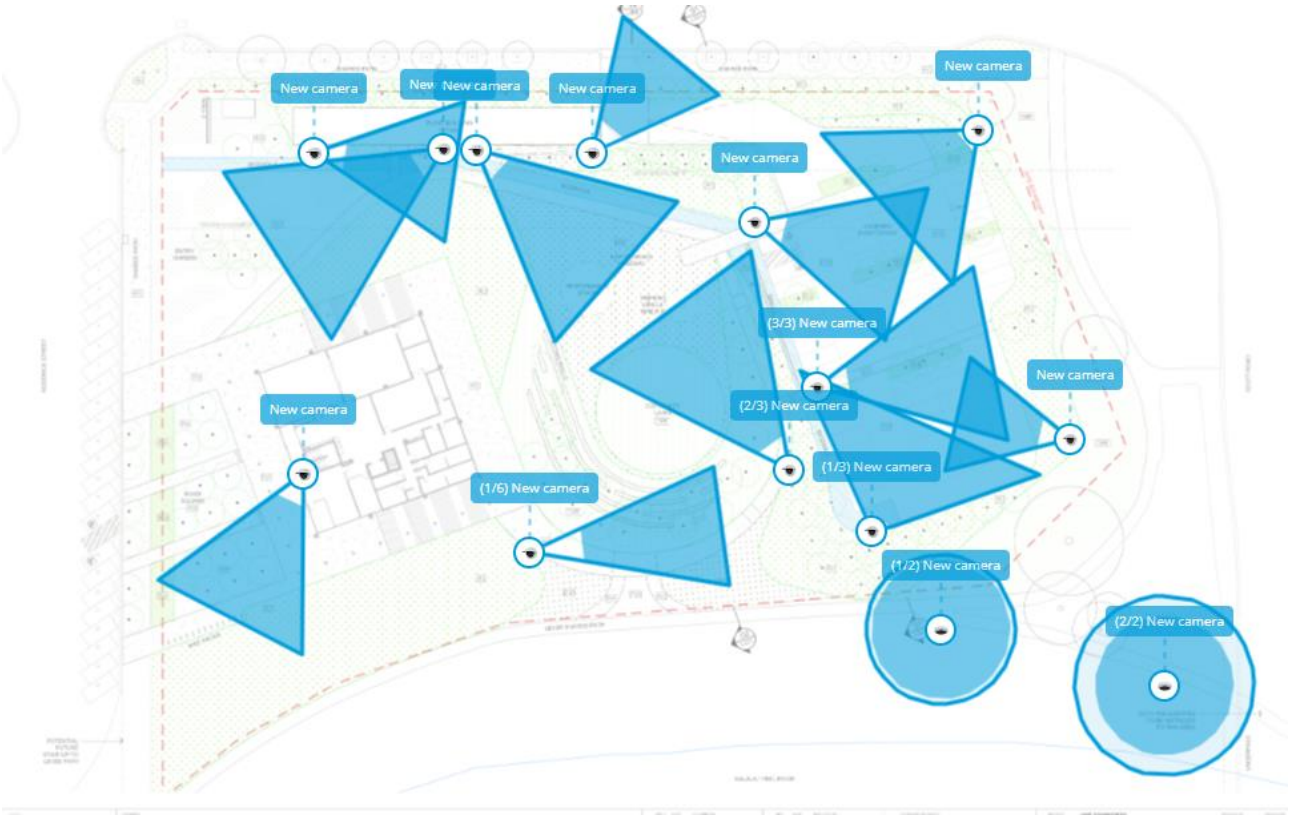
The cameras are to be positioned on lamp posts or on buildings where necessary. They are to be mounted 3.0m high.

ADP has noted a pole mounted IP rated enclosure in the carpark for the 6 cameras located there. To service the 4 cameras located near the plant, 2 Axis T8604 Media Converter switches are sufficient. The quantity of these cameras to the communications room does not justify a separate IP rated enclosure.

2.1.1 Field of Vision

Field of Vision – or FOV – can be defined as the width or height of a scene to be monitored by a security camera.

Figure 2 CCTV FOV - Proposed Site



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