HARRIS CRIME PREVENTION SERVICES

crime risk reviews security master planning designing out crime managing 'safe place'

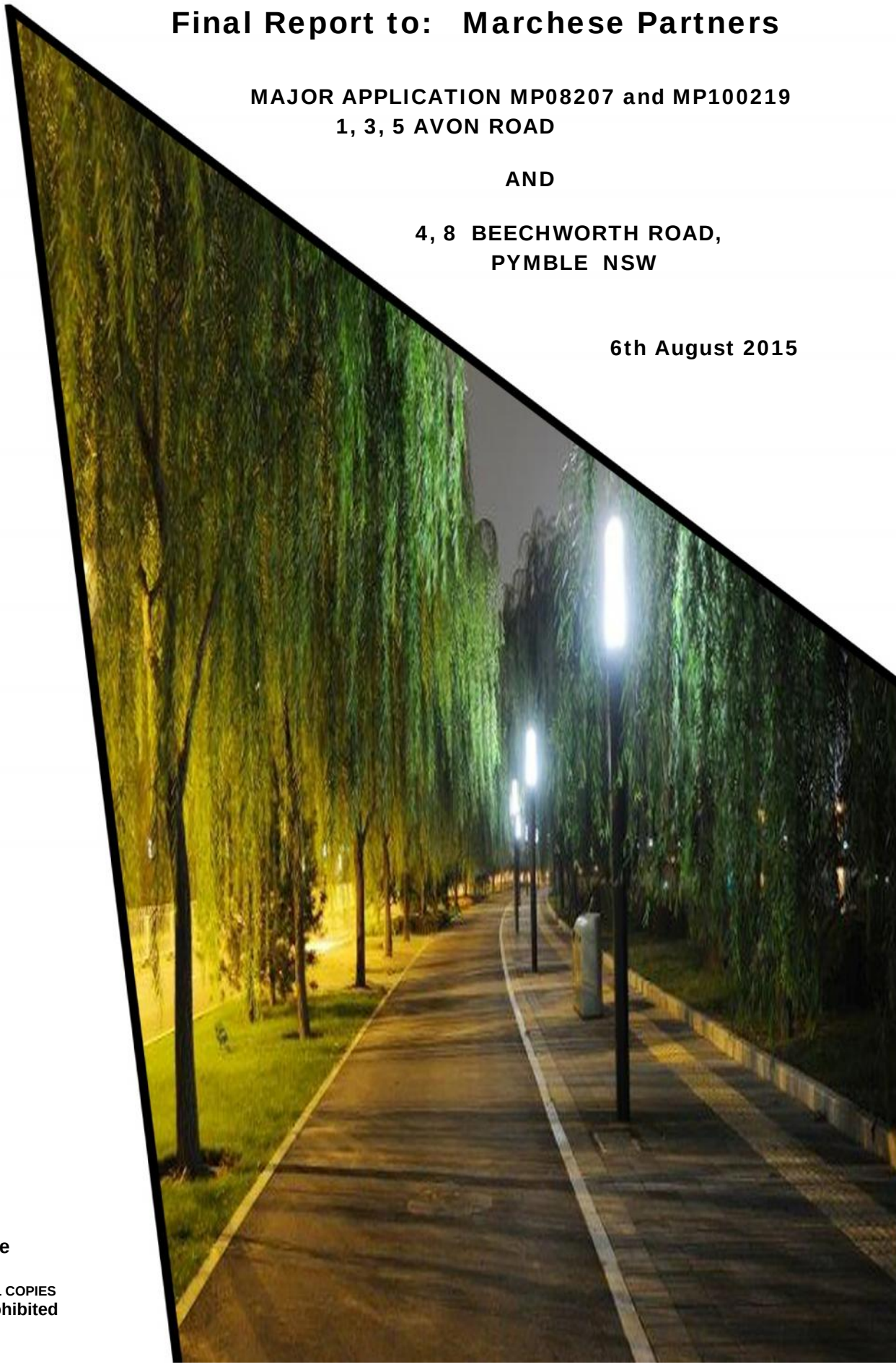
Final Report to: Marchese Partners

MAJOR APPLICATION MP08207 and MP100219
1, 3, 5 AVON ROAD

AND

4, 8 BEECHWORTH ROAD,
PYMBLE NSW

6th August 2015



In Confidence

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EXECUTIVE SUMMARY

1 The Proposed Development(s)

Harris Crime Prevention Services (Harris) has undertaken a security design consultancy for proposed residential developments at (a) 1,3,5 Avon and (b) 4,8 Beechworth Roads, Pymble NSW, (the developments). Although Ku-ring-gai Council has no specific Development Control Plan requirements to complete a Crime Prevention Through Environmental Design (CPTED) review for Development Application (DA) documentation, Council's *Revised Delivery Program, 2013 – 2017* and *Operational Plan 2014 – 2015* highlights CPTED and its Principles as one of its key delivery themes. Council is consultatively developing CPTED policies, foreshadowing development consent compliance.

2 Crime Risk Issues

Crime risks for both developments are focussed first on the context – the surrounding locality – and secondly on the developments themselves – their design potential to reduce and prevent crime. All residential built form is exposed to a number to common (community-wide) anti-social and/or crime risks. Preventing such risks, threats or incidents is a key objective of the developers, Council and the wider community. Architecture is one of the recognised crime risk mitigation strategies.

The main, and common, crime risks, particularly for the Avon Road proposal, centre on the protection of (a) the property and resident assets of each building, their personal property, vehicles and stored items, visitors and contractors, (b) the buildings and associated infrastructure, and (c) intra-connecting and interconnecting pathways and/or adjacent public (open) space.

3 Consultancy Scope

The Harris consultancy has:

- reviewed drawings for each building relative to their designing-out-crime potential;
- clarified crime prevention and/or security risk issues with design team representatives;
- assessed design parameters to ensure CPTED principles have been, or will be, applied to each building and public space connectors;
- affirmed architectural characteristics likely to 'encourage' the minimisation and/or prevention of anti-social or criminal behaviour;
- recommended possible changes to design that are likely to enhance the security (safety) of the buildings, residents and visitors;
- examined the (crime prevention) design characteristics to ensure compliance with the State government's and Ku-ring-gai Council's requirements.

4 CPTED (Security Design) Objectives

The reviews and recommendations have been grouped under three CPTED or security design objectives.

Security Design Objective 1	Contextual crime risks,
Security Design Objective 2	Applying CPTED to mitigate crime risks,
Security Design Objective 3	Planning and policy instrument compliance.

Although not part of the scope, we recommend, as part of any strata management policy, adopting a site-wide security awareness plan, to complement and support the CPTED measures. The plan would consider (a) a strict maintenance regime for lighting, landscaping and signage, (b) ensuring that residents know how to respond to a security emergency (as they would for a fire emergency) and (c) monitoring and reporting on-going crime (security) risks, threats or incidents.

5 CPTED (Security Design) Review Conclusions

5.1 Security Design Objective 1 Contextual Crime Risks

Conclusion Summary

We conclude that the Avon Road development's design should contribute to the local neighbourhood's stewardship of creating and sustaining a safe community. We also conclude that the Beechworth Road development is likely to reflect the same design considerations.

Discussions with Marchese Partners, on behalf of the client, indicate a (combined) development brief with the aim of creating and sustaining a welcoming and safe environment for residents, visitors and contractors, across both sites.

Further, we are of the view that the design of both developments, if supported in design detail, are likely to positively impact upon neighbourhood, Council and police initiatives to reduce and prevent opportunistic anti-social and criminal behaviour within the broader Pymble community.

5.2 Security Design Objective 2 Applying CPTED to Mitigate Crime Risks

Conclusion Summary

We have reviewed architectural aspects of the Avon Road and Beechworth Road development sites, with the primary focus on the Avon Road site. The review concludes that relevant CPTED principles have been applied, or are likely to be applied to both developments. We have made recommendations in relation to risk mitigation options for Avon Road.

In particular, we encourage design detail and construction certificate attention to external lighting, fencing, signage and landscaping and vehicle parking proposals, in the interests of strengthening a whole-of site designing-out-crime outcome.

5.3 Security Design Objective 3 Planning Instrument and Policy Compliance

Conclusion Summary

We have reviewed the drawings with reference to State and Council planning instrument and/or policy requirements.

In our view, the built form and landscape architecture for the Avon Road and Beechworth Road developments assist Ku-ring-gai Council's broad crime prevention (community safety) public interest vision. We are satisfied that the developments proactively form part of Council's initiatives to emphasise CPTED as a planning requirement.

Further, we are of the view that the reviewed and referenced drawings to be submitted as part of the DA documentation for both developments comply with "public interest" guidelines derived from the intent of Section 79C (1) (e) of the New South Wales Environmental Planning and Assessment Act, 1979, as amended.

THE REPORT

1 The Proposed Development(s) and Crime Prevention

This report has been prepared on behalf of Ausbao Pty Ltd (The Applicant). The Report forms part of the Land and Environment Court of NSW (L&E Court) Proceedings No.10834 of 2013. The proceedings relate to the refusal by the Planning Assessment Commission (PAC), as delegate of the Minister for Planning (Minister), of the Major Project Application (MP 10_0219) for a multi-unit residential development at 1, 1A & 5 Avon Road and 4 & 8 Beechworth Road, Pymble (Site).

On 5 December 2014, the Land and Environment Court ordered that a Concept Plan approval be issued in respect of the development of the Site, and the PAC issued the Concept Plan Approval on 19 December 2014. The proceedings No.10834 of 2013 relating to the Major Project Application were stood over following the Court's order regarding the Concept Plan and the PAC's subsequent issue of the Concept Plan Approval.

This report by Harris Crime Prevention Services (Harris) addresses relevant aspects of the developments relating to the revisions to the Major Project Application as a consequence of the terms of the Concept Plan Approval. The report has considered the crime risk issues and security design solutions after reviewing early and final variations (issues) of drawings for site layouts, building and landscape designs.

Harris has undertaken a security design consultancy for both developments The Avon Road development comprises three separate apartment blocks (Buildings 1 – 3). Building 2 is a proposed redevelopment of a heritage listed former residence. The Beechworth Road development comprises four separate house lots. The Avon Road new build footprint is:

Building 1 comprising 57 apartments and 74 car spaces (60 residents and 14 visitors)
Building 3 comprising 56 apartments and 75 car spaces (61 residents and 14 visitors)
Building 4 comprising 61 apartments and 80 car spaces (64.5 residents and 15.3 visitors)

There is also provision for varying numbers of visitor bicycle racks in each of the interconnected car parks.

The Avon Road buildings feature intra-connecting pathways and informal gathering spaces winding through landscaped public space. The Beechworth Road lots are accessed by a cul-de-sac and adjacent easement.

Although Ku-ring-gai Council has no specific Development Control Plan requirements to complete a Crime Prevention Through Environmental Design (CPTED) review for Development Application (DA) documentation, Council's *Revised Delivery Program, 2013 – 2017* and *Operational Plan 2014 – 2015* highlights CPTED and its Principles as one of its key delivery themes. Council is consultatively developing CPTED policies, foreshadowing development consent compliance.

1.1 Crime Risk Issues

Crime risks for both developments are focussed first on the context – the surrounding locality – and secondly on the developments themselves – their design potential to reduce and prevent crime. All residential built form is exposed to a number of common (community-wide) anti-social and/or crime risks. Preventing such risks, threats or incidents is a key objective of the developers, Council and the wider community. Architecture is one of the recognised crime risk mitigation strategies.

The main, and common, crime risks, particularly for the Avon Road proposal centre on the protection of (a) the property and resident assets of each building, their personal property, vehicles and stored items, visitors and contractors, (b) the buildings and associated infrastructure, and (c) intra-connecting and interconnecting pathways and/or adjacent public (open) space.

1.2 Crime Risk Mitigation and Prevention

The consultancy focussed on designing-out-crime solutions, more specifically for the Avon Road development. While it is not possible to guarantee that crime risk or actual crime will be reduced, incorporating CPTED principles as part of the development brief, intentional integration of those principles should assist in creating desired safe-place outcomes.

CPTED is also referred to as 'security design' or 'safer-by-design'. The CPTED principles are applicable to the three concepts.

The objectives of our consultancy are to identify, affirm and/or recommend design aspects that should decrease site vulnerability to crime and increase levels of personal and property safety (security). In addition, adopting CPTED principles aims to enhance the marketability and reputation of the interconnected developments as a safe liveable environment. Form and function attractiveness will be supported by a 'welcoming and safe place' reputation.

2 Consultancy Scope

The Harris consultancy has:

- reviewed drawings for each building relative to their designing-out-crime potential;
- clarified crime prevention and/or security risk issues with design team representatives;
- assessed design parameters to ensure CPTED principles have been, or will be, applied to each building and public space connectors;
- affirmed architectural characteristics likely to 'encourage' the minimisation and/or prevention of anti-social or criminal behaviour;
- recommended possible changes to design that are likely to enhance the security (safety) of the buildings, residents and visitors;
- examined the (crime prevention) design characteristics to ensure compliance with the State government's and Ku-ring-gai Council's requirements.

The scope excludes the development/provision of a technical security brief, security systems design and specifications or lighting brief and specifications.

Although not part of the scope, we recommend, as part of any strata management policy, adopting a site-wide security awareness plan, to complement and support the CPTED measures. The plan would consider (a) a strict maintenance regime for lighting, landscaping and signage, (b) ensuring that residents know how to respond to a security emergency (as they would for a fire emergency) and (c) monitoring and reporting on-going crime (security) risks, threats or incidents.

Disclaimer
The conclusions outlined in the report are based on information provided to Harris Crime Prevention Services at the time of this assignment. Research and experience that suggest certain design and policy approaches can be adopted to reduce opportunities for crime. It is not possible to guarantee that actual crime will be reduced or eliminated if these suggestions, conclusions and/or recommendations are implemented.

3 CPTED Principles

CPTED's underpinning principles provide a theoretical and purposeful framework whereby architecture re-focuses, re-emphasises and/or re-packages design-against-crime practices that have long existed. The principles vary in number and interpretation.

Harris identifies five CPTED principles that should inform the proposed development. (Refer Appendix 2 for detailed explanation)

CPTED Principle 1	Territorial Definition	defines spatial form and function
CPTED Principle 2	Access Control	manages access to defined areas
CPTED Principle 3	Natural Surveillance	casual, informal, but purposeful observation
CPTED Principle 4	Activity Support	design that reinforces safe purpose or location
CPTED Principle 5	Target Hardening	design that aims to reduce the ease and opportunity of offending.

There are also four spatial zones into which the principles may be applied.

Zone 1 Public Space - for open and general use; precincts serving a variety of purposes;
Zone 2 Semi-Public Space - open public precincts but with restricted usage;
Zone 3 Semi-Private Space - space defined by occupancy and ownership usage;
Zone 4 Private Space - singly defined purpose usage by specific individuals.

The developers intend to apply CPTED principles to one or more of these zones.

4 The Stakeholders

In today's climate of fear and uncertainty about urban crime, governments and stakeholder-clients alike are keen to address security whenever new people-focussed developments are proposed. The direct stakeholders are:

Marchese Partners
Ausbao Pty Ltd
Residents, visitors and contractors
Ku-ring-gai Council
Local police and,
Surrounding neighbourhoods

Each of the stakeholders will have different personal and property security expectations. However, their broad expectations will be similar in that overall safety will be a 'given' of the development. This inclusive expectation becomes the security (safety) goal.

5 Security (CPTED Based) – Objectives

From the scope and based on the above CPTED principles, there are three key security design (crime prevention) objectives to be considered:

Security Design Objective 1 Contextual crime risks,
Security Design Objective 2 Applying CPTED to mitigate crime risks,
Security Design Objective 3 Planning and policy instrument compliance.

5.1 Security Design Objective 1 Contextual Crime Risks

The first reason for this objective is to review the context (local neighbourhood) to ensure that (a) the redevelopment positively contributes to Council's overall community safety (crime prevention) initiatives and (b) the redevelopment is not negatively impacted by perceived or known crime risks or behaviour.

The second reason is to identify the potential crime risks likely to impact the Avon Road and Beechworth Road developments. Security Objective 2 then addresses the risk potential, particularly for the Avon Road site by reviewing the built form and landscape architecture in terms of CPTED.

5.1.1 The Context

Context is important when assessing the perception or actual incidents of crime for any proposed residential developments. If communities are 'cared for' and there is either little tolerance for, or evidence of criminal damage to property or harm to individuals, then property buyers (in this case for 4 stand-alone

dwellings and 174 apartments) will feel, and be, confident moving to a neighbourhood. A neighbourhood where there *are* concerns about levels of anti-social and criminal behaviour, may be less attractive to buyers of real estate.

All neighbourhoods aspire to reduce or prevent crime. Governments, police and communities take a multi-strategy and multi-discipline approach to the problem. Ku-ring-gai Council takes such an approach in championing the value of design as a contributor to that approach. Communities in Council's LGA are also contributors. They are stewards of dwellings, businesses, schools, sporting and community facilities.

Pymble has that demographic, economic and community mix. Avon and Beechworth Roads are in a well-cared-for neighbourhood. The Avon and Beechworth Road site is bounded by the northern railway line, the Pymble Ladies College (PLC) and surrounding streets – Arilla and Allawah Roads, Mayfield Avenue and Myoora Street. This immediate locality combines residential and school premises.

Small businesses, community facilities, churches and other schools, characterise the Pymble landscape on the southern side of the railway corridor. The neighbouring Sheldon Forest is a significant community green space.

Apart from PLC vehicle and pedestrian traffic, Avon and Beechworth Roads experience low volume pedestrian and vehicle activation. The major vehicle corridor is nearby Pacific Highway. The streets surrounding the school account for intermittent increases in pedestrian and vehicle flows.

PLC has an obvious interest in the locality remaining a 'no-go' crime zone. It has boarding facilities and its management, staff, students and their families are only too aware of the local community safety agenda.

The development's immediate neighbourhood is well cared for. Apart from graffiti on, and damage to, one abandoned development site dwelling, there is no evidence of graffiti or other property damage around neighbouring streets or around the PLC site. There is evident suburb stewardship by residents and the school community.

We acknowledge that it is not the developer's responsibility to address anti-social or criminal behaviour beyond their development site boundary. However, it is our view that the community safety (crime prevention) impact of the development is important, hence this Objective.

5.1.2 Contextual Crime Risks

Crime trends issued by the NSW Bureau of Crime Statistics and Research (BOCSAR) confirm that the Pymble suburb has relatively stable crime incidents; appearing to trend down across the main categories (Appendix 1).

We have considered whether the developments' design parameters:

(a) positively impact the immediate context's community safety (security) goals; that is the design is sympathetic to community and Council crime prevention goals;
(b) negatively impact those goals – does the design and intended use have little or no regard for neighbourhood security; or
(c) suggest a neutral impact – there are no design features of the proposal to conclude (a) or (b).

The obvious intent of the development is to contribute to, and enhance, the community safety goals of the Avon and Beechworth Road addresses and perhaps even 'model' that contribution to future residential developments.

The developments aim to attract residential clientele consistent with neighbourhood crime prevention 'stewardship', including an awareness of crime risks, characterised in part, by an understanding of casual social interaction and observation (surveillance) within both sites and around local streets.

5.1.3 Crime Risks to the Proposed Development

Developmental 'newness' almost always promotes forms of anti-social or criminal 'curiosity', for example damage-targeting of facades, glazed areas and landscaping during construction and on early occupancy.

(i) unauthorised access to apartments, communal spaces, courtyards, vehicle parking and storage spaces;
(ii) resultant damage to common property or equipment;
(iii) physical and/or sexual assaults;
(iv) theft of residents' property or equipment;
(v) theft of, or from, motor vehicles.

These are community-common risks occurring in shopping centres, schools, industrial sites, residential areas, institutional settings, offices and recreational precincts. The aim of introducing CPTED into the design equation is to prevent (i) to (v) above.

On occupancy, these risks will need to be addressed by auditing and strengthening site and operational security. This developments present an opportunity to informally monitor design security measures on an on-going basis.

5.1.4 Security Design Objective 1 Conclusion

We conclude that the Avon Road development's design should contribute to the local neighbourhood's stewardship of creating and sustaining a safe community. We also conclude that the Beechworth Road development is likely to reflect the same design considerations.

Discussions with Marchese Partners, on behalf of the client, indicate a (combined) development brief with the aim of creating and sustaining a welcoming and safe environment for residents, visitors and contractors, across both sites.

Further, we are of the view that the design of both developments, if supported in design detail, are likely to positively impact upon neighbourhood, Council and police initiatives to reduce and prevent opportunistic anti-social and criminal behaviour within the broader Pymble community.

5.2 Security Design Objective 2 Applying CPTED to Mitigate Crime Risks

The following commentary relates to the development's application of CPTED principles to relevant aspects of both developments; application that (a) is already evident in the reviewed drawings or (b) might be considered in design development and construction certificate stages. .

5.2.1 General CPTED Observations

The Avon Road site is the primary focus of Security Objective 2. Three of the four proposed Beechworth Road dwellings are located within a cul-de-sac, with an additional easement access to the fourth.

The main crime risk and crime prevention issues on the Avon Road site are related to (a) perimeter security, (b) the sighting and interface between the three apartment buildings, (c) vehicle and resident (or visitor) access to the three buildings, (d) floor plan layouts and internal circulation, (e) the landscaped public and communal spaces, and (f) utilities infrastructure.

The Beechworth Road residences follow a normal cul-de-sac and easement development plan. The dwellings will be surrounded by existing Beechworth Road addresses – Nos 2, 6, 8A, 10, 10A, 10B and 10C. There is no connecting link between the four dwellings and the Avon Road site.

The four (Beechworth) lots require no special CPTED consideration, other than those applicable to similar detached dwellings. They will be appropriately fenced and gated. Observation sight lines within the cul-de-sac and along the easement are similar to the surrounding residences and residents will take responsibility for any personal or property security requirements they deem necessary. We assume the usual neighbourly interactions will share mutual safety (security) concerns around their immediate locality by 'minding out' for any potential criminal intent.

The Avon Road site presents different and specific CPTED-related challenges. Security Objective 2 is limited to these challenges and CPTED solution options for that site. The review has taken a whole-of-site approach, while considering design measures for (a) to (f) above.

5.2.2 Avon Road Perimeter Definition and Boundary Fencing

The two sites are bounded by the northern railway line, Avon Road and a portion of Beechworth Road. The Avon Road site backs on to existing dwellings along Myoora Street, Beechworth Road and portions of Avon Road. These residences have rear boundary defining fences. The proposed Beechworth Road Lots 2,3 and 4 will also back onto the Avon Road site. The site is diagonally opposite PLC property. There is an existing vegetation corridor from the railway line to the rear of some existing Avon Road residences. Drawings indicate a re-vegetation plan for that corridor as part of the site's landscape plan.

From a CPTED perspective, fencing and gating this boundary has a number of (crime risk) mitigation challenges. The first is to prevent the corridor from being used to gain unauthorised access to the rear of the building envelope; the most likely attempted entry point. The second is to prevent unauthorised access to, and concealment within, any of the landscaped communal and building connector spaces. The likely (unauthorised) access points are along the northern (railway) boundary, and/or directly from the main (site) entrance. Unauthorised access via residential rear boundary fences is the least likely. Drawings indicate access into Building 1 is via two entries off Avon Road. To assist with access control and perimeter security, reducing this to a single entry point is desirable.

Three fencing options are proposed; (a) a transparent 1800 cm Palisade style fence fronting the rail corridor, (b) a 1500 to 1800 cm fence and hedge along the Avon Road frontage and (c) a heritage stone fence and gates at No 1 Avon Road. The site's remaining boundary will retain existing neighbour-site fencing.

The first CPTED aim along all four boundaries is to ensure in-site sight line 'corridors' along the new and existing fencing; that is to maximise intra-property or street view observation. The sight line distances are governed by sector lengths. Street view sight lines will be strongest along the Building 1, driveway and heritage entry statement. Informal observation and surveillance options from street-facing apartment living areas, including balconies, should detect and deter persons who may be seeking 'no permission' access to the grounds or buildings.

The second CPTED aim is to (a) minimise the likelihood of concealment along any of the fence lines and (b) to permit walkability around the entire internal site to easily check fencing breaches. This can be achieved by ground cover, grassed or paved areas. Boundary sight line certainty deters potential intruder concealment. It also avoids shadowing along or across proposed external boundary lighting axes. The main (unauthorised access) risk point is the railway corridor and it is imperative that this fence line be observable internally and externally.

The perimeter is vulnerable especially at night. Careful consideration should be given to installing focussed overhead pathway style 'white light' LED luminaires (Kelvin temperature) of between 3500 and 4000, with optics designed to maximise consistent throw and spill coverage. A white light spectrum assists with movement and features for identification. Ideally, perimeter lighting should be dimmable as an energy-saving measure which also reduces colour or intensity clashes with street or roadway lighting.

The intention is not to 'flood' the perimeter, nor to intrude on neighbouring properties with unwanted light spray or spill. Rather, the lighting design strategy should highlight each high risk fence line sector; sufficient to illuminate vulnerable boundary corners or sectors and to avoid dark gaps.

CCTV or IP Network camera surveillance is recommended for the most vulnerable boundary areas and/or entry points. This includes surveillance of the railway corridor boundary.

5.2.3 Vehicle Access-Egress and Parking

The three buildings have their own vehicle parking interconnected at varying levels. The common entry and exit ramp is recessed off Avon Road. Pre-entry requires a boom-gate clearance by intercom or proximity card/fob, prior to entering via a perforated roller shutter. This two-step process gives vehicle drivers time to observe any potential tailgating.

Visitor bicycle racks are available in all three car parks. Cyclists will alert their presence and will likely by-pass the boom gate and wait for the shutter to open. They will possibly not wait until it fully opens and there will be no observation of closure if they are going to rack the bikes in Building 3 or 4. While vehicle tailgating is unlikely in this scenario, the time lapse between the shutter opening and closing could allow a pedestrian intruder to enter the Building 1 car park without detection.

While each building has different configurations, drawings indicate an appropriate (CPTED) layout, maximising sight line angles within the spaces. There are clear 'views' from the lift, bicycle racks and stairwells. There is no sense of obstruction or clutter in the layout.

We recommend high lux level overhead (white) light to illuminate all bays, plant room and storage doors, lift lobbies and stairwells. The lighting plot should provide total coverage to eliminate dark corners, gaps or shadowing.

We recommend that ramp entry lighting should feature overhead or high wall-wash installations to avoid any possibility of glare when arriving at, or leaving, the ramp. Side wall lighting should be avoided.

We are of the view that the car parking levels should be under CCTV or IP Network camera surveillance, providing coverage to all ramps and bays, the loading dock, lift doors and (roller shutter) entry. Appropriate signage should indicate restricted areas and provide way-finding certainty for residents, visitors, delivery personnel and maintenance contractors.

5.2.4 Landscaping

Landscaped pathways, plantings and social circulation spaces are an intentional and welcoming feature of the Avon Road development. The concept is to revegetate the existing back-of-building 'green' corridor including along the site's railway boundary, while creating new garden and lawn areas along Building 1's (set-back) Avon Road frontage and at the Avon Road cul-de-sac (heritage) entry. The design aims to present a mix of existing and new landscape experiences.

A series of intra-site pathways link Buildings 1, 3 and 4 and the heritage building. All buildings face a central courtyard and water feature. The landscaped spaces intersect and invite pocket social gathering and/or individual seating spaces.

The CPTED considerations are an extension of the 'safe boundary' measures. They are linked given that the fences and building facades define the communal space. The measures are not aimed at negating creative intent. Rather they are recommended to protect that intent so that residents and their visitors can enjoy the spaces safely. There is also a day-night concern, assuming (weather permitting) residents will want to access the space at night.

The challenge at night is to present the same attractiveness and activation persuasiveness. The external lighting plan should still invite night time activation.

Day or night activation should proximate and distant surveillance. *Proximate* surveillance observes the immediate, taking in gathering or resting spaces. Paving, gardens and lawn edging is proposed for the courtyard, water feature and seating areas. This promotes proximate observation. *Distant* observation obviously relies on distant legibility, in this case being able to observe along the connecting pathways and to parts of the boundary fencing. To promote distant observation we recommend that there be

grassed or ground cover plantings, around 1.5 metres on either side of the pathways to promote sight lines and reduce any concealment or entrapment possibilities.

We recommend that way-finding and location-indicating signage be adopted in relevant landscaped spaces.

From a CPTED perspective, external lighting should be predominantly overhead, particularly for the pathways. Decorative up lighting proposed for existing trees is appropriate provided there is no glare factor. Glare and shadowing is mostly caused by non-directional spherical luminaires, eye level wall lighting and decorative bollards, which tend to throw light *out* not *down.* In our experience bollard lights placed along pathways and amongst low plantings create glare, become 'lost' in plantings and their beams are angled so as to require more fittings to avoid (dark) gaps.

We reiterate that, from a CPTED perspective, the predominant colour for the external lighting should be of the 'white' spectrum range, although there will be a range of 'other colour' options to provide interest and decorative emphasis.

We note Taylor Brammer's lighting plot proposals to be reviewed at design development/detail, to reflect spacing and illumination requirements. We also note comments in relation to tree protection and planting or transplanting. These changes, and others reflected in the Issue A draft do not impact upon our above observations and recommendations.

5.2.5 Lift Access, Lift Lobbies and Stairwells

All lifts should be electronically access controlled. Drawings indicate that lift lobbies from each car park level provide appropriate sigh lines, maximising observation.

Subject to fire and BCA regulations, consideration should be given to installing eye-level glass panels as a way of 'noting' a presence as an added security precaution. We also recommend camera surveillance of lift lobbies as part of the coverage on each vehicle parking level.

5.2.6 Utilities Infrastructure

The secure location and screening of utilities infrastructure for each building is critical. The drawings indicate all utilities are either located within each building's vehicle parking levels or along the Avon Road frontage. Access to internally located plant rooms and cabinets is to be restricted to authorised and identifiable contractors servicing air conditioning fan rooms, hot water plant, booster pump and treatment plant, the main switch room, NBN communications, fire pump rooms, emergency warning and fire distribution boards, gas and water connection points. Security and safety procedures should insist that no plant or other utilities room or cabinet should remain open and/or unlocked, unless the appropriate contractor is present. The electricity kiosk is secure and we agree on its location within the site, with appropriate screening from public view.

We understand that the client has received advice that external infrastructure for example fire booster pumps and the kiosk, should not be enclosed.

We make two additional recommendations about these vulnerable spaces. They should be under camera surveillance, and subject to fire and BCA regulations the client should consider fitting every entry door with eye-level toughened glass panels to facilitate two-way observation.

Signage on or alongside doors should specify restricted access to contractor technicians engaged for maintenance and monitoring purposes.

5.2.7 Building Entry, Apartment Designs and Internal Circulation

The pedestrian entrances for each building are secure and can be observed from the approach pathways.

Porch spaces are wide and visitor waiting spaces are readily observable as are adjacent lift lobbies. We understand, and endorse the installation of video visitor-identification systems, for each building, to control lift access. Stairwells are appropriately located.

There are no identified issues with regard to the internal layout of, or access to, the apartments in the three buildings and on each level. There are ample outward-facing observation options into landscaped spaces, boundary fencing and the road.

Each building's internal corridor, apartment approach storage locations are easily identified. Residents should be confident that each building's architecture and technology provides appropriate levels of (security) comfort.

There are concerns about lower level balconies; those with fewer observation opportunities or due to their street level proximity. Lower level apartments in Building 4 are vulnerable to blind spots along the railway corridor, for example. There are increasing reports of 'balcony scaling' where, lower level balconies are themselves accessed for breaking into apartments and/or the balconies are scaled to upper level apartments, where, intruders are less likely to be observed gaining forced, or even unforced entry. Options for buyers to retrofit security screens and doors on all balconies should be considered.

The proposed changes (Issue T) in relation to apartment layouts, storage sizes, adjustment to balconies and specific variations to Buildings 1, 3 and 4 have no impact on observations and recommendations within this section.

5.2.8 Waste Storage and Removal

The three apartment buildings have a number of garbage rooms and garbage collection points. It is important to clearly separate, and control access to, general and recyclable waste storage for each building, including any bulk waste.

The garbage and, to-be-determined waste storage rooms should be clearly signed, 'ordered' and kept free of clutter. Each room should be secured and, as an additional option, door-open-too-long (DOTL) alarms should be fitted to entry doors. Fire detection and suppression systems should be installed in at or near the rooms as, in our experience, waste and/or general storage bins can be accidentally or deliberately set alight.

Subject to fire or BCA regulations, an option of including toughened eye-level panels on all waste storage entry doors to facilitate two-way observation should be considered.

5.2.9 Resident Property Storage

Residents' property storage facilities are accessed from vehicle parking levels. Entry should be unencumbered and there should be clear vision in and around the storage rooms and/or cages. Drawings indicate single corridor access, which provide appropriate sight lines with no opportunity for concealment or entrapment, when the storage entry doors are open. For Building 1, we recommend storage entry on RL 129 and RL 144 we recommend separate storage entry doors, beyond plant rooms, thereby isolating contractors to their space. We also note that there are separate front-of-house storage entrances for Building 1. A review of all property storage spaces should consider separate entry doors where practicable.

We also recommend high lux level lighting and camera surveillance to cover storage space entry doors for the three buildings.

5.2.10 Security Technology

We have commented on, and recommended, options for CCTV or IP Network camera surveillance within vehicle parking zones and in relation to the perimeter. The developer(s) may consider additional camera coverage where vulnerability needs to be monitored.

We are aware of plans to install appropriate security-related technology including card readers, electronic strikes/ electro-magnetic locks, resident-visitor intercom, and; where such installations strengthen other CPTED measures. A full security technology brief should form part of the construction certificate documentation to ensure all areas area comprehensively covered. Security technology comes under CPTED Principle 3.

5.2.11 Security Design Objective 2 Conclusion

We have reviewed architectural aspects of the Avon Road and Beechworth Road development sites, with the primary focus on the Avon Road site. The review concludes that relevant CPTED principles have been applied, or are likely to be applied to both developments. We have made recommendations in relation to risk mitigation options for Avon Road.

In particular, we encourage design detail and construction certificate attention to external lighting, fencing, signage and landscaping and vehicle parking proposals, in the interests of strengthening a whole-of site designing-out-crime outcome.

5.3 Security Design Objective 3 Planning and Policy Instrument Compliance

Both are *major* developments and, as such, are part of an increasing State and local government interest in ensuring that crime prevention (community safety) is an integral part of the briefs. Councils across this and other Australian states have adopted, or are adopting, a range of community safety initiatives that include CPTED requirements embedded in development control plans and pre-lodgement development application requirements.

In New South Wales, for these developments, there are two compliance requirements. First the designs should comply with State legislation and community safety guidelines, specifically Section 79 (c) (1) (e) of the Environmental Planning and Assessment (EPA) Act, 1979. Secondly, the designs should comply with the planning delivery and community safety (crime prevention) objectives and policies of Ku-ring-gai Council.

5.3.1 Purpose of State and Local Instrument Compliance

The intent of State local government community safety planning and/or policy instruments is to ensure urban design reflects ‘welcoming and safe place’ objectives, by encouraging legitimate ‘ownership’ or stewardship and casual access of precincts and buildings, without fear of intrusive and often damaging anti-social or criminal activity.

State and local government initiatives seek developer compliance with regulations and policies aimed at promoting community safety through appropriate design. Previously, matters of crime prevention (community safety or security) were considered peripheral development issues. Now they are central community concerns and developers are being asked (compelled) to contribute to client safety and to broader community safety outcomes. The Avon and Beechworth Road developments come within these contributory and/or compliance categories.

The State Government regards crime prevention as a matter ‘in the public interest’. Councils in NSW also regard the prevention of crime in their local jurisdictions as a (public interest) priority.

5.3.2 Ku-ring-gai Council

Currently, Ku-ring-gai Council makes no reference to CPTED in its DCP. However pre DA CPTED assessments are seen by Council as part of its broader community crime prevention (community safety) policy. Council’s *Revised Delivery Program, 2013 – 2017* and *Operational Plan 2014 – 2015* address

their CPTED policy direction. This (combined) document outlines Council's vision for vibrant, caring, responsible and liveable communities, covering nine suburbs within the LGA.

Council has adopted a number of themes to implement its delivery and operational schedules. Theme 1 promotes "*A healthy, safe, and diverse community that respects our history, and celebrates our differences in a vibrant culture of learning*." Focussing on safety, through improved pedestrian accessibility across and within communities, Council is invoking CPTED principles and is consultatively developing CPTED policies within which developments will require consent compliance. Both developments have intentionally addressed CPTED in their build and landscape documentation, (Refer Security Objective 2). Drawings indicate accord with Council's policy.

5.3.3 The NSW Government

The NSW Environmental Planning and Assessment (EPA) Act, 1979 allows for instruments to regulate or codify issues pertaining to environmental impacts of (normally) large scale and modest developments. Security (crime prevention) is one of the "impacts" allowed for. Section 79C (1) states: "*In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development, the subject of the development application*". Section 79 (1) (b) adds: "…*the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality*". Section 79 (1) (e) adds: "…*the public interest*".

The 2001 amendments to the interpretive guidelines for this Section state: "…*Crime prevention falls under these subsections of 79C. Councils have an obligation to ensure that a development provides safety and security to users and the community. If a development presents a crime risk, these guidelines can be used to justify: modification of the development to minimise the risk of crime, or refusal of the development on the grounds that crime risk cannot be appropriately minimised".*

The EPA Act includes "*the public interest*" across a range of developments, including single and mixed use projects within city CBDs, urban and rural contexts. Local government and the NSW Police Force have developed their planning and policy instruments and CPTED templates to assist developer compliance.

In our view, the Avon Road and Beechworth Road developments pass the 'public interest' test, as defined by the Act and accompanying regulatory guidelines. The developer wants to create a sustainably safe and liveable environment for future Avon and Beechworth Road residents and their visitors, as part of broader Pymble 'public interest' agenda.

5.3.4 Security Design Objective 3 Conclusion

We have reviewed the drawings with reference to State and Council planning instrument and/or policy requirements.

In our view, the built form and landscape architecture for the Avon Road and Beechworth Road developments assist Ku-ring-gai Council's broad crime prevention (community safety) public interest vision. We are satisfied that the developments proactively form part of Council's initiatives to emphasise CPTED as a planning requirement.

Further, we are of the view that the reviewed and referenced drawings to be submitted as part of the DA documentation for both developments comply with "public interest" guidelines derived from the intent of Section 79C (1) (e) of the New South Wales Environmental Planning and Assessment Act, 1979, as amended.

6 References

GMU Urban Design Report, Reference Principle 8 - Safety and Security, August 2015

Ku-ring-gai Council, Revised Delivery Program, 2013 – 2017 and Operational Plan 2014 – 2015;

Marchese Partners; Floor plan and associated drawings for Avon Road development, Ref: MP 2203 to 2215, MP 23.12.1, 23.12.2, MP23.13, 23.13.1, 23.13.2, MP23.14, 23.14.1 23.14.2, MP23.15, 23.16, MP 31.01 to 31.25; Issue T, July 2015.

NSW Bureau of Crime Statistics and Research statistical data on Gordon suburb, 2014;

NSW Government, 1979, Environmental Planning and Assessment Act and Guidelines, NSW Government publication;

Taylor Brammer, Preliminary masterplan landscape drawings for the Avon Road development site. Issue A, July 2015

Appendix 1

The following statistical data is supplied by the New South Wales Bureau of Crime Statistics and Research (BOCSAR). They reflect only report crimes for the suburb of Pymble, but are indicative of the types (categories) and trends of crime currently of greatest concern.

NSW Crime Statistics December 2012 to December 2014 for Pymble (Suburb)

	3 Year Trend to Dec 2014	Year to Dec 2012 Count	Year to Dec 2012 Rate	Year to Dec 2013 Count	Year to Dec 2013 Rate	Year to Dec 2014 Count	Year to Dec 2014 Rate
Homicide	n.c.	0	0	0	0	0	0
Assault - domestic	n.c.	7	62.1	9	79.9	9	79.9
Assault - non Domestic	n.c.	22	195.3	8	71	6	53.3
Sexual assault	n.c.	3	26.6	5	44.4	4	35.5
Indecent assault, act of indecency and other sexual offences	n.c.	3	26.6	8	71	7	62.1
Robbery without weapon	n.c.	3	26.6	5	44.4	0	0
Robbery with a firearm	n.c.	0	0	0	0	0	0
Robbery with weapon not a firearm	n.c.	1	8.9	0	0	0	0
Harassment, threatening behaviour & private nuisance	n.c.	6	53.3	4	35.5	4	35.5
Other offences against the person	n.c.	1	8.9	1	8.9	0	0
Break & enter dwelling	down 20.2% per year	55	488.2	35	310.6	35	310.6
Break & enter non dwelling	n.c.	12	106.5	4	35.5	7	62.1
Motor vehicle theft	n.c.	9	79.9	2	17.8	0	0
Steal from motor vehicle	n.c.	22	195.3	19	168.6	11	97.6
Steal from retail Store	n.c.	0	0	3	26.6	2	17.8
Steal from dwelling	n.c.	12	106.5	16	142	20	177.5
Steal from person	n.c.	2	17.8	0	0	1	8.9
Liquor offences	n.c.	2	17.8	0	0	2	17.8
Disorderly conduct	n.c.	9	79.9	0	0	4	35.5
Drug offences	n.c.	10	88.8	17	150.9	12	106.5
Malicious damage to property	stable	36	319.5	43	381.6	50	443.8
Prohibited and regulated weapons offences	n.c.	6	53.3	1	8.9	5	44.4
Arson	n.c.	2	17.8	3	26.6	2	17.8

Appendix 2

Crime Prevention as a Design Strategy

A 2.1 Rationale

Crime prevention has been linked to urban design since the late 1970s. The concept originated in the United States and Canada when sociologists, criminologists and architects began to link criminal behaviour in public spaces with poor design and layout of those spaces.

Today, there are four broadly defined models of crime prevention. They may be implemented individually, although ideally initiatives derived from each will overlap. The four models are:

Crime Prevention By Social Intervention – a model that sustains the integrity and safety of (often disadvantaged) communities through government and corporate and local support for programs, development initiatives and improvements to infrastructure.

Crime Prevention By Community Development – a model that encourages settled communities to develop partnerships in accepting responsibility for protecting personal and neighbourhood assets through a commitment to networking and sharing responsibility for community development goals.

Situational Crime Prevention – a model that focuses of place-specific crimes, targeting offences and offenders by pro-active and responsive security or law enforcement strategies.

Crime Prevention By Environmental Design – a model that incorporates aspects of architecture, engineering and technology to enhance the form, function and reputation of the built environment as 'safe space' (place)..

Crime Prevention Through Environmental Design (CPTED) is a coined version of the Crime Prevention By Design model; one that is takes a specific approach to reducing and preventing crime by applying architectural design principles to urban developments which focus on territoriality, surveillance and access control. CPTED and the other models have largely been adopted throughout the developed world as legitimate crime prevention strategies.

Throughout the 1980s and 1990s, State and local authorities within Australia, responsible for urban development approvals, have been gradually adopting the CPTED or similar crime prevention (design) concepts when approving both large and small scale development applications.

Within Australia, there is recognition by all stakeholders involved in urban development, (however the term is defined) that designing out crime should form part of *mandated* development application criteria.

In 2001-2, the New South Wales Parliament assented to changes in guidelines under Section 79C of the EPA Act to include crime prevention as one of the "matters of public interest" which must be considered in approving development applications.

Increasingly, local authorities are introducing instruments and/or guidelines requiring 'security' to form part of DA documentation.

Notwithstanding local and State based regulatory requirements, it would seem prudent that developers seek to incorporate crime prevention-by-design guidelines to all projects, especially given the marketing and legal emphases on personal and community safety (security) Australia.

It is conceivable that, if built environments can be "secured" by adopting agreed crime prevention design guidelines, (protocols, etc.), then such guidelines will in time become mandatory in much the same way as Building Codes and Occupational Health and Safety standards have been adopted.

Incorporation of crime prevention architecture and engineering into relevant planning documentation throughout the design-and-construct stages is the ideal way to ensure compliance with local and State requirements.

A 2.2 Aims: Crime Prevention By Design

The broad aim of crime prevention design principles is to create and sustain safer communities by incorporating crime prevention design initiatives into all urban development.

From the literature, it is possible to identify two specific aims:

> To promote the legitimate and safe use of all natural and built environments by incorporating crime prevention or security design codes or guidelines into all development planning and approval processes.
>
> To enhance the reputation of developed environments by ensuring that crime prevention or security design criteria are integral to all architectural and engineering documentation submitted for review and approval by relevant authorities.

A 2.3 The Concept of "Defensible Space"

Oscar Newman (1972) coined the term. He developed the concept in relation to significant crime problems in high-rise ghetto type housing developments of New York City in the 1960s. Newman suggested that the urban design of inner city precincts was directly attributable to anti social behaviour and high crime rates.

Newman recognised that there were three spatial issues that should be addressed in all future urban planning – territoriality, surveillance and access control. Each can be linked with architectural and/or engineering documentation in a coordinated approach towards making public and private spaces relatively crime free.

A 2.4 The Concept of Territoriality

Crowe (2003) suggests that the right physical design contributes to a positive sense of territorial use and ownership – a sense of territorial influence. In urban developments, territory may be defined or classified as public space, semi-private or communal space, restricted space and private or secure space.

Mixed use sub-divisions are particular cases in point. Each such development concept should flag spatial use and spatial hierarchy. This hierarchy should be evident as concepts, principles and foreshadowed specifics at the DA stage, to be followed by detail submitted throughout relevant aspects of design documentation.

The DA stage and design documentation architecture (and engineering) of vehicle or pedestrian corridors, commercial, retail, recreational, institutional, and residential precincts is as important as the architecture of the buildings that will eventually occupy those precincts. One without the other contributes to a sense of territorial confusion where territorial clarity is required.

Geason and Wilson (1989:5) claim that well designed housing projects make it clear which spaces belong to whom – some being completely private, some being shared and some public. Architects and developers of course claim that these aspects are always part of concept design, master-planning and detailed documentation. The difference is that they are seldom designed to standards or principles aimed at repelling crime.

A 2.5 The Concept of Surveillance

Spatial design should maximise opportunities for surveillance – formal and informal. The design principle here is to increase the number and length of sight lines; the capacity of people and technology to observe movement and activity at distance.

The location, mass, height, proximity and form of buildings therefore become critical design features. The relationship of buildings to all open spaces and to roads, pathways, cycle-ways, parks and other streetscape forms is equally critical.

There are three agreed forms of surveillance that should be encouraged: *natural, social and technological.*

Natural surveillance encourages casual observation and monitoring of all users and owners of known and defined urban space.

Social surveillance encourages casual observers, through natural surveillance, to routinely monitor, challenge or report suspicious pedestrian and vehicle movements through precincts or into buildings.

Technological surveillance employs CCTV and other monitoring devices to alarm premises or spaces to deter/detect and respond to unlawful access or unlawful behaviour. In the past, analogue CCTV surveillance technology consumed personnel resources including managing the recording, e.g. replace tapes of these early systems. Network cameras and network video recording (NVR's) offers a more cost-effective alternative. Modern fast moving 'dome' cameras, which respond to alarm pre-set positions can be utilised. The 'alarm' may be a help call button being activated, a secured door being opened (using a door contact) or movement (using a passive infrared detector) and transmitted real time to wireless hand held technology.

A 2.6 The Concept of Access Control

Debate continues about ways to control, restrict or prevent access to buildings and to open precincts. The deployment of technology has been the recent favoured design strategy. This (in our view) over-reliance on technology has tended to limit creative physical design alternatives.

In the mid-1980s a significant study was carried out in the UK into some of England's (often referred to as) notorious or infamous housing estates – high and medium rise ghettos where crimes against property and people has been running rife. Later studies have support these claims.
The point of all physical (built environment) design from a crime perspective is to define and indicate purpose. For example a gate to a property must be positioned to indicate whether or not it is a main entry and, if so by signage, mechanical, electronic or other means, entry is generally allowed or is by permission only. A gate's design and integration with a fence or adjoining building gives some indication of who and how entry is to be gained.

While gates (and similar barriers) present as recognised objects for territorial definition and separation, crime prevention-by-design principles encourage broader and less intrusive definitional architecture; architecture which not only restricts or halts access, but which encourages entry, access and movement. Lighting, pathways, landscaping, low-line fencing, steps and doorways are obvious examples.

By applying crime prevention design principles to housing estates, to commercial, institutional and industrial complexes, to retail and recreational outlets and to transport infrastructure, there is more than one opportunity to clearly define appropriate entry and movement corridors.

A 2.7 Crime Prevention Through Environmental Management (CPTEM)

The application of CPTED design principles (A1.1 to A1.6) must be reinforced by the place management of identified security (anti-social and criminal behaviour) risks. The two strategies complement each other. Design seeks to reduce risks through creative physical intervention. Management seeks to build on the design outcomes by monitoring and managing on-going risks through stakeholder awareness protocols, through technology maintenance and renewal and through cooperative place management by police, security and facilities operatives.

CPTEM is often over-looked to the detriment of a development's reputation outcomes – marketability and stakeholder duty-of-care. On-going security management may fail if it is not approached strategically and responsibly. Ad hoc and/or intermittent attention to CPTEM can negate the design strategy and can leave owner-occupiers exposed to litigation in the event of threats or incidents occurring on any part of a development's footprint.

