CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN REVIEW

LIVERPOOL BOYS & GIRLS HIGH SCHOOL UPGRADE PROJECT

On behalf of the NSW Department of Education

Project Status: Schematic Design

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INTRODUCTION

1 GENERAL

This Crime Prevention through Environmental Design Report has been prepared by NBRS on behalf the NSW Department of Education (the **Applicant**) to assess the potential environmental impacts that could arise from the redevelopment of the Liverpool Boys High School and Liverpool Girls High School, at 18 Forbes Street, Liverpool NSW, 2170 (the **site**).

This report has been prepared to review the design against the principles of Crime Prevention through Environmental Design.

This report accompanies a Review of Environment Factors that seeks approval for redeveloping the Liverpool Boys and Liverpool Girls High Schools into a single co-educational school, including:

- [redacted]
- Construction and operation of a six-storey school building, including school hall and gymnasium;
- Associated parking and building services;
- Tree removal;
- Associated landscaping and play spaces;
- Augmentation of service infrastructure; and
- Associated off-site infrastructure works to support the school, including (but not limited to) services, kiss and drop point and pedestrian crossings.

Refer to the Review of Environmental Factors prepared by Ethos Urban for a full description of works.

2 SITE DESCRIPTION

The site is located at 18 Forbes Street, Liverpool, within the Liverpool Local Government Area (**LGA**). The site is legally described as Lot 1 DP1137425 and has a total area of approximately 74,973m^2.

The site comprises a broadly rectangular portion of land which currently contains the existing Liverpool Boys High School, Liverpool Girls High School, and the Gulyangarri Public School, which commenced operations in January 2024 and is located to the east of the wider site.

The site's western portion contains Liverpool Boys High School and Liverpool Girls High School. Liverpool Girls High School in the site's southwest comprises of three, two-storey buildings and Liverpool Boys High School in the site's northwest, comprises approximately four, two-storey buildings, with adjacent at-grade carparking and various sports courts.

An aerial image of the site is shown below.

Figure 1. Site Aerial Source: Sydney Images edited by NBRS

3 STATEMENT OF SIGNIFICANCE

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are low and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

4 REF DELIVERABLE REQUIREMENT REPORTING TABLE

This section addresses the REF requirements issued for the project. The requirements and the associated responses are outlined in the following table , along with corresponding references to sections within this report.

Table 1. REF Requirements and relevant responses and references

Item	REF Requirement	Reference to Relevant Responses
1.	REFER TO REF REVIEW CHECKLIST FOR ALL ARCHITECTURAL DOCUMENTATION REFERENCES	REF REVIEW CHECKLIST

5 BUILDING DETAILS

The proposal includes the following:

- Site preparation works, including tree removal.
- The detailed design and construction of three (3) new buildings known as Building A, B and C comprising a total of approximately 114 permanent teaching spaces for the high school.
- The fit-out and use of approximately 114 teaching spaces within Buildings A, B and C to accommodate approximately 2,000 high school students.
- Associated on-site car parking and vehicular access
- Construction of open spaces including sports fields and games courts within the central courtyard.
- Associated landscaping throughout the campus.

The buildings and facilities have been designed to suit the functional requirements of NSW Schools Infrastructure and generally in line with the NSW Education Department Educational Facilities Standards and Guidelines and the relevant Building regulations and standards.

CPTED PRINCIPLES

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients (*law, offender, victim or target, opportunity*) from intersecting in time and space.
Predatory offenders often make cost-benefit assessment of potential victims and locations before committing crime. CPTED aims to create the reality (or perception) that the costs of committing crime are greater than the likely benefits. This is achieved by creating environmental and social conditions that:

- Maximise risk to offenders (increasing the likelihood of detection, challenge and apprehension).
- Maximise the effort required to commit crime (increasing the time, energy and resources required to commit crime).
- Minimise the actual and perceived benefits of crime (removing, minimising or concealing crime attractors and rewards); and
- Minimise excuse making opportunities (removing conditions that encourage/facilitate rationalisation of inappropriate behaviour).

CPTED employs four key strategies. These are territorial re-enforcement, surveillance, access control and space/activity management. All CPTED strategies aim to create the perception or reality of capable guardianship.

SAFER BY DESIGN EVALUATION

The Safer by Design program commenced in NSW in the early 1990's. The program is a co-operative initiative involving the NSW Police, local councils, government departments and key private sector organisations. The aim of the program is to ensure that development application proposals are routinely assessed for crime risk, and that preventable risk is reduced before the development is approved.
The NSW Police assessment tools *Safer By Design Evaluation* and a *Companion to the Safer By Design Evaluation* are based upon Australian Risk Management Standard 4360:1999. The *Safer By Design Evaluation* process is a contextually flexible, transparent process that identifies and quantifies crime hazards and location risk. The evaluation measures include crime likelihood (statistical probability), consequence (crime outcome), distributions of reported crime (hotspot analysis), socio-economic conditions (relative disadvantage), situational hazards and crime opportunity.

Crime, Design and Urban Planning: From theory to Practice
The best time to apply this theory is in the design stage, before a building or neighbourhood is built. However, you can also successfully apply it later, but retrofitting an existing environment can sometimes be costly. By conducting this process and using the *Companion* (which outlines research-based strategies

capable of minimising crime risk within the built environment), NSW Police can suggest treatments to be considered in order to reduce opportunities for crime following CPTED principles of:

- Natural
- Technical/Mechanical (low)
- Organised (low)

1 TERRITORIAL RE-ENFORCEMENT

Community ownership of public space sends positive signals to the community. Places that feel owned and cared for are likely to be used, enjoyed and revisited. People who have guardianship or ownership of areas are more likely to provide effective supervision and to intervene in crime than passing strangers and criminals rarely commit crime in areas where the risk of detection and challenge are high. Effective guardians are often ordinary people who are spatially 'connected' to a place and feel an association with, or responsibility for it.

Territorial Re-enforcement uses actual and symbolic boundary markers, spatial legibility and environmental cues to 'connect' people with space, to encourage communal responsibility for public areas and facilities, and to communicate to people where they should/not be and what activities are appropriate.

2 SURVEILLANCE

People feel safe in public areas when they can see and interact with others, particularly people connected with that space, such as shopkeepers or adjoining residents. Criminals are often deterred from committing crime in places that are well supervised.

Natural surveillance is achieved when normal space users can see and be seen by others. This highlights the importance of building layout, orientation and location; the strategic use of design; landscaping and lighting – it is a by-product of well-planned, well-designed and well-used space.

Technical/mechanical surveillance is achieved through mechanical/electronic measures such as CCTV, help points and mirrored building panels. It is commonly used as a 'patch' to supervise isolated, high-risk locations.

Formal (or Organised) surveillance is achieved through the tactical positioning of guardians. An example would be the use of on-site supervisors, e.g. security guards at higher risk locations.

3 ACCESS CONTROL

Access control treatments restrict, channel and encourage people and vehicles into, out of and around the development. Wayfinding, desire-lines and formal/informal routes are important crime prevention considerations. Effective access control can be achieved by using physical and symbolic barriers that channel and group pedestrians into areas, therefore increasing the time and effort required for criminals to commit crime.

Natural access control includes the tactical use of landforms and waterways features, design measures including building configuration; formal and informal pathways, landscaping, fencing and gardens.

Technical/Mechanical access control includes the employment of security hardware. Crime, Design and Urban Planning: From theory to Practice Formal (or Organised) access control includes on-site guardians such as employed security officers.

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4 SPACE/ACTIVITY MANAGEMENT

Space/Activity Management strategies are an important way to develop and maintain natural community control. Space management involves the formal supervision, control and care of the development. All space, even well planned and well-designed areas need to be effectively used and maintained to maximise community safety. Places that are infrequently used are commonly abused. There is a high correlation between urban decay, fear of crime and avoidance behaviour.

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CONCLUSION

Design measures have been developed to increase surveillance of occupants within the buildings to the public areas. The proposal has no significant impacts and no further mitigation measures are required.

PERFORMANCE CRITERIA, DESIGN REQUIREMENTS/SUGGESTIONS AND PURPOSE/EXPLANATION

(1.1) Natural Surveillance				
Performance Criteria	**Design Requirements /Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
A. Avoid Blind Corners				
Avoid blind corners in pathways, stairwells, hallways and car parks	Pathways should be direct. All barriers along pathways should be permeable (see through) including landscaping, fencing etc. Consider the installation of mirrors to allow users to see ahead of them and around corners. Install glass panels in stairwells where appropriate.	'Blind corners' or concealed areas make people feel uneasy and unsafe. Not knowing 'what is around the next corner' can discourage genuine users of a space to use and maximise it.	Blind Corners E.g.: Poor consideration of 'blind corners' in design creates concealed areas from view of approaching passers.	Pathways, stairwells hallways and carpark are designed to be open and not enclosed to minimise any blind corners.
B. Communal/Public Areas				
Provide natural surveillance for communal and public areas	Position active uses or habitable rooms with windows adjacent to main communal/ public areas (e.g. playgrounds, swimming pools, gardens, car parks). Communal areas and utilities (e.g. laundries and garbage bays) should be easily seen. Where elevators or stairwells are provided, open style or transparent materials are encouraged on doors and/or walls of elevators/ stairwells. Waiting areas and entries to elevators / stairwells should be close to areas of active uses and should be visible from the building entry. Seating should be located in areas of active uses.	In this instance, natural surveillance serves two main purposes: Makes legitimate users of a space feel safe as they 'are not alone' in a secluded area. There is always the potential for someone to 'help' if there are any problems. Deters illegitimate users as their presence in and misuse of the space will be rapidly noticed.		Communal/ Public areas are designed either open or have display panels at doors to provide natural surveillance. For example, enclosed airlocks with glazed curtain walls to allow visibility from surrounding buildings. All learning commons and seminars have display panelled doors for teacher's monitoring.
C. Entry Points				
Provide entries which are clearly visible	Entrances should be at prominent positions. Design entrances to allow users to see in before entering.	Prominent entrances allow: -Natural surveillance from street -Users to feel safe and to easily access the area -Emergency services to access the property rapidly		Entry plaza spaces on campus corners align with pedestrian entry points and create legible and safe entry points. Signage provided at site entrances, exits and throughout school in accordance with EFSG Guidelines policy.
D. Fencing				
Fence design should maximise natural	Front fences should be predominantly open in design (e.g. pickets and wrought iron) or low in height. A sense of	Although high fences may provide privacy, they restrict natural street surveillance		Fencing used throughout school will screen service areas such as waste collection bays, services

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Surveillance from the street to the building and from the building to the street, and minimise opportunities for intruders to hide	privacy can be increased by light coloured fencing. High solid front fences should have open elements above 1m.	from potential intruders. Fencing below one meter, or open design fencing allows for adequate privacy and adequate levels of natural surveillance.		equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other areas.
E. Landscaping				
Avoid landscaping which obstructs natural surveillance	Avoid medium height vegetation with concentrated top to bottom foliage. Plants such as low hedges and shrubs (1 - 1.2m high), creepers, ground covers or high canopied vegetation are good for natural surveillance. Trees with dense low growth foliage should be spaced or have the crown raised to avoid a continuous barrier. Use low ground cover or high canopied trees, clean trunked to a height of 2m around children's play areas, car parks and along pedestrian pathways. Avoid vegetation that conceals the building entrance from the street.	As with 'blind corners' or general concealed areas, the large size of certain vegetation obstructs visibility and makes people feel uneasy and unsafe. Perceiving that something may be 'behind those bushes' can discourage genuine use of a space	Landscaping Example: Good line of sight from property to street. Landscaping Example: Obstructed line of sight from property to street making it difficult to identify any problems.	Landscaping and associated facilities designed to ensure ease of maintenance and use of vandal resistant materials. Landscaping proposed in a manner which reinforces natural sight and safety, with a mix of low level and higher canopy plantings. The planting regime avoids medium and tall plantings at the site entrances.
F. Lighting				
Ensure lighting does not produce glare or dark shadows Entrances, exits, service areas, pathways, car parks etc. should be well lit after dark when they are likely to be used	Use diffused flood lights and/or movement sensitive lights. Direct these lights towards access / egress routes to illuminate potential offenders, rather than towards buildings or resident observation points. Lighting should have a wide beam of illumination, which reaches to the beam of the next light, or the perimeter of the site or area being traversed. Avoid lighting spillage onto neighbouring properties as this can cause nuisance and reduce opportunities for natural surveillance. As a guide, the areas should be lit to enable users to identify a face 15m away. Use energy efficient lamps /fittings /switches to save energy.	Adequate lighting is essential in making people feel safe and in deterring illegitimate users. Allows people to see what is ahead Encourages legitimate users to use a facility after daylight hours; their presence will deter potential illegitimate users Allows natural surveillance after daylight hours Facilitates formal surveillance (by Police or security patrols).		Lighting installed to enhance natural surveillance and provide an appropriate level of visibility at night.
G. Mixed Land Uses				
Where permitted,	Locate shops and businesses on lower floors and residences	Mixed land uses allow for natural		The design of strong linkages with the wider

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provide appropriate mixed uses within buildings to increase opportunities for natural surveillance	on upper floors. In this way, residents can observe the businesses after hours while the residences can be observed by the businesses during business hours. Incorporate car wash services, taxi ranks and shop kiosks etc within car parks. Include shop kiosks and restaurants etc within parks. Refer to the relevant planning instrument for permissible uses in the zone of the property. Some uses may require rezoning.	surveillance of areas across a range of various days/hours (i.e. weekday or weekend, AM or PM).		pedestrian and land use network supporting surveillance over the site to minimise illegitimate/anti-social activities. Include new access points at street frontage to create better levels of active and passive surveillance during both day and night times.
H. Security				
Security grilles, shutters and doors should allow natural observation of the street and be sympathetic to the architectural style of the building. Use security hardware and/or human measures ONLY where required to reduce opportunities for unauthorised access	Security grilles and security doors should be permeable (see through). Avoid solid shutters on front windows and doors. Install quality locks on external windows and doors. Install viewers on entry doors. If security grilles are used on windows, they should be openable from inside in case of emergencies. Ensure skylights and/or roof tiles cannot be readily removed or opened from outside. Consider monitored alarm systems. Provide lockable gates on side and rear access ways. Consider building supervisors or security guards	Traditional security related equipment will help make a space more difficult for intruders to break into, however its overuse may impinge on adequate levels of natural surveillance. Traditional security systems can be very effective in reducing illegitimate access. It is important however to be reasonable and not over secure a location as this may make genuine users feel unsafe and even restrict legitimate access.	Main entry doors should be fitted with a door viewer and door chain.	DOE EFSG requires school site to be entirely enclosed. The security measures for the specific site are still to be determined. The approach is to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. All security grilles, shutters and doors in the new works to allow natural observation of the street and are sympathetic to the architectural style of the building. All security hardware is used as per the DOE EFSG required level of security for each room and space.
I. Building Identification				
Ensure buildings are clearly identified by street number.	Street numbers should be at least 7cm high and positioned between 0.6m and 1.5m above ground level on the street frontage. Street numbers should be made of durable materials, preferably reflective or luminous, and unobstructed (e.g. by foliage). Location maps and directional signage should be provided for larger development.	Clear building identification prevents unintended access and assists persons trying to find the building - particularly emergency vehicles in an urgent situation	Clearly identify your street number	Signage will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the DOE EFSG signage policy.

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J. Maintenance				
Create a 'cared for' image.	Ensure the speedy repair or cleaning of damaged or vandalised property Provide for the swift removal of graffiti. Provide information advising where to go for help and low to report maintenance or vandalism problems	Research indicates that well maintained and 'cared for' properties are less likely to experience crime		The proposal will utilise construction materials which are robust and where appropriate adopt anti-graffiti surfaces.
L. Materials				
Use materials which reduce the opportunity for vandalism	Strong, wear resistant laminate, impervious glazed ceramics, treated masonry products, stainless steel materials, anti-graffiti paints and clear over sprays will reduce the opportunity for vandalism. Flat or porous finishes should be avoided in areas where graffiti is likely to be a problem. Where large walls are unavoidable, consider the use of vegetation or anti-graffiti paint. Alternatively, modulate the wall, or use dark colours to discourage graffiti on vulnerable walls. External lighting should be vandal resistant. High mounted and/or protected lights are less susceptible to vandalism. Communal/ street furniture should be made of hard-wearing vandal resistant materials and secured by sturdy anchor points or removed after hours.	A reduction in vandalism through careful selection of materials will contribute to beautifying and maintaining an area. This will reduce expenditure on unscheduled maintenance.		Use of building articulation and permeable building materials will discourage vandalism and illegitimate/anti-social activities.
M. Spaces				
Spaces should be clearly defined to express a sense of ownership and reduce illegitimate use/entry.	Physical and/or psychological barriers (e.g. fences, gardens, lawn strips, varying textured surfaces) can be used to define different spaces.	The definition of clear boundaries allows: -People to know when they are trespassing on private property. -Passers-by to clearly identify when someone is trespassing and illegally using the premises.	Create boundaries between private space and public space	Signage will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the DOE EFSG signage policy.
N. Pride & Involvement				
Encourage design that	Encourage community	A sense of community pride in a particular		Design of the project improves access to

(1.1) Natural Surveillance				
Performance Criteria	**Design Requirements /Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
promotes pride and a sense of place for community	involvement in design. Encourage volunteer management and maintenance of areas. Encourage wide community use of areas.	area will help: - Maintain an area - Identify and report any problems - Identify illegitimate behaviour.		functional areas. New COLAs will give good, sheltered assembly areas for school during wet weathers.
O. Site & Building Layout				
Ensure clear sight lines throughout the parking area Design car parks to allow for natural surveillance	Avoid large expanses of car parks. Where large expanses of car parks are proposed, provide surveillance such as security cameras. Access to lifts, stairwells and pedestrian pathways should be clearly visible. Avoid hidden recesses. Locate disabled parking spaces in highly visible and convenient areas. Locate car parks in areas that can be observed by adjoining uses	Whilst car parks can be areas with large flows of traffic, there is rarely people sitting in their cars with the opportunity to observe any suspicious behaviour (unlike in an office or commercial environment). In order to facilitate natural surveillance, it is important to ensure that clear sight lines (i.e. Not blocked by blind corners, buildings or landscape) are incorporated to its design.		The carpark is located between the existing Gulyangarri Public School and the new LBGHS school, ensuring high levels of active and passive surveillance over carpark access. Furthermore, the LBGHS street frontage will ensure that a high level of surveillance is maintained outside school grounds.
P. Carpark Security				
Provide security to monitor access to area.	Use security devices (e.g. intercom or remote lock facility) where appropriate. For large developments, locate a help point on each parking level and/or allocate security staff. For a multi-level car park, use only a limited area of the car park outside peak hours. Consider the installation of boom gates or similar devices at entrances and exits of the car park.	It is important to reduce opportunity for unauthorised access without affecting legitimate users. Due to the ongoing flow of people/traffic through car parks it is very difficult to identify legitimate users from trespassers.		The new works will be designed to avoid the creation of potential concealment spaces. The school security to be determined, to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. Vegetation utilised comprises low shrubs and high canopy planting to reduce vegetation concealment areas. Fencing used throughout the school to screen service areas such as waste collection bays, services equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other

(1.1) Natural Surveillance				
Performance Criteria	**Design Requirements /Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
				areas.
Q. Site and Carpark Layout				
Ensure ease of access and safety within the car park Clearly distinguish between private and public space	Minimise the number of entry and exit points. Pedestrian corridors should be created for large developments. Where possible, locate entry/exit points in close proximity and close to the car park operator or shops, cafes etc. Staff car park should be separated and secured.	At the best of times, car parks are places where people can feel unsafe. The site and building layout should be aware of this fact and ensure that all entry/exit points are easily accessible, well signed, lit and designed in line with strategies outlined within Sections 1.1, 1.2 and 1.3 of the document. This is particularly relevant for staff car parks, which are often used outside of regular business hours.		The proposed car park is an open-air parking space (east of Block C and with a shared street access with Gulyangarri PS) offering good natural surveillance. The locations of the car parking area, which is within school grounds, is fenced off ensure a high level of natural surveillance over the car park is maintained. No items that could block vision for vehicles or pedestrians or allow concealment of people or hazardous items at these entry points will be included.