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Crime Impact Assessment (BREEAM Security Needs Assessment HEA 06) - Connell Co-Op College, Manchester

Darwin Group

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Document Purpose & Restrictions

This document has been prepared for Darwin Group for the purpose of providing a BREEAM HEA 06 Security Needs Assessment for the new Connell Co-Op College extension.

Advice given, and recommendations made herein do not constitute a warranty of future results by SGW Safety & Security Limited (SGW).

Recommendations made are based on information provided by the client and other information available at the time of writing. No express or implied warranty is given in respect of any judgment made or to changes or any unforeseen escalation of any factors affecting any such judgment.

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Document Version Control

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SECTION 1 | INTRODUCTION



1.0 Project Background

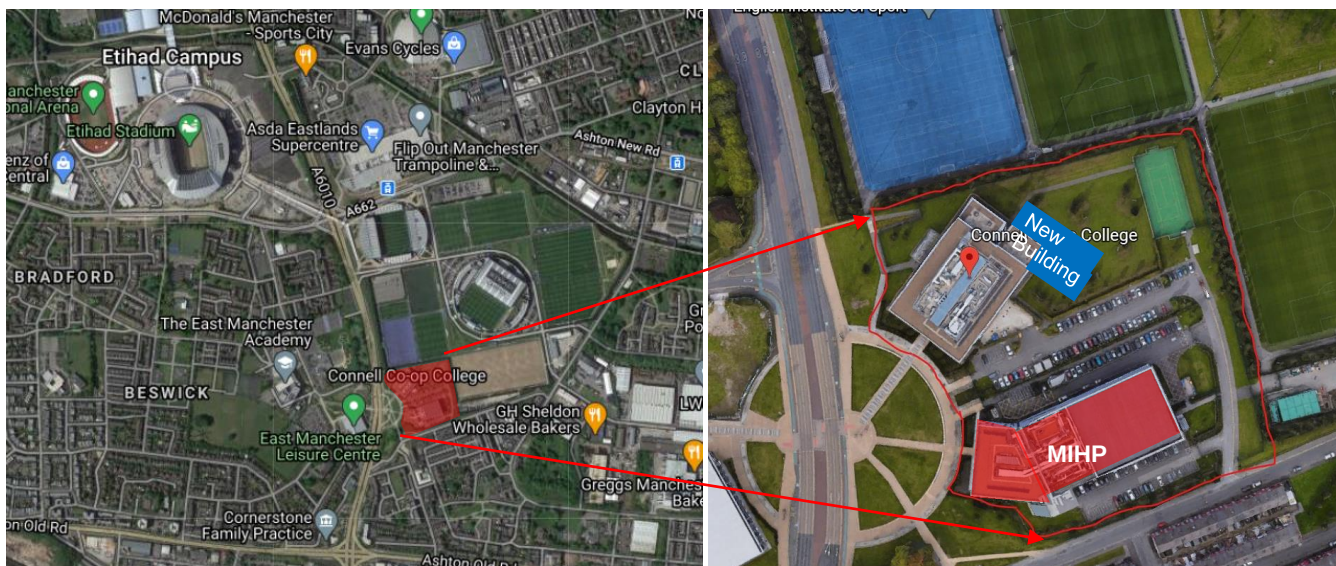
Darwin Group is currently undertaking a Pre-Construction Services Agreement (PCSA) in relation to a planned extension project at Connell Co-Op College, Turing Way, Manchester. The project will involve the building of a single-storey structure equating to 838sq.m and consisting of 10 equally-sized classrooms, storage and ancillary spaces, including academic offices, staff room and reception office.

The project also includes changes to the existing site landscape, with additionally car park provision provided, alterations to the road and pavement layout, primarily to include a turning circle, and a linkway canopy, allowing movement between the existing college building and the proposed design.

As part of the PCSA, Darwin Group require a pre-start BREEAM Security Needs Assessment (SNA) addressing HEA 06 2018. Due to ongoing Covid-19 restrictions, a site visit was not undertaken. As per the BREEAM guidance¹, a virtual assessment was carried out using graphics and images provided by Darwin Group, as well as images from Google Earth and Google Street View.

1.1 Existing Site Location

The development site is located within the Connell Co-Op College campus. The campus is situated at 301 Alan Turing Way, Manchester, and is located within the Etihad Training Campus, a training ground developed by Manchester City Football Club, whose stadium, the Etihad Stadium, is short distance to the north-west. The college is bordered to the north and east by the Etihad Training Campus.



Site location plan showing Connell Co-Op College

The college is currently formed of one main building but is closely situated to the Manchester Institute of Health and Performance (MIHP) which is located to the south, separated by the car parking areas. The proposed new building will be located on the eastern aspect of the main building, with an interconnected canopy, allowing covered walkthrough.

¹ Visual audit of site and surroundings

The method of conducting the visual audit of the site and its surroundings required for a Security Needs Assessment (SNA) is at the discretion of the Suitably Qualified Security Specialist (SQSS). It can be carried out as a site visit, or through the review of relevant project information and drawings, provided the SQSS is satisfied that these are sufficient to inform their SNA & associated security recommendations. *The approach should be justifiable in terms of the scale, complexity, location and any other specific aspects of the assessed development.*



1.2 BREEAM HEA 06

BREEAM awards a point towards a development's rating if an SNA is completed and the recommendations from that report (this document) are implemented.

The aim of HEA 06 is to recognise and encourage effective measures that promotes Security of Site and Buildings.

1.3 Security Needs Assessment (SNA)

This process included a site-specific SNA that includes the following:

1. A virtual ²visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development.
2. Formal consultation with relevant stakeholders, including the local Designing Out Crime Officer (DOCO) Architectural Liaison Officer (ALO), Counter-Terrorism Security Advisor (CTSA) in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development.

SGW contacted the DOCO contact for the Greater Manchester Police on 4 November. At the time of writing this report, no contact has been forthcoming from Greater Manchester Police.

4. Identify risks specific to the proposed, likely or potential user groups of the building.
5. Identify any detrimental effects the development may have on the existing community.

The purpose of the assessment is to inform stakeholder decision-making and allow the identification and evaluation of security recommendations and solutions.

1.4 Design Information

The following documents were submitted to SGW to assist with this Security Needs Assessment:

- 180389-DGL-01-00-DR-A-2000-General_Arrangement
- 180389-DGL-01-XX-DR-A-1160-Proposed_Block_Plan
- 180389-DGL-01-XX-VS-A-2200-3D_Visuals
- 180389-DGL-01-ZZ-DR-A-2100-Elevations

1.5 Police Designing Out Crime Officers (DOCO)

SGW contacted the local DOCO for the Greater Manchester Police on 4 November 2020, to ascertain the level and type of crime experienced in the vicinity of the site.

At the time of writing, no response has been forthcoming from the Greater Manchester Police. As such, SGW used www.Police.uk and <https://www.ukcrimestats.com/> to establish the levels of crime in the area. SGW accessed these sources on the 5 and 6 November to support this report. SGW would recommend further consultation is sought with the local DOCO in relation to potential SBD support and overall safety of the project.

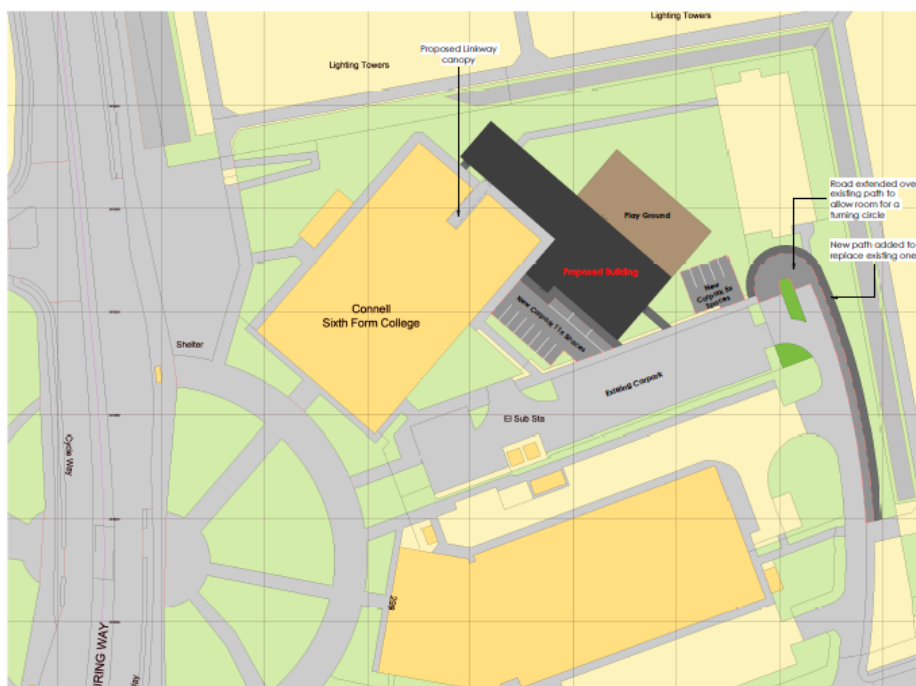
² Visual audit of site and surroundings

The method of conducting the visual audit of the site and its surroundings required for a Security Needs Assessment (SNA) is at the discretion of the Suitably Qualified Security Specialist (SQSS). It can be carried out as a site visit, or through the review of relevant project information and drawings, provided the SQSS is satisfied that these are sufficient to inform their SNA & associated security recommendations. *The approach should be justifiable in terms of the scale, complexity, location and any other specific aspects of the assessed development.*



1.6 Proposed Masterplan

The masterplan aims to increase teaching capacity within Connell Co-Op College. The building of a new teaching block with 10 classrooms, staff areas, ancillary spaces and a reception office provides a strong foundation from which to expand the college's capabilities. The proposed masterplan is further enhanced with the introduction of additional car parking facilities and a dedicated area for outside activities.



Site Masterplan

1.7 Site Access

Connell Co-Op College is currently accessed via vehicle from Wilson Street. The vehicle access route is gated where it meets Wilson Street, and presumably manually opened at the beginning of the working day and locked again at night. The approach is a shared access, with the Manchester Institute of Health & Performance (MIHP) also accessed via this route. The route does allow access to the college carpark, situated at the north-east aspect of the site.

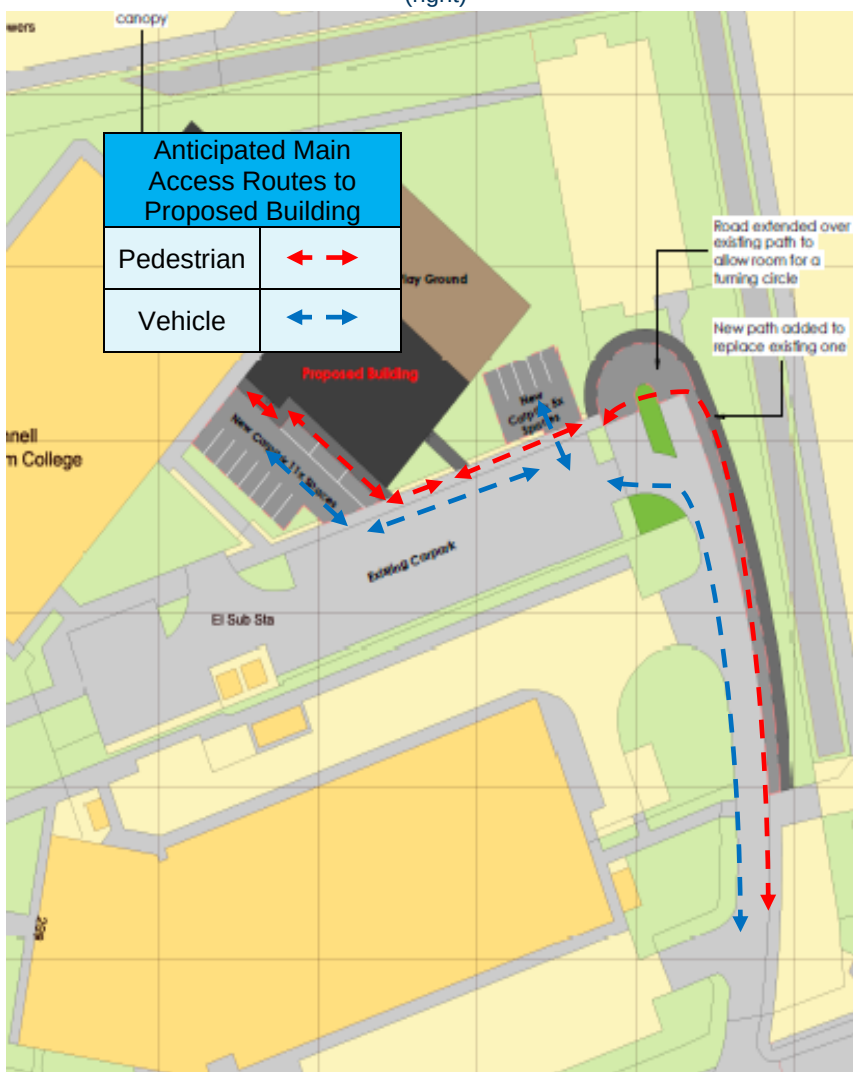
The carpark is also gated, again presumably locked and unlocked by staff to allow vehicle access during term time. There is a gated entrance at the western end of the carpark, but this appears to be for pedestrian-use only or in times of emergency.

There are several pedestrian routes currently allowing access into the college building. Contactless card or fob-controlled turnstiles are present at the front of the campus off Turing Way and from the carpark to the building. Additional pedestrian gates, situated at the perimeter to the carpark and at the Wilson Street entrance appear to be controlled via a mechanical lock, and presumably are again locked at the same time as the vehicle gates.

The proposed development is unlikely to alter vehicle access. Vehicles will still be required to enter the site off Wilson Street and enter the main car park, although there will be an additional 16 spaces as part of the new development. Pedestrian access is likely to alter however, with the current turnstile access situated on the northern aspect of the carpark unlikely to be required as pedestrian access will become much easier. Pedestrians will be able to walk across the new car park or use the pedestrian path provided to enter the new building and then moving around internally. As such, consideration will be needed regarding access control measures in relation to the new development, ensuring it is as robust as the existing access controls currently present on the pedestrian gates.



Current pedestrian access turnstile with card reader (left) and vehicle entrance off Wilson Street (right)



Anticipated main vehicle and pedestrian access to new building



1.8 Site Survey

Due to ongoing Covid-19 restrictions a physical visual audit of the site was unviable. Alternatively, the SNA report has used client-provided images, and other graphics and drawings where appropriate to support the assessment.

The proposed development forms part of the Connell Co-Op College campus, which is contained within the Etihad Training Campus which is part of the Manchester City Football Club's wider training ground. The college is located at the south-west aspect of the Etihad Campus, with training pitches and outdoor training areas bordering the college campus to the north and east.

The college is bordered to the south by the Manchester Institute of Health & Performance (MIHP) which whilst a separate entity is accessed from the same approach route off Wilson Street. The college is bordered to the west by Alan Turing Way, a busy dual-carriageway arterial route that runs north-to-south. There is a large semi-circular grassed area which is openly accessible to the public located in front of the main college building to the west. This open area is traversed by several footpaths which lead to the MIHP building and Connell Co-Op College.



Connell Co-Op College (left) with MIHP building (right) with open area in foreground



Main vehicle entry point for both MIHP (left) and Connell Co-Op College



The open area in front of Connell Co-Op College is defined as a 'grey space' where it is unclear who has overall ownership. It is also easily accessible from Alan Turing Way, the A6010.



Alan Turing Way – northbound (left) and southbound (right), with open areas and broad pathways allowing easy access to Connell Co-Op College grounds.

Whilst the western aspect is open to public access, there is a defined perimeter for the current Connell Co-Op College site. The perimeter is presumed to be formed of '358' weldmesh fencing, lockable and access controlled gates are also present to allow authorised access, but deny unauthorised entry. From the west, at least one access-controlled gate is present along with a double-leafed access control vehicle gate.



Vehicle access controlled gate with intercom stanchion and card reader



Access-controlled pedestrian turnstile - western aspect

The northern and southern aspects of the campus are enclosed with a suitable weldmesh fence that does provide a good degree of separation from the public realm. This requires any pedestrian visitors to access the college building via the main entrance. The main approach and entrance path is a good example of applied Crime Prevention Through Environmental Design (CPTED) where the shrubbery is short enough to allow good Natural Surveillance of the approach, but also mature enough to guide pedestrians to the main entrance as a form of Natural Access Control. Additionally, the different surface materials and colours also establishes a sense of ownership of the area similar to Territoriality, a key element of CPTED.



Main approach shown with change to surface design and colour; good Natural Access Control and lighting present. High frontal glazing also allows for good Natural Surveillance over approach route.



The perimeter and landscaped design is deemed as positive in terms of access control and overall security implementation. It is feasible to access the site unchallenged firstly from the south via Wilson Street, and then the east into the existing car park.



Vehicle route from car park looking towards entrance & exit at Wilson Street



Car park entrance (right) showing open gates and ease of access

Arguably, the car park area is the most vulnerable area to acquisitive and expressive crime. Certainly the perceived 'openness' of the approach route with vehicles at possible risk of vehicle-related crime does suggest this area is potentially vulnerable.

Although the car park could be deemed to be vulnerable, access control is visible, with measures in place within the perimeter fenceline. The car park itself has a double-leaf gate for vehicle access and a pedestrian gate; both of which, it is assumed, are locked and unlocked to coincide with access requirements during term time.



Main vehicle entrance gates to car park (left) and pedestrian access from access road (right)

The car park is also currently enclosed with a similar weldmesh fencing, assumed to be '358' specification. This encloses the entire car park. Pedestrian access to the existing building from the car park is via two routes. The primary route is an access-controlled turnstile at the north aspect of the fenceline which allows access to the rear entrance. The second access is via the western double-leafed gates that if open would allow pedestrians to access the main entrance. The existing layout of the car park is deemed to be appropriate in terms of security. Whilst there is perceived vulnerability in regard to vehicle-related crime, the area is under CCTV surveillance and enclosed with access control authentication required to access the rear area of the building.

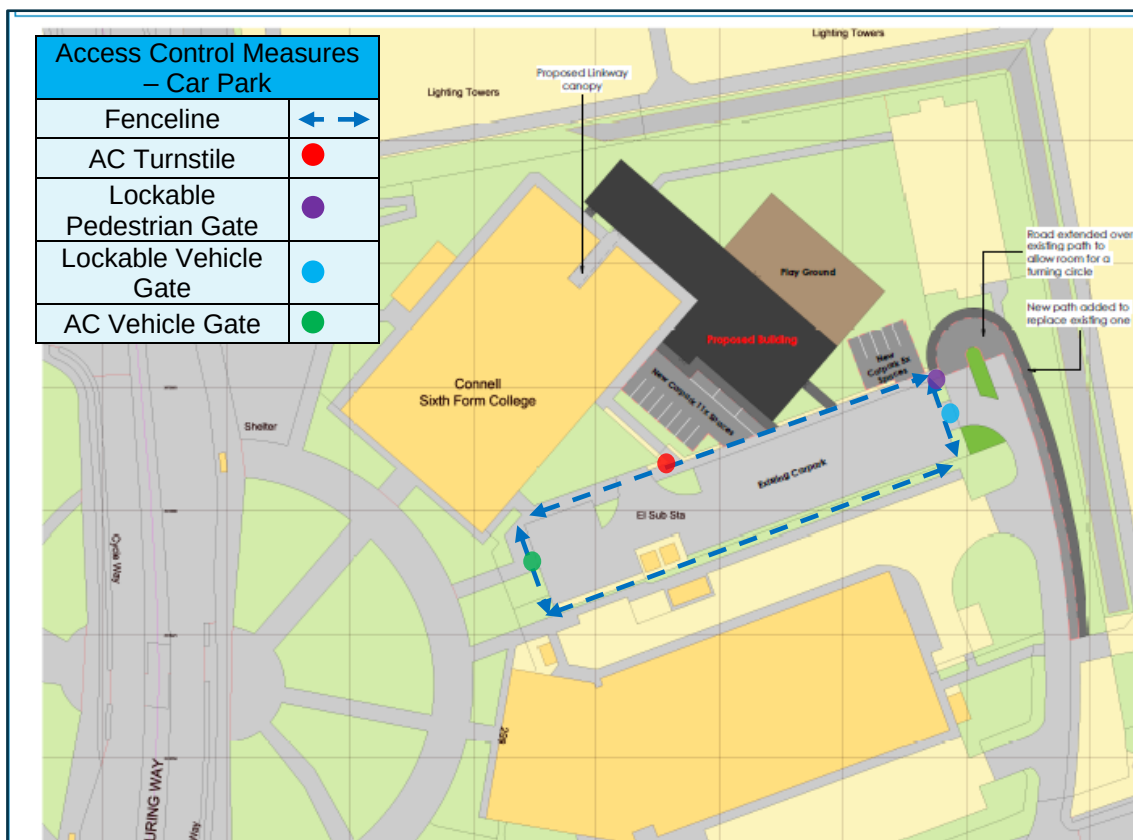


CCTV and lighting present in car park (left) and complete fenceline with wider car park area (right); Access-controlled turnstile below allowing access from car park to rear of college building





However, the proposed design will involve some reconfiguration of the car park perimeter fenceline and result in positioning an entrance point separate to the access-controlled turnstile.



Graphic above showing existing car park control measures and wider access control, with proposed plan below showing new design with open access to new building's reception office



As illustrated above, the proposed design will introduce vulnerability in terms of the fenceline, which is currently robust, and allow authorised and unauthorised pedestrians to reach the new building's envelope. This does



introduce an element of risk as individuals seeking to cause harm or commit an offence will be closer to the building's fabric, including exterior windows and doors. Moreover, there is a greater risk that such individuals could interact with staff and students as they potentially loiter near to or reconnoitre the proposed building's reception. The design also circumnavigates the requirement for the access-controlled turnstile and consideration should be given to removing or replacing it.

Due to the anticipated changes to the car park as well as the proposed new building, consideration will need to be given to ensuring the security profile installed including glazing, doorsets and access control is robust and mitigates the risk that altering the campus design introduces possible vulnerabilities.

Recommendations and considerations regarding the proposed building's security measures are examined in more detail in the body of the report.

SECTION 2 | SECURITY NEEDS ASSESSMENT



2.0 Security of Site and Buildings

A credit for this element is achieved if:

1. A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development.
2. The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA.
3. The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.

When confirming whether the recommendations or solutions set out by the suitably qualified security specialist(s) have been implemented at the post-construction stage, it may be necessary for the assessor to use one or more of the following evidence types, supplied by the design team:

- Desk-based evidence e.g. manufacturers literature/certificates etc
- Site-based evidence e.g. site inspection report/photographs etc

2.1 Suitably Qualified Security Specialist

An individual achieving 1–3 or 4 of the following can be considered to be suitably qualified for the purposes of compliance with BREEAM:

1. Minimum of three years' experience in a relevant security profession (in the last five years). This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to the type and scale of the project being undertaken.
2. Holds a qualification relevant to security.
3. Maintains a full membership to a relevant professional body, institute or certification scheme that has a professional code of conduct, to which members adhere.
4. A specialist registered with a BREEAM recognised third-party licensing or registration scheme for security specialists.

An SQSS may be any practising security professional (e.g. a private security consultant or advisor, an ALO, CPDA, CTSA, or an individual associated with the client team), however they must demonstrate that they hold the experience, qualifications and memberships required by the SQSS criteria.

When appointing the SQSS, consideration should be given to the appropriateness of the individual to carry out the task assigned. The SQSS should be able to demonstrate that they have experience dealing with similar projects with equal security levels and similar risks. The following are currently recognised as a third-party licensing or registration schemes for an SQSS - Criteria 4;

SABRE

SGW Safety and Security Ltd satisfies all four of the above criteria to meet the purposes of BREEAM compliance. BREEAM SABRE registration for SGW Registered Assessor and Registered Professional can be found here:

<https://www.redbooklive.com/search/displaycompany.jsp?searchgrouptypeid=20&searchgroupid=150&companyid=2417&id=948>

Further evidence of the SQSS criteria can be found in Section 6.



2.2 SABRE Scheme

SABRE is the only compliant risk-based security rating scheme recognised within the BREEAM UK new construction 2018 scheme. By achieving SABRE certification (to any SABRE rating), all new construction projects, regardless of the type of BREEAM Assessment being undertaken, can increase their BREEAM score by 1 percentage point over the award for satisfying the standard HEA 06 criteria. BREEAM target ratings will determine the amount of professional services needed for design consultancy, risk assessment, security management advisory services and assessment.

By achieving SABRE certification to any rating, a construction project can increase their BREEAM score by 1 percentage point over the award for the standard HEA 06 assessment.

BREEAM Target Rating	HEA 06 Criteria (% contribution)		% Contribution Uplift by using SABRE
	Standard Criteria	Exemplary Criteria (SABRE)	
Outstanding	0.85	2.00	↑ 1.15
Excellent	1.05	2.48	↑ 1.43
Very Good	1.34	3.16	↑ 1.82
Good	1.64	3.87	↑ 2.23
Pass	2.46	5.79	↑ 3.33

If SABRE assessment services are required for this project, please contact SGW and let us know the BREEAM and SABRE target ratings required. SGW will then provide a revised fee proposal to include SABRE Assessment.





2.3 Area Crime Statistics

The development is situated within the Openshaw policing neighbourhood of Greater Manchester Police. The below figures and graphics illustrate the type, trend and frequency of offending which could influence the project development.

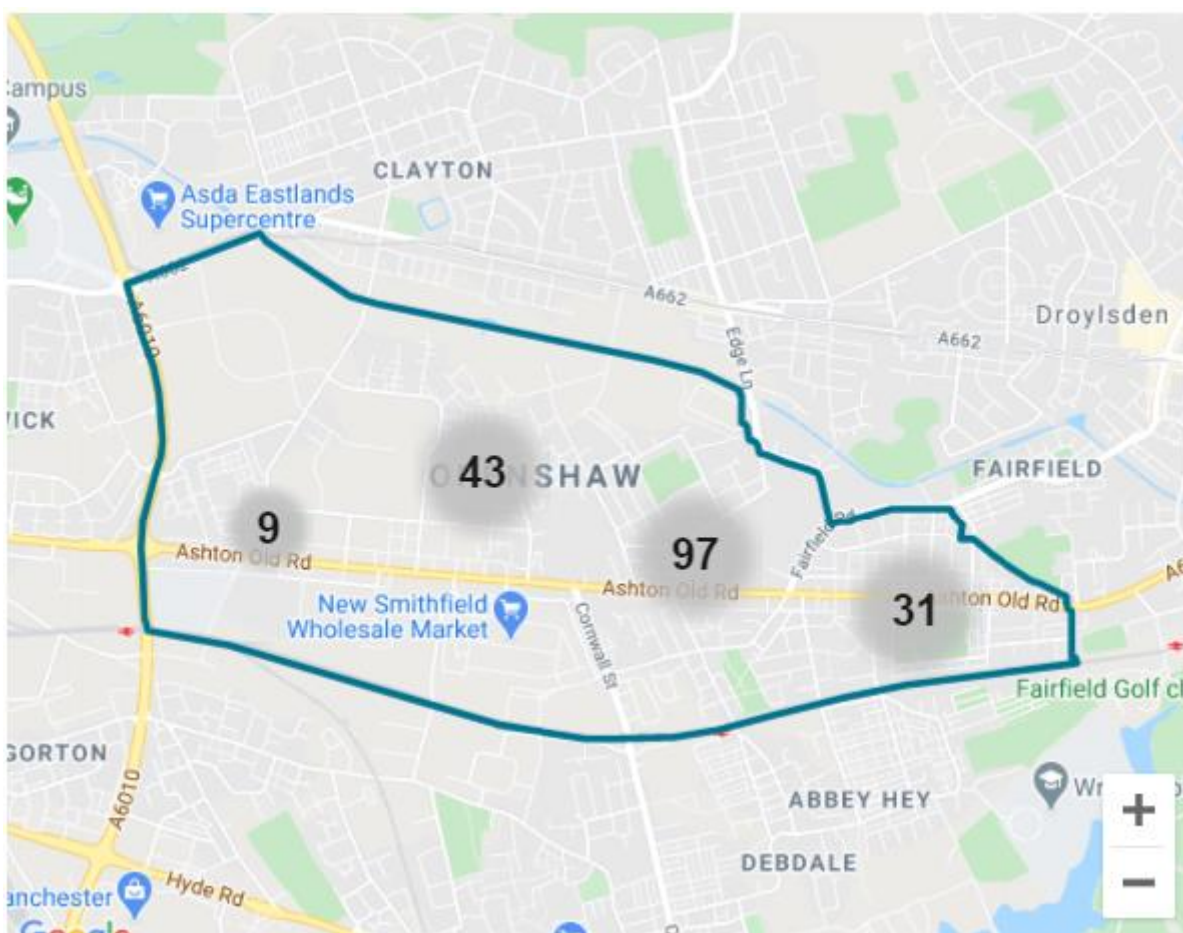
The crime statistics for the site can be viewed at:

<https://www.police.uk/pu/your-area/greater-manchester-police/openshaw/>

However, it should be stressed that the crime figures used in this report are indicative only and are from historical data due to a reported data systems issue which means no new official crime figures have been uploaded by Greater Manchester Police since June 2019. As such, the latest available statistics are used, but with a degree of caution applied.

The most-recently available crime figures are from June 2019. The figures illustrate that 180 offences occurred across the Openshaw neighbourhood. 'Hotspot' areas include the east of the neighbourhood around Delamere Park, central Openshaw around Sandywell Millennium Green and Openshaw Playground.

Clustering of incidents near or around the Connell Co-Op College, which is to the north-west of the neighbourhood, appears light. Nevertheless, criminality does occur within relative close proximity, suggesting the site could be exposed to some form of criminal activity.



Crime Map for Connell Co-Op College



Type	Total	Percentage
Violence and Sexual Offences	57	31.67
Shoplifting	21	11.37
Anti-Social Behaviour	20	11.11
Criminal Damage and Arson	19	10.56
Public Order	17	9.44
Other Theft	14	7.78
Vehicle Crime	8	4.44
Drugs	7	3.89
Theft for the Person	5	2.78
Other crime	4	2.22
Burglary	3	1.67
Possession of Weapons	3	1.67
Robbery	2	1.11

3

The above graphic shows the nature of the criminal offending recorded in the Openshaw area during June 2019. Violence and Sexual Offending is the most recorded offence, accounting for 57 offences or 31.67 percent. Other crime types recorded much less values, with Shoplifting registering 21 offences (11.37 percent), Anti-Social Behaviour recording 20 offences (11.11 percent) and Criminal Damage and Arson registering 19 offences (10.56 percent) the next highest crime types. Other crime types – Other Theft, Vehicle Crime, Drugs, Theft from the Person, Other Crime, Burglary, Possession of Weapons and Robbery – were also recorded, but all percentages were under 10 percent. Whilst the level of offending is modest, the range of crime types does illustrate the potential for expressive and acquisitive crime to target the college extension.

³ <https://www.police.uk/pu/your-area/greater-manchester-police/openshaw/?tab=CrimeMap>



While the wider crime levels and types are informative, crimes occurring in the vicinity of the site are more indicative as to the type of criminal offending that could occur in and around the Connell Co-Op College extension.

The below graphic illustrates the crime types that occurs within the vicinity of the proposed development. As shown, the incidents occur within approximately 800m, suggesting the risk is present, although the volume and proximity does infer that the risk is low, with no cluster of offending within the development.

Eleven offences occurred within 800m as shown on the below graphic. While the numbers are relatively low, there are similarities in terms of the type of offending including ASB, Violence and Sexual Offences, Theft and Burglary, which underpins the broader risk to the Connell Co-Op College extension.

This snapshot illustrates that whilst crime levels are not excessively high when compared to other areas of Manchester, crime does occur and could potentially impact the development, prompting the necessity for appropriate security measures.



Graphic showing crime incidents occurring relatively close to site.

⁴ <https://www.police.uk/pu/your-area/greater-manchester-police/openshaw/?tab=CrimeMap>



2.4 Identified Risks for Site and User Groups

Identify risks specific to the proposed, likely or potential use of the building:

As demonstrated by the crime statistics analysis, the proposed development location is in a lower crime area. Possible risks specific to the proposed development could include:

- Anti-social behaviour on the development.
- Violence / sexual offences against the development students and staff, as well as guests and visitors.
- Theft or burglary from the site.
- Criminal damage or arson against buildings.
- Bicycle theft.
- Vehicle crime

At the time of issue, the threat level for international terrorism in the UK set by the Joint Terrorism Analysis Centre (JTAC) was set at **SEVERE** <https://www.mi5.gov.uk/threat-levels>, meaning an attack is highly likely. The proposed project location is not considered to be a high-profile target and there have been no attacks on the site or the general vicinity previously, however, the site is relatively close to the Etihad Stadium, a high-profile sporting stadium and the Etihad Campus. While attendance at local high-profile locations is minimal due to the ongoing Covid-19 pandemic, it is highly likely the stadium and wider area will become busier in 2021 and beyond, suggesting that whilst the college is unlikely to be directly targeted, in the event of an incident at the Etihad Campus or Etihad Stadium, there is the potential for indirect disruption.

Terrorism:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level		√								

While an attack is unlikely, disruption caused by a terrorism-related incident cannot be ruled out. Nevertheless, there has been no recorded attack in this area, and the overall risk is deemed as low.

The below crime Risk Levels are based on crime rates within 1.6km of the site development, which includes areas of ⁵Ashburys, Ardwick and Beswick. This introduces areas with differing crime levels, which are reflected in the overall Risk Level Scores. UKCrimeStats ranks the Risk Levels - Where 0 equals lowest and 100 equals highest ranked crime rate.

Violence & Sexual Offences:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level		√								

Area crime statistics (*for period June 2019), shows violence and sexual offences being the highest-most prevalent type of crime occurring in the area, with 57 recorded incidents, and a percentage ratio of 31 percent of the total crime committed in the area, during the evaluation period. Despite it being the highest-recording crime in Openshaw, UKCrimeStats ranked it at 29.950, suggesting it is a relatively low-ranked crime type for the 1.6km area.

⁵ <https://www.ukcrimestats.com/Postcode/M113BS>



Burglary:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level					√					

UKCrimeStats ranks burglary at 58.008, suggesting it is considered a moderate risk to premises within the 1.6km catchment area. The crime figures record that 3 offences occurred within the Openshaw neighbourhood, accounting for less than 2 percent of all offending so while it has recorded low figures in Openshaw, it could present a risk to the college.

Criminal Damage and Arson:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level					√					

UKCrimeStats ranks Criminal Damage and Arson moderately at 50.553, suggesting it could be a viable risk to the development. According to police figures. Criminal Damage and Arson accounted for 10.56 percent, again suggesting it could be a risk to the project.

Identify risks specific to the proposed, likely or potential user groups of the building:

Specific risks to users within the development are most likely to be acquisitive crime and anti-social behaviour aimed at the staff, students and visitors rather than specific targeting of certain individuals.

Students, staff and visitors of the site could potentially be affected by anti-social behaviour, violent crime, burglary or theft, bicycle theft or vehicle crime.

Anti-Social Behaviour:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level	√									

Area crime statistics shows anti-social behavior being a relatively low crime type, accounting for 11 percent of the total crime committed in the area during the evaluation period. UKCrimeStats also ranks it low at 12.416 underscoring the overall relatively low-risk potential.

Vehicle Crime:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level			√							

The crime statistics suggest Vehicle Crime has contributed to 4.4 percent of all recorded crime. The UKCrimeStats ranks it at 32.469, illustrating that it could be a potential, if low, risk to the development and vehicle users parking at the college. The proposed design shows additional car parking being introduced, which could attract vehicle-related crime.



Robbery:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level							√			

Robbery recorded low volumes for June 2019 in the Openshaw policing ward. However, the UKCrimeStats ranks Robbery relatively high at 74.012, suggesting it could be a potential risk with crime known to travel as per Routine Activity Theory.

Bicycle Theft:

Risk Level:	1 Low Risk	2	3	4	5	6	7	8	9	10 High Risk
Identify Risk Level						√				

Bicycle Theft is considered a pertinent risk to the proposed project at Connell Co-Op College. This is because it is assumed that students and staff may use bicycles to attend site, potentially presenting an attractive asset for would-be offenders. Bicycle Theft was ranked by UKCrimeStats at 61.364. As such, measures should be applied that protects bicycles whilst they are stored on college grounds.

Any detrimental effects the development may have on the existing community:

The proposed expansion of the college site is highly unlikely to have any detrimental impact on the existing community. The proposed development is located within the existing college grounds, expanding the teaching capacity and resource for the college. As such, it remains entirely contained, with access and egress routes to and from the public domain. Traffic and pedestrian volume is unlikely to increase significantly with a nominal 16 additional spaces being added to the two new car park areas, but traffic and pedestrian volume may increase at the entrance off Wilson Street during busy periods.

Crime levels are not expected to be affected significantly either positively or negatively, with the development adding positively to the overall capability and delivery of Connell Co-Op College.



2.5 Situational Crime Prevention

Crime prevention, or the intervention to prevent a crime occurring, can generally be achieved in two ways - by changing the offenders' disposition or by reducing their opportunity to commit crime. In this case, it is not possible to change the offenders' disposition, however, the opportunities to commit crime can be reduced. This can be achieved in several ways:

1	Increase the effort of the crime.	This method involves target hardening – using physical measures, locks and electronic access control countermeasures where appropriate.
2	Increase the risk.	Offenders are generally more concerned about the risk of being caught rather than the consequences. Good natural surveillance of the area outside the building, supplemented with adequate CCTV coverage can deter an offender. A good level of external lighting will also deter many types of crime.
3	Reduce the reward.	This method involves decreasing the benefit of committing a crime. Measures can include ensure CRAVED - Concealable, Removable, Available, Valuable, Enjoyable and Disposable – Assets are removed, protected, and/or stored accordingly.
4	Remove excuses.	Many offenders rationalise their criminal acts, this can be neutralised by installing clear signage that delineates public from private space – No Parking, No Unauthorised Access and No Waiting signage is also valid.

Applying elements of Situational Crime Prevention in this context would improve the overall security function, reducing the likelihood of crime on the development.

2.6 Crime Prevention Through Environmental Design (CPTED)

Crime Prevention Through Environmental Design (CPTED) is a collection of inter-linked design principles used in the built environment both externally and internally that encourages the legitimate users of a buildings, park or community areas to feel secure and safe, but discourages would-be ASB or criminality and offending.

Wide-ranging recommendations to architects include the planting of trees and shrubs, the elimination of escape routes, the correct use of lighting, and the encouragement of pedestrian and bicycle traffic in streets. Tests show that the application of CPTED measures overwhelmingly reduces criminal activity.

The core principles of CPTED are:

- **Natural Surveillance** – Natural surveillance is the informal observation of the development by residents, members of the public, employees, visitors and other passers-by. Natural Surveillance is present at the front of the college and the open area to the west. This should be further applied in relation to the new building with the ground-floor glazing allowing oversight of the car park area.
- **Territoriality** – Is the subconscious assertion that the development belongs, although not formally, to a legitimate user group. This can be achieved by change of gradient, change of surface colour, soft landscaping – using fencing or thorny, short but broad shrubs to demark the site, wayfinding and signage to direct guests. This is highly evident at the front of the building and within the 3D illustration. SGW would strongly support further application of Territoriality for this project.
- **Access Control** – Both natural and man-made access control measures can be applied in this context to create single, clearly identifiable points of entry to the new building. The use of Natural Access Control is already present at the front of the college, and should be continued for the new development.



- **Maintenance** – Ensuring an area remains well-maintained will reduce the likelihood of further ASB, loitering and criminality. The presence of minor littering, vandalism, graffiti and nuisance crime could prompt further, and more serious offences.
- **Activity Support** – Encouraging legitimate users to occupy and use open areas within the development perimeter will increase territoriality and natural surveillance and deter would-be offending. The open area at the front of the college is conducive to Activity Support and other areas of the campus should be defined for this purpose as well e.g. picnic benches, vaping areas or areas for sports and outside activities.
- **Target Hardening** – This is the application of physical security measures to deter unauthorised access. Measures can include walls, fences, and other barriers that hamper access. This is evident in the fence type that is currently in place.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) – LANDSCAPE ARCHITECTURE



Territoriality & Image Maintenance



Permissive but space-defined and the boundaries are clear (unconscious rule-setting)

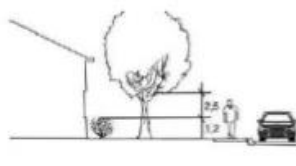




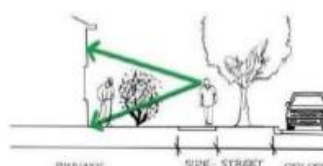
Access Control



Natural Surveillance



Trees and shrubs allow the view to remain open.



PRIVATE
The view is blocked by shrubs.
SIDE WALK
STREET SCALE
STREET



See and be seen – a key fear of crime mitigation

Activity Support

Encouraging legitimate linger opportunities creating ambience that unsettles criminals and nuisance – it will support natural surveillance by increasing 'eyes on the street'



Physical security measures relate to four main areas: **Deterring** intruders, **Detecting** and **Delaying** attackers, and **Responding** to an attack.

A premises with multiple floors and user areas should be compartmentalised where possible. Providing layered access controls, the task of an adversary can be made more difficult and time consuming, giving building staff or management a better chance of alerting assistance.

All hard landscaping and street furniture should be robust and securely fixed to prevent removal, vandalism and use as potential ammunition.

There should be no accessible areas that does not benefit from Natural Surveillance i.e. overlooked by windows from used rooms, neighbours or the general public.

CPTED measures cannot completely replace security measures but can be considered as a lower cost alternative on which security measures can be built.



For example:

Security Approach	CPTED Approach
Electronic access control – electronic locks, card readers, biometric readers, turnstiles.	Minimise points of entry to the site wherever possible. Include areas that are permanently staffed.
Hierarchy of access – ensure site users are only given access to areas they need to access, require photo identification at all times.	Locate sensitive activities in safe areas. Locate high value assets in secure areas with multiple layers surrounding to complicate accessibility to outsiders.
Video surveillance systems, guard tours, guard posts.	Natural surveillance, unobstructed site lines, orientation of activities.
Site perimeters – fences, barriers, walls.	Clear demarcation and delineation between public realm areas and private space. Symbolic barriers or landscaping to separate different space.
Intrusion detection systems.	Occupancy, ownership, shared responsibility of site users to question presence of persons who do not seem to have a reason for being on the site.

2.7 CPTED & Landscaping

One important aspect of CPTED is how it is used with landscape design to influence offender decision making in relation to the potential perpetration of a crime. The proposed 3D design for Connell Co-Op College shows some positive aspects in relation to CPTED fundamentals and this should be further applied.



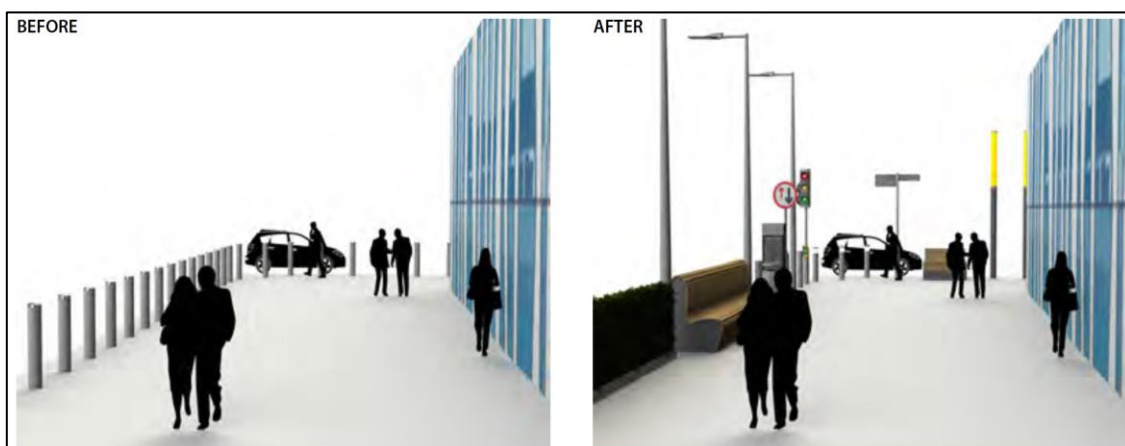
Examples of CPTED highlighted; Signage and wayfinding, landscaping and good Natural Surveillance from ground-floor windows



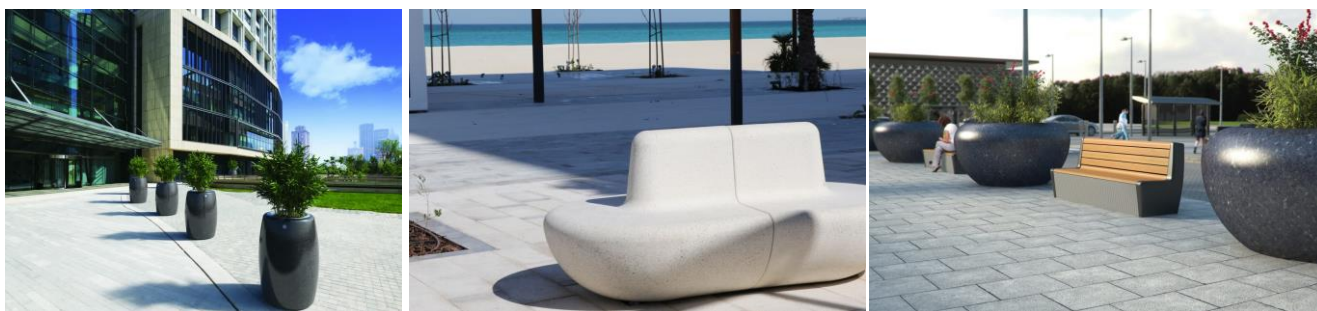
These core principles of CPTED can be applied in a multi-dimensional way, and as such can contribute to reducing the risk of criminal activity, providing a strong effect that can displace crime away from the campus.

There is the risk of accidental or although unlikely, deliberate, vehicle impact as the car park area is closely positioned to the building fabric. Any vehicle impact to the building could cause damage or injuries.

Careful consideration should be given to the selection of any HVM or crash-rated street furniture. Often, a blanket approach is taken with bollards deemed the default selection, creating an unattractive, and often ineffective, bollard line. Applying more nuanced options as illustrated below is suggested as a more applicable and appropriate choice in a setting where protection, but also aesthetics, is important.



The below image shows some of the potential options in terms of creating a protective line between pedestrian routes and an area that will be used by motorists.



Examples of an attractive HVM line using seating, planters and benches.



2.8 Perimeter Considerations

Security fencing is effective at delaying or deterring intrusion because of the need to climb over or penetrate the fence. It is therefore important that there are no structures close to or over the fence that will aid climbing, e.g. trees, lamp columns or buildings.

Assessing the site images and the overall layout of the campus suggests that LPS 1175 weld mesh '358' fencing is in situ. Whilst requiring confirmation, this is deemed as a highly positive aspect that aids overall site security.

SGW would recommend that any changes to the existing fenceline particularly in relation to introducing the turning circle, vehicle access to the additional 16 spaces and other measure is done so with the consideration that the reconfigured fencing is of a similar specification and design type to the fencing currently in place.

The design, height and construction of any additional gates within a perimeter fencing system should also match that of the adjoining fence and not compromise the overall security of the boundary. This appears to be the case in regard to the existing double-leaf gates at either end of the main car park and the pedestrian access gate. This should be replicated as the design progresses.



Example of existing fence and gate specification showing key aspects with gates at same height as fence, fence panels assumed to be '358', installation reducing gap under gate and between gate posts.

2.9 Drainage

Consideration should be given to drainage used within the project. Scupper drainage is present on the frontage of the proposed building aspect and this could act as a climbing aide. Attention should be given to ensuring drainage cannot be used to gain access to the roof and subsequently other areas of the college building.



Example of 3D illustration showing drainage



2.10 External Doorset Apertures & Door Locks

The security of doorsets in the proposed building should meet the following minimum standards:

- PAS 24:2016
- LPS 1175: Issue 7, SR2
- STS 201 or STS 202: Issue 3, BR2

It is expected that all doorset products are fit for purpose and therefore certification to the following material specific standards is also required:

- BS 6510:2010 (Steel)
- BS 7412:2007 (PVCu)
- BS 644:2012 (Timber)
- BS 8529:2017 (Composite)
- BS 4873:2009 (Aluminium)

It is important that doorset ironmongery to any external escape-only doors is permitted under the security certification - EN 179 and EN 13637. All escape only doors should be alarmed – with local alarm upon opened, with no external ironmongery allowing potential external entry.

Recessed doorways should, where possible, be avoided as they provide opportunities for crime and anti-social behaviour, for example graffiti, arson and burglary.

In the event that the building design or location requires such recesses, efforts should be made minimise such negative consequences. This may include a requirement for higher security rated doorsets, doorsets and surrounding building material to be fire retardant and anti-graffiti surface treatments to be applied to both.

Mechanical locking mechanisms incorporating cylinders (Euro or oval profile) must include an assessment to BS EN 1303:2015 (minimum requirements key security Grade 5, attack resistance Grade 0 and drill attack resistance Grade 2) or BS3621 (the lock standard for thief-resistant locks).

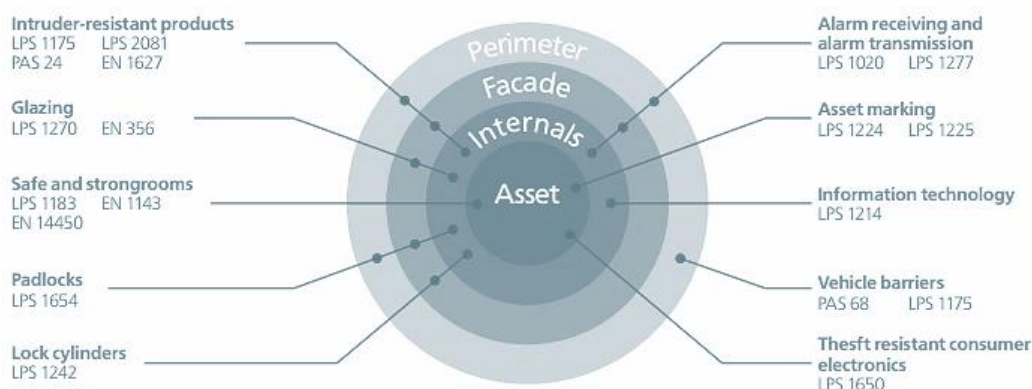
LPS 1175 issue 7 security ratings grade how effective a product is at delaying an attack.





LPS 1175 Security Ratings are the different categories the LPS 1175 standard defines the resistance grade of a physical security product. The performance ratings SR2 through to SR6 are designed to imitate different specific risk scenarios.

Below is a description of each LPS 1175 rating, including the attack time, attack duration and the attack tool specification:



Application		Minimum Performance Required	Notes
HIGH RISK Very high security Doorsets		LPS1175 Security Rating (SR) 6	Products certified to these security standards have resisted a series of professional attack tests each lasting up to 30 minutes using a wide variety of powerful mains operated tools.
		LPS1175 SR 5	
MEDIUM RISK Doorsets or Rolling Shutters for door and window openings.		LPS1175 SR 4	Products certified to these security standards have resisted a series of professional attacks, each lasting up to 30 minutes (SR 4) or 20 minutes (SR 3), using a wide variety of battery operated power tools.
		LPS1175 SR 3	
LOW RISK Doorsets, Rolling Shutters, Security Grilles or Windows for door and window openings.		LPS1175 SR 2	Products certified to these security standards have resisted a series of professional attacks, each lasting up to 15 minutes (SR 2 & PAS 24) or 10 minutes (SR 1) using a variety of hand tools such as hammers, crowbars, chisels and hacksaws.
		BS.PAS 24	
		LPS1175 SR 1 and 2 BS7950	
MINIMUM Locking devices for doors & windows.		BS3621 and EN1303 Grades 4-6	These standards cover the mechanical performance of the lock-set or cylinder for doors. They do not guarantee the resistance of the door to which they are fitted, although they can enhance the resistance to certain forms of attack.



2.11 Glazing Design Consideration

Attack-resistant glazing should be installed where the glazing is easily accessible. Ground floor windows should incorporate one pane of laminated glass to a minimum thickness of 6.8mm or glass successfully tested to BS EN 356:2000 Glass in Building / PAS 24. As outlined below, it is recommended that laminated glass should be selected as it provides significant improvement to overall protection as opposed to other forms of glazing. It is also deemed a more aesthetic alternative to security grilles.

Laminated glass in normal window frames:

As a general principle laminated glass should be specified for all new projects as it provides a significant improvement in blast resistance and protection for a minimal increase in cost. Compliance with Building Regulations for heat loss generally dictates the use of double-glazed units which are able to accommodate the increase in thickness required for laminated glass.

For single glazing not less than 6.8mm laminated glass should be used. In double glazed units (DGU) the inner pane should not be less than 6.8mm laminated glass and the outer pane should be a minimum of 6mm toughened or 6.8mm laminated glass. These dimensions relate to panes with maximum dimensions of approximately 1.5x1.2m. Where the pane dimensions are greater than this, guidance should be sought.

Where the glass may be impacted by people such as exterior glass facing public areas, then the glass should also be designed in accordance with BS 6262: Glazing in buildings - Part 4:2018 Safety related to human impact, which may require toughened laminated glass to be used for both panes.

Further slight improvements in safety may be achieved for laminated glass by selective strengthening of the glazing assembly, for example by adding fixing screws to beading and/or the frame.





2.12 External Lighting

External lighting is an important security and safety measure that provides assurance to legitimate users and a deterrent to possible offenders. The main principles of lighting are as follows:

- To deter offenders by creating a level of uncertainty
- To provide light to assist with the detection of possible intruders and unusual activity
- To avoid the creation of shadows and darker areas, which could present hiding places



Basic requirements

Whatever form of lighting is installed it must meet certain requirements in addition to the security function:

- It must not cause a hazard. Particular consideration must be given to drivers who may be travelling in the vicinity.
- It must not be a nuisance. As well as neighbours whose property may be illuminated consideration must be given to the wider community.
- It must be cost effective. Any installed security measure must give value for money and must be affordable to operate.
- It must be reliable. A system which is unreliable will soon be discredited, for lighting schemes this means giving advanced thought to how the system will be maintained.
- It must be safe. Many lamps contain toxic metals or other materials which can be a hazard to personnel or the wider environment if not controlled. Measures should be a clearly defined part of the maintenance regime.
- It must comply with Local Authority and other statutory requirements. Since the Clean Neighbourhoods and Environment act allowed 'Light' to be treated in the same way as 'Noise', systems installed must be able to withstand challenge regarding their design.

Lighting is clearly present when assessing the site images. A continuation of a good lighting design should be applied for the proposed building and the external areas.

A good lighting system is one designed to distribute an appropriate amount of light evenly with Uniformity Values of between 0.25 and 0.40 using lamps with a rating of at least 60 on the Colour Rendering Index. Good lighting will use energy efficient lamps in suitable luminaries. These luminaries will be positioned to minimise any light pollution so as to provide a high-quality system only when and where required.

All street lighting for adopted highways and footpaths, private estate roads and footpaths and car parks must comply with BS 5489-1:2013. Where conflict with other statutory provisions occurs, such as developments within conservation areas, requirements should be discussed with the local DOCO and the local authority lighting designers.

Bollard lighting is purely for wayfinding and can be easily obscured. It does not project sufficient light at the right height making it difficult to recognise facial features and as a result causes an increase in the fear of crime. It should be avoided.



Trees may restrict the performance of street lighting by blocking light or causing damage through collision with branches and should not be located within 5 metres of a lighting source. Account must be taken of the effects of seasonal variations on planting when designing such schemes.

2.13 General Lighting Principles

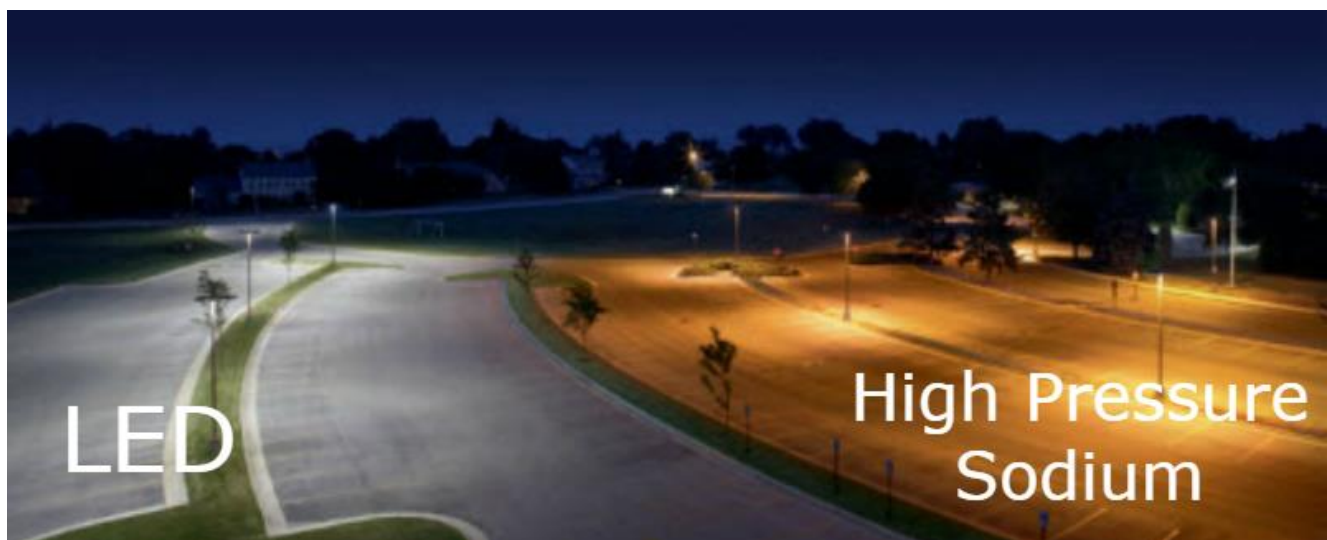
Good lighting is essential, both as a security measure and as a valuable aid to creating a safe environment and so to reduce fear in people using the site. The security lighting will provide sufficient light for the security systems to operate correctly to their design performance and for the operators to be able to undertake their tasks. Lighting is also essential for correct operation of Video Surveillance Systems (VSS).

Lighting requirements that should be considered for the site are as follows:

- Lighting must provide a level of illumination that is higher than the surrounding conditions, when required, and shall be activated permanently or switched via manual or system interfaces.
- Lighting levels must be sufficient to allow for the detection of security incidents either directly or while viewing CCTV monitors.
- Exterior lighting design must be integrated with landscaping features to avoid creating dark or shadowy areas.
- Exterior lights must be protected against tampering or vandalism with protective lenses and secured switch boxes; cabling must be housed in a metal conduit.
- All local codes (that exceed requirements described) must be met.
- Security lighting must be on a separate, independent backup power system and switch boxes must be secured.
- The minimum operational value of illumination is 3.0 lux as per CPNI guidance for external lighting.
- Recognition of lamp output variance, a more practical specification is 5.0 lux, with 3.0 lux being the 'operational capability' taking into account dirt build-up, and lamp variance as per CPNI guidance.

Emergency lighting should automatically engage on a loss of mains power, the system will change within 10 seconds and shall be a minimum of 10 lux and shall remain illuminated for a minimum of 90 minutes.

Example of difference between LED white light and sodium lighting:

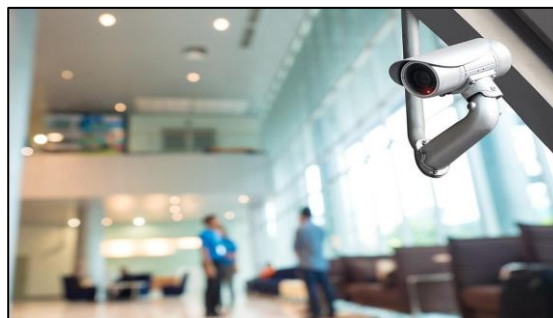




2.14 Video Surveillance System

Installing VSS (Video Surveillance System) equipment within the project footprint will potentially deter crime and anti-social behavior in these areas and will provide a visual record of who has entered and exited the building.

Adequate lighting to ensure the area outside buildings is well illuminated provides a welcoming safe environment, while limiting areas of shadow where criminal activity can take place. Careful coordination of lighting schemes with VSS is essential at an early design stage.



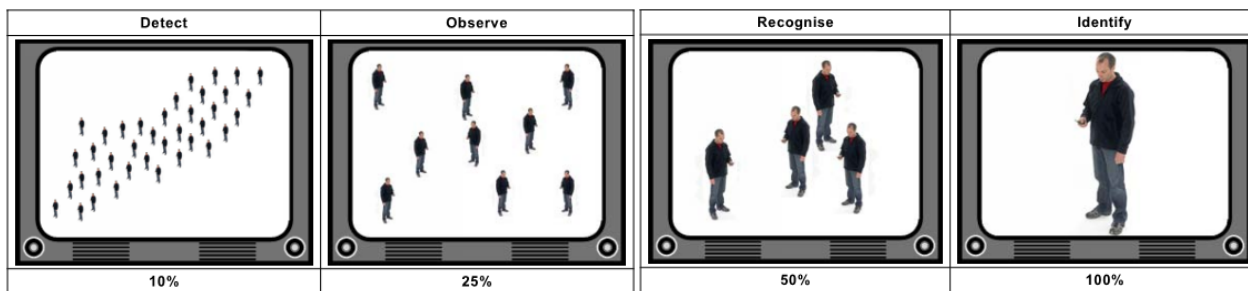
Installation of an IP VSS system utilising a high resolution digital recording system will assist the following:

- Reduction of criminal incidents by increasing the risk of an offender being caught in the act or being investigated post-event and linked to a crime.
- Collection of digital video evidence that can be used to convict offenders.
- Provide visual insights and real-time data such as people counting of visitors entering the building that support fire safety and evacuation plans.
- Providing a safe and secure environment for users. VSS can act as a deterrent to prevent any incidents that could result in threats made against staff, students or other visitors and site users.
- Provide evidence against false claims of injury, criminal incidents or harassment.

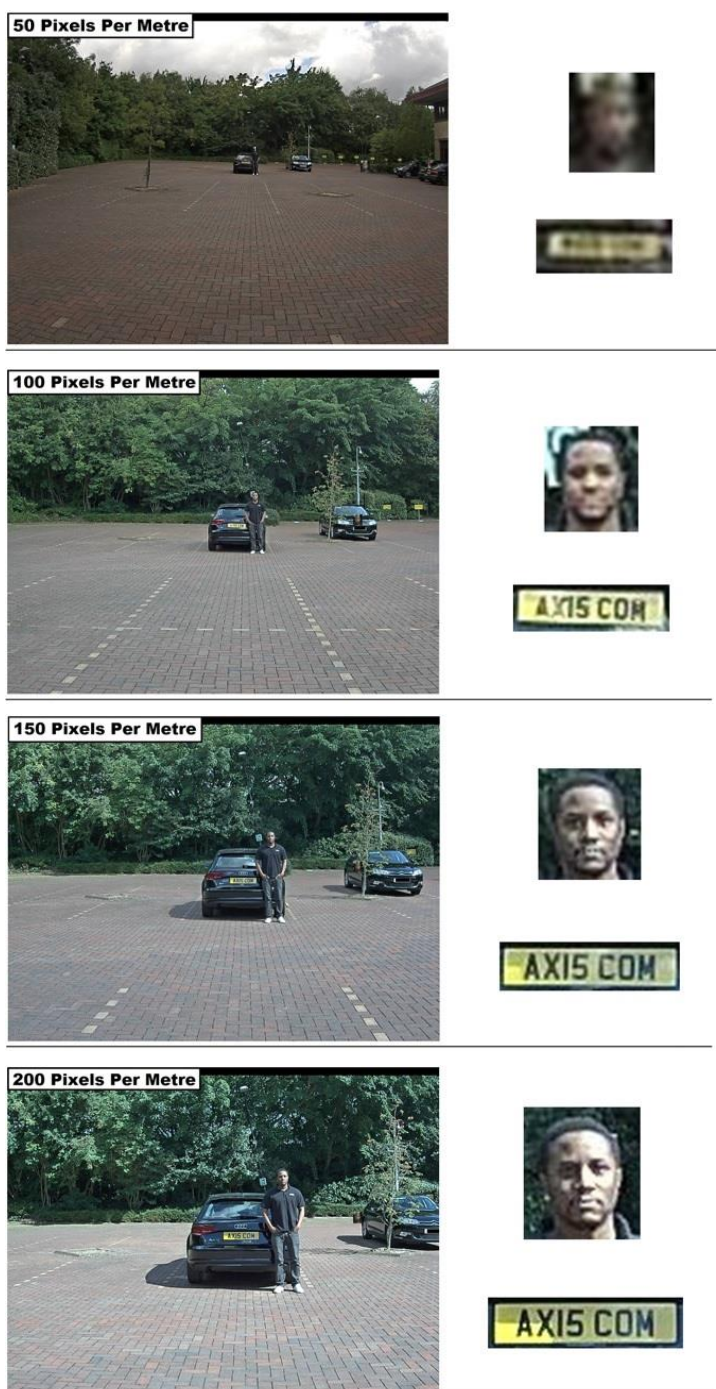
VSS operational requirements define the specific requirements of each camera located around the site. The requirements generally fall into four main categories:

Detect	After an alert an observer would be able to search the display screens and ascertain with a high degree of certainty whether or not a person is there.	50 pixels/M
Observe	At this scale, some characteristic details of the individual, such as distinctive clothing, can be seen, whilst the view remains sufficiently wide to allow some activity surrounding an incident to be monitored.	100 pixels/M
Recognise	Viewers can say with a high degree of certainty whether or not an individual shown is the same as someone they have seen before.	150 pixels/M
Identify	Picture quality and detail should be sufficient to enable the identity of an individual to be established beyond reasonable doubt.	200 pixels/M

Good practice is to ensure entrance points to buildings are covered with a camera capable of achieving 200 pixels per metre to ensure an unknown person entering can be successfully identified. At present, there are no 'official' standards regarding pixel density and its relation to image purposefulness at time of writing. The indicated purposefulness of each image is based on interpretation of what currently seems to be the accepted standards in the UK security industry. Previously, analogue technology was based on the percentage height level of detail of a person filling the CCTV monitor as shown on the following page.



With the development of IP technology, pixels per metre are now used as a measure of operational requirements when specifying and designing CCTV systems. Some examples of pixels per metre are shown below:



Cameras capable of achieving 200 pixels per metre on the entry point to the proposed building should be considered to identify people entering.



2.15 Access Control System (ACS)

ACS should be considered for the proposed building so that legitimate users can control who can enter the building and when access is permitted. It is assumed that the building entrance will be sensor-controlled or controlled via intercom access at specified times, however, access control should be applied to the main entrance and other doors within the building. Keys can be lost, stolen or copied, leaving assets vulnerable and requiring expensive change of locks. If an electronic access control card is stolen or lost, access rights can be immediately cancelled, and a staff member or student can be reissued with a low-cost smart card as a replacement.



There are generally four grades of access point grading:

Grade	Rating	Typical Technology Type
1	Low Risk	Card reader with electronic lock – stand-alone
2	Low to Medium Risk	On-line system using card reader with electronic lock
3	Medium to High Risk	On-line system using card reader + keypad with electronic lock
4	High Risk	On-line system using card reader + biometric reader with electronic lock

Grade highlighted to reflect recommended level for the mixed-use buildings.

It was noted from the site images that an existing access control system is in place. This appears to be a contactless card or fob system that operates between the central access control server and the electronically controlled doors.

The access control system should integrate with the existing system to avoid the requirement for two different user cards or fobs. The access control system should utilise a TCP/IP network infrastructure for communication. Door controllers should be capable of operating independently of the main server, with a minimum of 4-hours battery backup integral to each door controller so the system will continue to work during a mains power supply failure. Users could be issued with contactless cards or fob to gain access to specific areas of the building that are not accessible to visitors or members of the public.

Where feasible, the ACS should be integrated with the CCTV system for the building.



The project should include the following types of reader as highlighted based on ACS grade:

Low security

- Digilock



Low to medium security

- Card reader



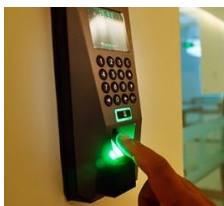
Medium to high security

- Card reader + keypad



High Security

- Card reader + fingerprint



The proposed access card system should utilise contact-less smart card technology operating at 13.57MHz. The cards will allow access to various areas based on the user's authorisation level. Access cards can also be printed with the user's details, including a full colour photograph if necessary, and can serve as both an identification card and an access card when required for staff and students.

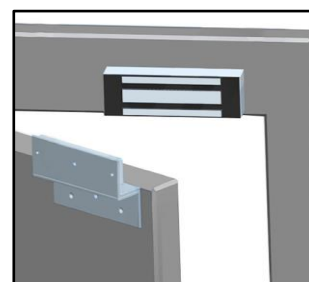
Solenoid Locks

Handle controlled solenoid locks fitted within wooden or metal doors are recommended for selected doors around the building. The locks can be electrically controlled by the access control system. The locks can be used in both exit doors and fire rated doors (EN). Only the handle on the none-secure side will be controlled, the lock can always be opened by inside handle.



Electromagnetic Locks

Electromagnetic locks are recommended for wooden or metal doors on selected doors around the building. The locks can be electrically controlled by the access control system. The locks can be used in both exit doors and fire rated doors (EN). When the lock is energised, the door will not open, when power is removed the door will be openable. This type of door is considered fail safe.



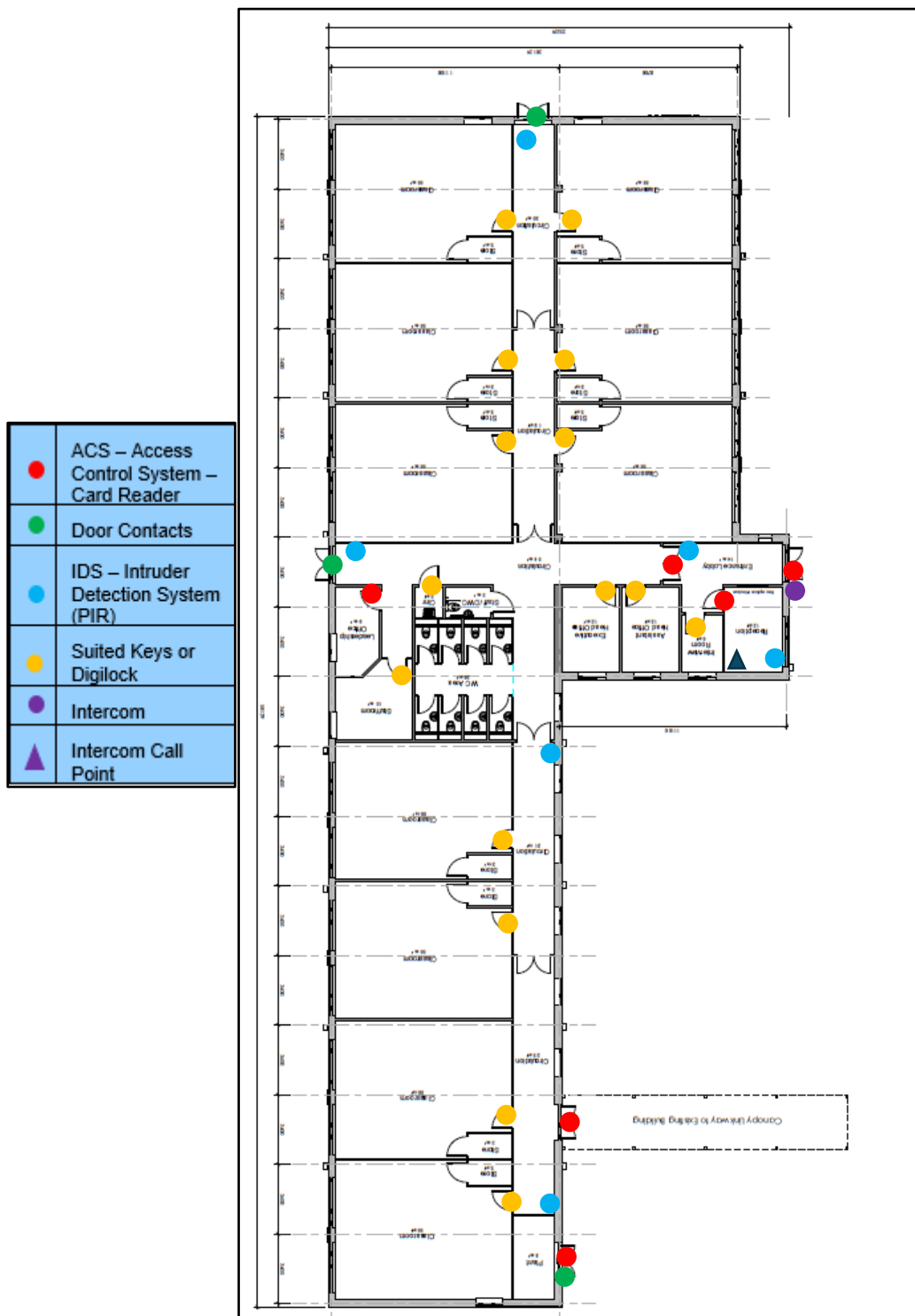


A flexible access control system could be utilised in this environment, to allow different area locking mechanisms and access groups to be changed if additional users and staff require differing lengths and types of access.

An access control strategy for the mixed-use buildings should be further considered and developed as the project progresses.

The below is an example-only of the anticipated access control measures that should be considered in order to manage and conceptualise movement around the proposed building. *This is a basic example only and should be further developed.*

IDS (Intruder Detection Systems) should be considered for when the centre is not in use. Door contacts are recommended for the fire exits and critical asset areas to annunciate locally in the event of forced opening.





2.16 ACS Standards & Building Regulations

Any door that is defined as an escape door must be fitted with escape-compliant hardware. This will need to be appropriate to the risk in the specific application, which is governed by the type of user and the number of users who may need to escape through the door. Approved Doc B of the building regulations states that a single operation to unlock and open the door is the best method of egress, and solutions which achieve this will be CE Certificated to either BS EN 179 for emergency escape or BS EN 1125 for panic escape.

Currently under the requirements of the Construction Products Regulation, which is European legislation embedded into UK law, it is mandatory to fit CE certificated hardware to a fire-rated or escape door where it falls under the scope of a harmonised European standard. In order to comply with the UK building regulations, the installation must comply with the Construction Products Regulation.

With regards to the use of an electromagnetic lock or a fail unlocked electric strike that has to be electrically unlocked to allow escape, there is a new standard that applies. This is BS EN 13637 'Electrically Controlled Exit Systems For Use on Escape Routes' which is a published standard (published in 2015) and will be considered best practice. The use of any electromagnetic lock or electric strike must be as part of an Escape Door System (EDS) which conforms to the requirements of this standard in order to be a best practice solution.

App Doc B of the building regulations does still allow the use of a magnet and a green break glass solution. However, the specifier, installer and building operator will be liable for the performance of the locking solution as an escape solution. If they were called to do so following an incident, they would have to confidently be able to prove that the solution they provided was fit for purpose.

In the building regulations, there is now the addition of Approved Document 7 which deals with 'Workmanship and Materials'. Therefore, the need would be to satisfy the requirements as defined within this document, as to whether the solution is designed for the purpose, using adequate and proper materials which are appropriate for the circumstances in which they are applied, used or fixed so as adequately to perform the functions for which they are designed.

The best way of providing this evidence is the CE certification or third party assessment to a known and published performance standard e.g. BS EN 13637.

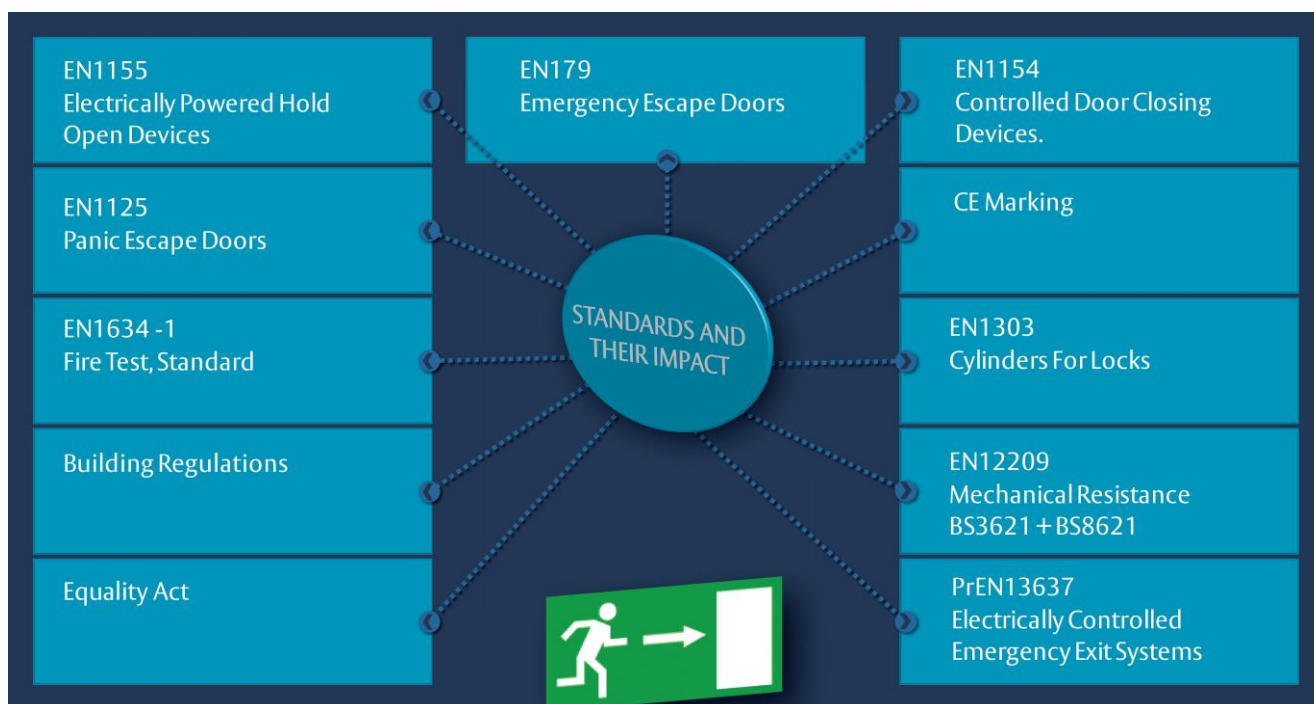
An electromagnetic lock, magnetic lock, or maglock is a locking device that consists of an electromagnet and an armature plate. There are two main types of electric locking devices. Locking devices can be either "fail safe" or "fail secure". A fail-secure locking device remains locked when power is lost. Fail-safe locking devices are unlocked when de-energised.



Another consideration when defining the solution to be used should be the security of the site. It is not recommended to use fail safe electric locking solutions such as electromagnetic locks or electric strikes which fail unlocked on external perimeter doors as in the event of a power failure the building will become insecure.

The publicly available TS010 technical performance standard quite clearly details that an electromagnetic lock must be part of an EDS to BS EN 13637 if it is used on an escape door (the same principle applies in that the door is electrically released), so this is another document that is publicly available that confirms the above statements.

The following abbreviations, glossary of terms and associated listed standards are of relevance and applicable should be applied to all new access control installations at the development:



DDA

Disability Discrimination Act now superseded by the Equality Act.

Equality Act

Created for equal opportunities in the workplace and in wider society, covering access to buildings for people with disabilities.

BS EN179

Emergency Escape Doors. Applies to areas of a public building that are non-public areas with trained staff.

BS EN1125

Panic Escape Doors. Applies in public areas (assemblies).

EN 1303

Cylinder resistance to physical attack, durability and key security.

EN 12209

Mechanical resistance for mechanically operated locks, latches and locking plates.

EN 14846

Covering both electric locks and electric striking plates, allowing the specification of electric locking to defined levels of security and durability.

EN 1634-1

Fire test classification 30 or 60 minutes.

BS EN 60839-11-1:2013

Alarm and electronic security systems. Electronic access control systems. System and components requirements.



2.17 Intruder Detection Systems (IDS)

IDS Grade

Four grades of IDS exist, based on increasing levels of resilience against attack by intruders with anticipated levels of knowledge and tools.

Grade 1: Intruders expected to have little knowledge and limited tools. Alarm is suitable for a low risk

Grade 2: Intruders expected to have limited knowledge and some tools. Alarm is suitable for a low to medium risk

Grade 3: **Intruders expected to have knowledge and full range of tools. Alarm is suitable for medium to high risk.**

Grade 4: Intruders expected to have sophisticated knowledge and tools. Alarm is suitable for a high risk.

EN 50131 defines four grades of IDS, 4 being the highest. The grade is measured by how resilient the alarm system is to attacks by intruders and other outside influences. All components of the system are graded, including the control panel, motion detectors (PIRs) and signaling equipment.

Whilst most security installers will design a system using components of the same grade, it may sometimes be appropriate to mix grades of components. However, the overall system will be graded of that of the lowest graded component. Most commercial premises will require a Grade 2 or 3 alarm system.

The majority of insurance companies require a Grade 3 where the system is a requirement of insurance cover. A Grade 3 system with dual path signaling is recommended for this development, however, this should be confirmed with the relevant building insurer prior to implementation.

Consideration should be given to installing IDS for proposed building so that it can be alarmed out of hours.





Police Response Levels

Police response is only available on professionally monitored alarm systems, installed to EN 50131 standards. Often referred to as a Type 1 alarm, which meets required criteria.

A police response alarm is not directly connected to the police, instead it is connected to an Alarm Receiving Centre (ARC). The ARC's role is to monitor the alarm system, and in the event of an alarm activation, analyse the signals sent from the activated alarm, and if the required criteria is met, contact the police.

A Unique Reference Number (URN) is required for all police response alarms. The unique number is a police identifier specific to the property. The ARC will pass the URN to the police once a police response is deemed required.

There are two main levels of police response in the UK; Level 1 and Level 3

Level 1 – Immediate Response (subject to priorities)

Level 2 – No longer applicable

Level 3 – No Police Response (withdrawn) due to three false alarms within a 12-month rolling period

A PD 6662 monitored system, at Grades 2,3 or 4, is vital to obtain a police URN.

Liaison with NSI, insurers, and Greater Manchester Police/ SBD is advisable prior to engaging ARC services.

SECTION 3 | RECOMMENDATIONS



1. Implementation of Crime Prevention Through Environmental Design (CPTED) principles outlined in Sections 2.6 and 2.7 in relation to landscaping and applying CPTED principles to enhance the security of the development and support existing CPTED identified via images and drawings provided.
2. Routes for pedestrians, cyclists and vehicles should consider CPTED elements particularly in relation to Natural Access Control and Natural Surveillance within the car park areas and building frontage.
3. Consideration should be given to applying crash-rated street furniture and HVM measures outside the building façade to protect it and users from accidental, or unlikely deliberate, vehicle impact.
4. Reconfiguration of the fenceline as part of the design should include fencing to LPS 1175 standards and align to the existing perimeter in place.
5. Drainage should avoid a scupper drainage design that could be used as a climbing aid, as highlighted in Section 2.9
6. Doors to the development should be designed to be attack resistant to delay a potential intruder, to a standard such as LPS 1175, as referenced in Section 2.10.
7. Glazing considerations should be applied as outlined in Section 2.11
8. All external lighting for the development should comply with BS 5489-1:2013. General lighting should be designed to create a safe and secure environment that supports the use of video surveillance cameras in low light conditions as per Sections 2.12-2.13.
9. Installation of Video Surveillance Systems (VSS) to the site to deter criminal activity and provide digital evidence in the event of an incident as per Section 2.14.
10. Installation of Access Control System (ACS) to allow access to authorised site users and restrict access to non-authorised users as illustrated in Section 2.15.
11. Installation of Intruder Detection Systems (IDS) within the development as outlined in Section 2.17
12. Ensure the ACS design fully integrates with the building fire strategy, ensuring a balance is struck between life safety and security of the development.

SECTION 4 | SECURITY STANDARDS



PAS 24: 2016: Enhanced security performance requirements for door sets and windows in the UK. Door sets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk:

PAS 24:2016 is a Product Assessment Specification and a primary reference in the Building Regulations Approved Document Q1.

This standard specifies test methods and acceptance criteria relevant to the enhanced security performance of door sets and windows intended to resist methods of attack experienced or associated with the casual or opportunistic burglar.

STS 201: Enhanced security requirements for door sets to satisfy the requirements of PAS 24 – Warrington Certification:

This standard defines the technical requirements for certification of door sets, tested in accordance with PAS 24 and BS 6375.

The type of door sets to be certified are defined in PAS 24.

This standard is intended to cover security performance, as well as general or material specific performance including weather, operation and strength requirements.

STS 202: Burglary resistance requirements for construction products including door sets, windows, curtain walling, security grilles, garage doors and roller shutters – Warrington Certification:

This standard defines the technical requirements for classification of burglary resistance and general performance.

This standard is intended to cover but is not limited to door sets, windows, curtain walling, security grilles, garage doors, roller shutters, and also other construction products where burglar resistance is a requirement.

This standard does not provide for certification against European standards EN 14351-1, prEN 14351-2, prEN 16034 for doors & windows and EN 13241-1 for industrial and commercial doors & gates.

BS 6510:2010 (Steel): Steel-framed windows and glazed doors - specification:

Covers requirements relating to the design and fabrication of steel-framed windows and glazed doors.

BS 7412:2007: Specification for windows and door sets made from unplasticised polyvinyl chloride (PVC-U) extruded hollow profiles:

Gives performance and design requirements for PVC-U extruded hollow profiled windows and glazed door sets. Applies to profiles that incorporate fusion welded corner joints. Covers components, appearance and finishes, fabrication, glazing, use, cleaning and maintenance, security, safety, weathertightness, operation and strength characteristics, hygiene, health and the environment, acoustic performance and energy conservation.

BS 644:2012: Timber windows and door sets. Fully finished factory-assembled windows and door sets of various types - specification:

Provides design, construction, performance requirements for fully finished and glazed factory-assembled timber windows and external pedestrian door sets of various types.

BS 8529:2017: Composite doorsets - domestic external doorsets – specification:

Details design, construction and performance requirements for domestic external composite doorsets and is applicable for hinged single and double leaf doorsets.

Covers: handing, components, appearance and finish, glazing, installation, use, cleaning and maintenance, security, safety, weathertightness, acoustic and energy conservation.



BS 4873:2016: Aluminium alloy windows and doorsets – specification:

Provides design, construction and performance requirements for aluminium alloy windows and external pedestrian doorsets. Applicable to hinged, projecting, pivoted, sliding, fixed lights and casement, parallel opening, double opening French casement, louvered windows and single-leaf single-swing, double-leaf single-swing, single track sliding and single-track folding doors.

EN 1303:2015: Building hardware. Cylinders for locks. Requirements and test methods:

This European Standard applies to cylinders and their keys for such locks as are normally used in buildings and are designed to be used with cylinders, where the locks have an operational torque of maximum 1,2 Nm. This European Standard specifies performance and other requirements for the strength, security, durability, performance and corrosion resistance of cylinders and their original keys.

The standard establishes one category of use, three grades of durability, three grades for fire and four grades corrosion resistance all based on performance tests as well as six grades of key related security based on design requirements and five grades on performance tests that simulate attack.

This European Standard includes tests of satisfactory operation at a range of temperatures. It specifies test methods to be used on cylinders and their protective measures linked with these cylinders and recommended by the manufacturer. Corrosion resistance is specified by reference to the requirements of EN 1670 on corrosion resistance of building hardware.

The suitability of cylinders for use on fire or smoke-door assemblies is determined by fire performance tests conducted in addition to the performance testing required by this standard. Since suitability for use on fire doors is not essential in every situation the manufacturer has the option to state if the cylinder conforms to these additional requirements or not. If so claimed, cylinders will comply with the requirements in Annex A.

Assessment of fire resistance of grade 1 doors is beyond the scope of this document. On occasions there may be a need for additional functions within the design of the cylinder. Purchasers should satisfy themselves that the products are suitable for their intended use.

BS EN 12209: 2016: Building hardware – locks and latches – mechanically operated locks, latches and locking plates:

This European Standard specifies requirements and test methods for durability, strength, security and functionality of mechanically operated locks and their locking plates: a) for use in doors in buildings; b) for use on fire and smoke compartmentation doors fitted with door closing devices, to enable such doors to close reliably and thus achieve self-closing in the event of fire; and c) for use on locked fire doors to maintain the fire integrity of the door assembly.

This European standard covers locks and their locking plates which are either manufactured and placed on the market in their entirety by one producer or produced by more than one producer or assembled from sub-assemblies produced by more than one producer and designed to be used in combination.

This European Standard specifies mechanically operated locks and locking systems intended for use in different environmental and security conditions, thus necessitating different grades. This European standard does not specify Multipoint locks or their locking plates which are specified by prEN 15685.

This European Standard specifies the dimensions and properties required for security Assessment of the contribution of the product to the fire resistance of specific fire resistance and/or smoke control door set assemblies is beyond the scope of this European Standard.

BS EN 14846: 2008: Building hardware. Locks and latches. Electromechanically operated locks and striking plates. Requirements and test methods:

This standard details only those requirements and test methods that are relevant to the electrical / electronic components of electromechanically operated pedestrian door locks and/or their associated striking plates (but not permanent magnet or electromagnetic devices). Requirements and test methods for assessing purely mechanical features (e.g. resistance to side load on bolt) are covered by reference to BS EN 12209.

**BS EN 1906:2012: Building hardware. Lever handles and knob furniture. Requirements and test methods:**

This European Standard specifies test methods and requirements for spindle and fastening elements, operating torques, permissible free play and safety, free angular movement and misalignment, durability, static strength and corrosion resistance for sprung and unsprung lever handles, knobs for doors, push pads and similar devices in combination with backplates or roses operating latches.

This European Standard is applicable only to lever handles and knobs that operate a latch or a lock and other devices. It specifies four categories of use according to frequency and other conditions of use.

BS 3621:2017: Lock assemblies operated by key from both the inside and outside of the door:

This standard gives performance requirements and test methods for thief resistant mechanically operated single-point lock assemblies, covering locks, cylinders, lock assembly vulnerability and assessment, differs and master keyed locks.

BS EN 12608-1:2016: Unplasticised poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods. Non-coated PVC-U profiles with light coloured surfaces:

This standard specifies the classifications, requirements and test methods for non-coated unplasticised poly(vinyl chloride) (PVC-U) profiles with light coloured surfaces intended to be used for the fabrication of windows and doors.

LPS 1175 (Loss Prevention Standard):

Requirements and testing procedures for the Loss Prevention Certification Board (LPCB) certification and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers.

LPCB's Loss Prevention Standards (LPS) are now widely recognised and applied in fire and security sectors around the world. LPCB offers third-party certification confirming that products and services have met and will continue to meet these standards. Full details of the Loss Prevention Standards (LPS) are available online.

<http://www.redbooklive.com/lps.jsp>

BS EN 60839-11-1:2013: Alarm and electronic security systems. Electronic access control systems. System and components requirements:

Includes the minimum functionality, performance requirements and test methods for electronic access control systems and components used for physical access in and around buildings and protected areas.

BS EN 60839-11-2:2015: Alarm and electronic security systems. Electronic access control systems. Application guidelines:

Includes the minimum functionality, performance requirements and test methods for electronic access control systems and components used for physical access in and around buildings and protected areas.

NCP 109 NSI Code of Practice for Planning, Installation and Maintenance of Access Control Systems, NSI:

NCP 109 Code of Practice for the design, installation and maintenance of access control systems is NSI's 'in house code of practice expressly written for installers of access control systems, and against which NSI will routinely audit NSI Gold and Silver approved companies to verify compliance.

It draws on the Equality Act 2010, British Standard BS 7273-4 for fire protection (activation of release mechanisms for doors) and BS 7671 for electrical installations, all key to safe and well-designed systems.



BS EN 50486 Equipment for use in audio and video door-entry systems:

This European Standard specifies the requirements for equipment installed in audio and video door-entry systems.

BS EN 1363-1:2020: Fire resistance tests. General requirements:

This document establishes the general principles for determining the fire resistance of various elements of construction when subjected to standard fire exposure conditions. Alternative and additional procedures to meet special requirements are given in EN 1363-2.

The principle that has been embodied within all European standards relating to fire resistance testing is that where aspects and procedures of testing are common to all specific test methods e.g. the temperature/time curve, then they are specified in this test method. Where a general principle is common to many specific test methods but the details vary according to the element being tested (e.g. the measurement of unexposed face temperature), then the principle is given in this document, but the details are given in the specific test method. Where certain aspects of testing are unique to a particular specific test method (e.g. the air leakage test for fire dampers), then no details are included in this document.

The test results obtained might be directly applicable to other similar elements, or variations of the element tested. The extent to which this application is permitted depends upon the field of direct application of the test result. This is restricted by the provision of rules which limit the variation from the tested specimen without further evaluation. The rules for determining the permitted variations are given in each specific test method.

Variations outside those permitted by direct application are covered under extended application of test results. This results from an in-depth review of the design and performance of a particular product in test(s) by a recognized authority. Further consideration on direct and extended application is given in Annex A.

The duration for which the tested element, as modified by its direct or extended field of application, satisfies specific criteria will permit subsequent classification.

All values given in this document are nominal unless otherwise specified.

BS EN 1364-1:2015: Fire resistance tests for non-loadbearing elements. Walls:

This European standard specifies a method for determining the fire resistance of non-loadbearing walls. This European Standard is used in conjunction with EN 1363-1. It is applicable to partitions (non-loadbearing walls) with and without glazing, non-loadbearing walls consisting almost wholly of glazing (glazed non-loadbearing walls) and other non-loadbearing internal and external non-loadbearing walls with and without glazing. The fire resistance of external non-loadbearing walls can be determined under internal or external exposure conditions. In the latter case the external fire exposure curve given in EN 1363-2 is used. It is not applicable to: a) curtain walls (external non-loadbearing walls suspended in front of the floor slab), unless explicitly permitted under EN 1364-3 or EN 1364-4 which shall contain details of the methodology to be used. b) non-loadbearing walls containing door assemblies which shall be tested to EN 1634-1. Specific requirements relating to the testing of glazing are given in Annex A. Specific requirements relating to the testing of non-loadbearing external and internal walls designed to span horizontally between two independently proven fire resisting vertical structural elements are given in annex B.

Disability Discrimination Act 1995:

The DDA is an Act of the Parliament of the United Kingdom which has now been repealed and replaced by the Equality Act 2010, except in Northern Ireland where the Act still applies. Formerly, it made it unlawful to discriminate against people in respect of their disabilities in relation to employment, the provision of goods and services, education and transport.

Equality Act 2010:

The Equality Act 2010 is an Act of Parliament of the United Kingdom with the primary purpose of consolidating, updating and supplementing the numerous prior Acts and Regulations, that formed the basis of anti-discrimination law in Great Britain.



BS EN 179: Building hardware - emergency exit devices operated by a lever handle or push pad, for use on escape routes. Requirements and test methods:

The main purpose of the performance requirements of this standard is to give safe and effective escape through a doorway with one single operation to release the device although this can require prior knowledge of its operation, i.e. for locked doors on escape routes where panic situations are not foreseen.

BS EN 1125: Building hardware. Panic exit devices operated by a horizontal bar, for use on escape routes. Requirements and test methods:

The main purpose of the performance requirements of this standard is to give safe and effective escape through a doorway with minimum effort and without prior knowledge of the device, i.e. for locked doors on escape routes where panic situations can be foreseen.

BS EN 62676-4:2015: Video surveillance systems for use in security applications. Application guidelines:

This standard gives recommendations and requirements for the selection, planning, installation, commissioning, maintaining and testing video surveillance systems (VSS) comprising of image capture device(s), interconnection(s) and image handling device(s), for use in security applications.

The objectives of this part of IEC 62676 are to: - provide a framework to assist customers, installers and users in establishing their requirements; - assist specifiers and users in determining the appropriate equipment required for a given application; - provide means of evaluating objectively the performance of the VSS.

BS EN IEC 62676-5:2018 Video surveillance systems for use in security applications. Data specifications and image quality performance for camera devices:

Describes representation and measuring methods of performance values to be used in user manuals and specifications of video surveillance camera equipment.

BS EN 50131: Intruder alarms and hold-up systems:

This European Standard is for intruder alarm systems and hold-up systems.

EN 50131 defines four grades of Intruder alarm system, 4 being the highest. The grade is measured by how resilient the alarm system is to attacks by intruders and other outside influences.

All components of the system are graded, including the control panel, detectors and signaling equipment.

The majority of insurance companies require a Grade 3 system where the system is a requirement of insurance cover.

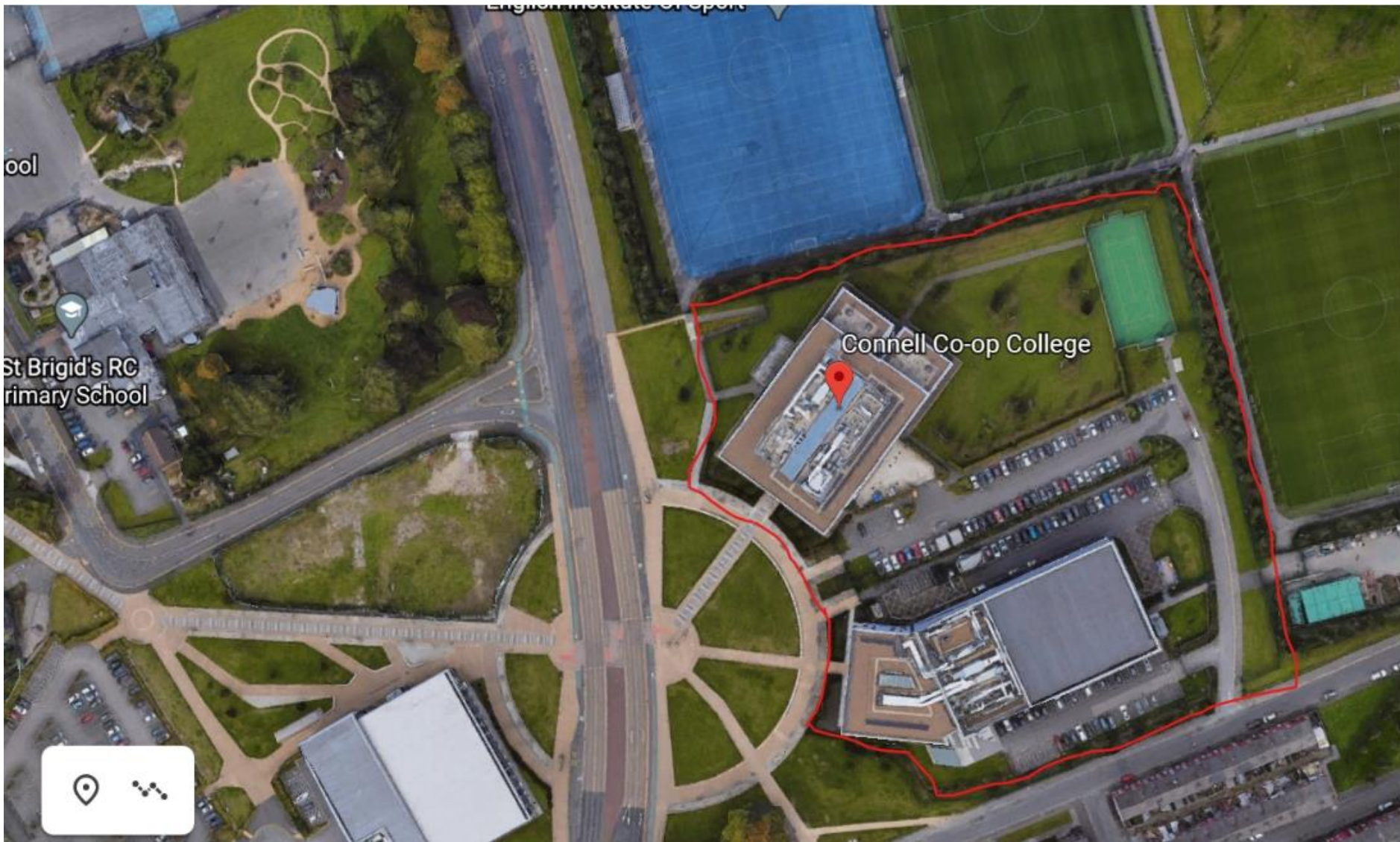
BS EN ISO 6385:2016: Ergonomics principles in the design of work systems:

ISO 6385:2016 establishes the fundamental principles of ergonomics as basic guidelines for the design of work systems and defines relevant basic terms. It describes an integrated approach to the design of work systems, where ergonomists will cooperate with others involved in the design, with attention to the human, the social and the technical requirements in a balanced manner during the design process. Applicable to the design of Security Control Rooms (SCRs) or VSS monitoring centres.

SECTION 5 | SITE PLANS & LAYOUT DRAWINGS

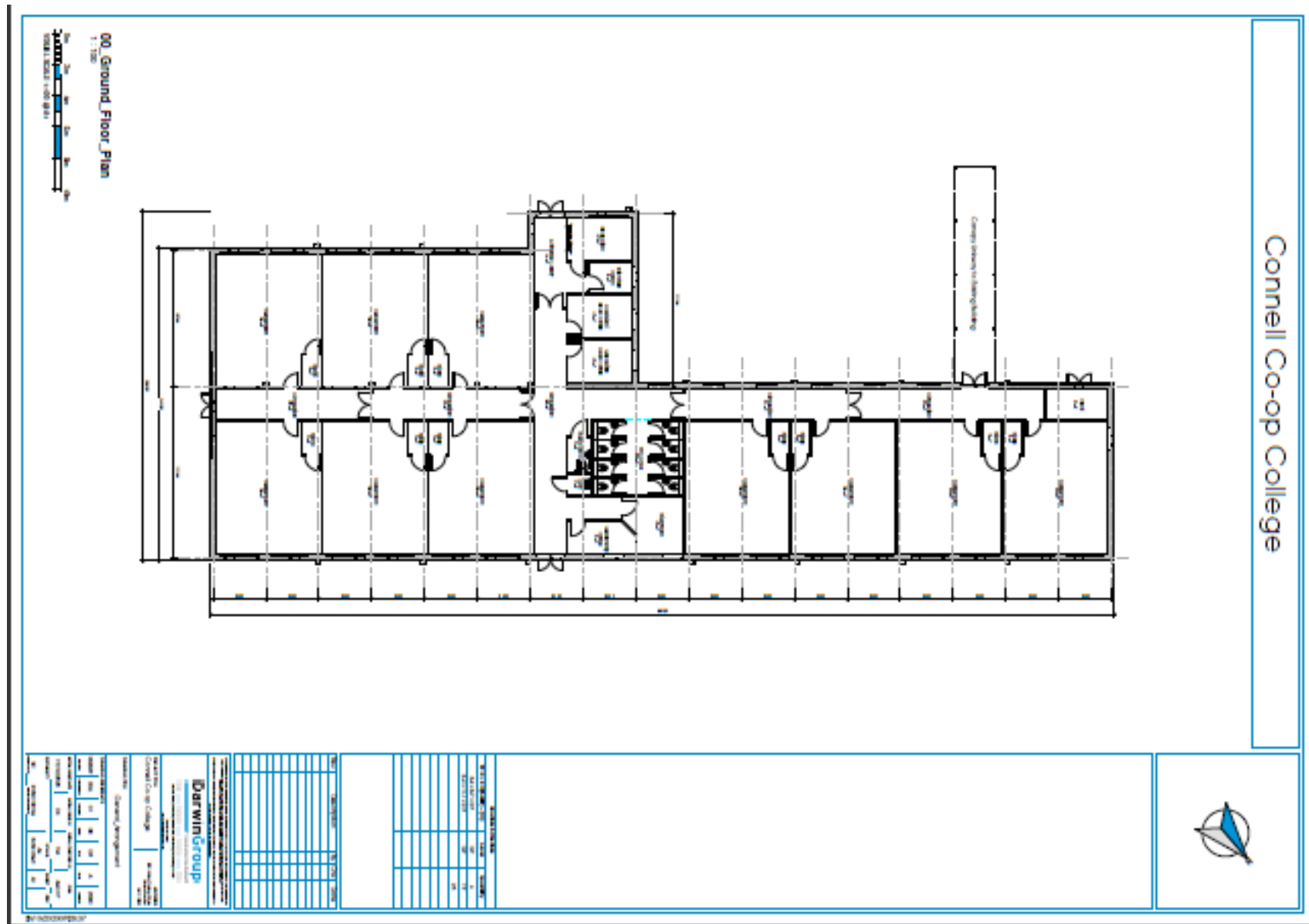


Proposed Site Plan



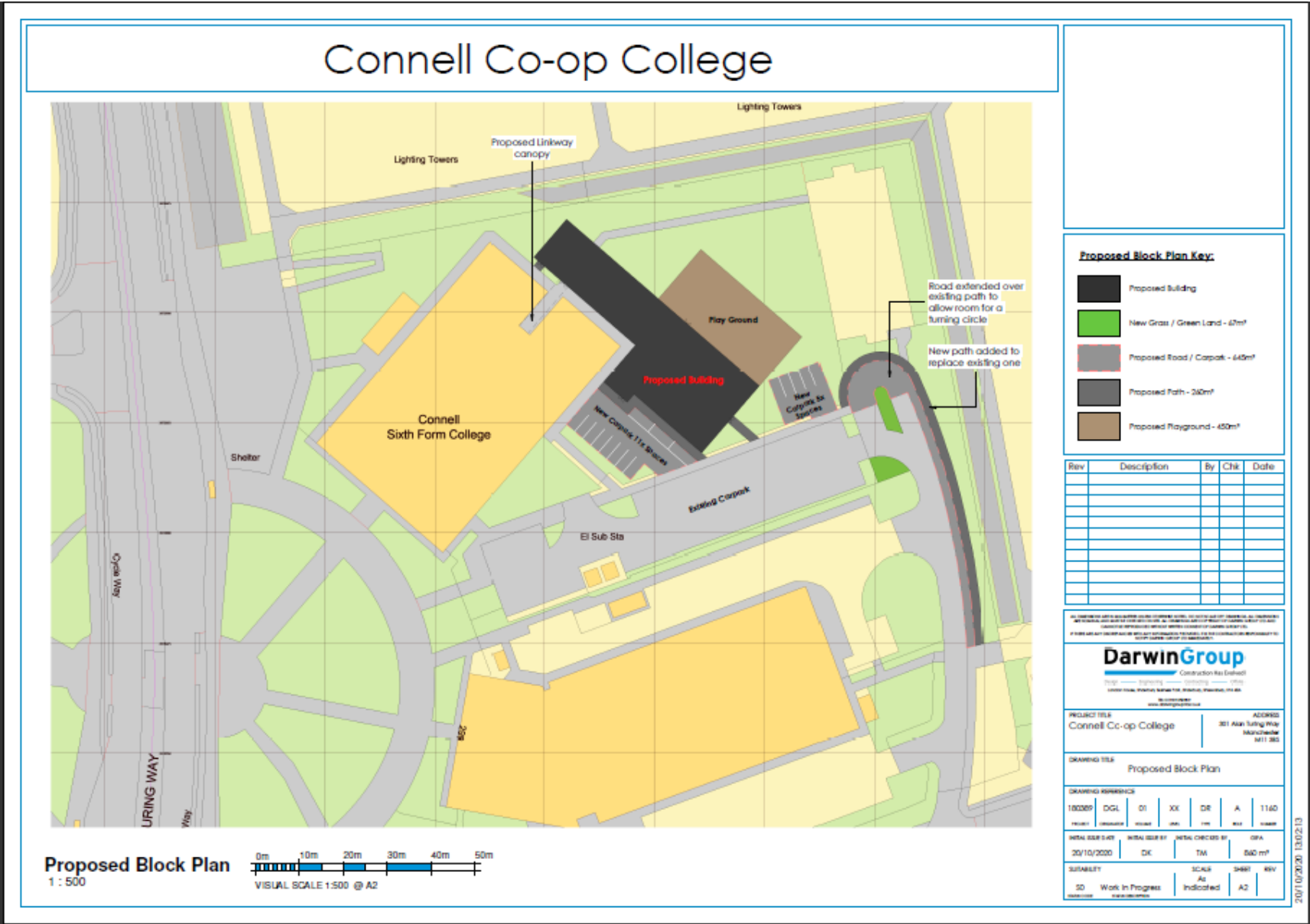


Proposed Ground Floor Plan



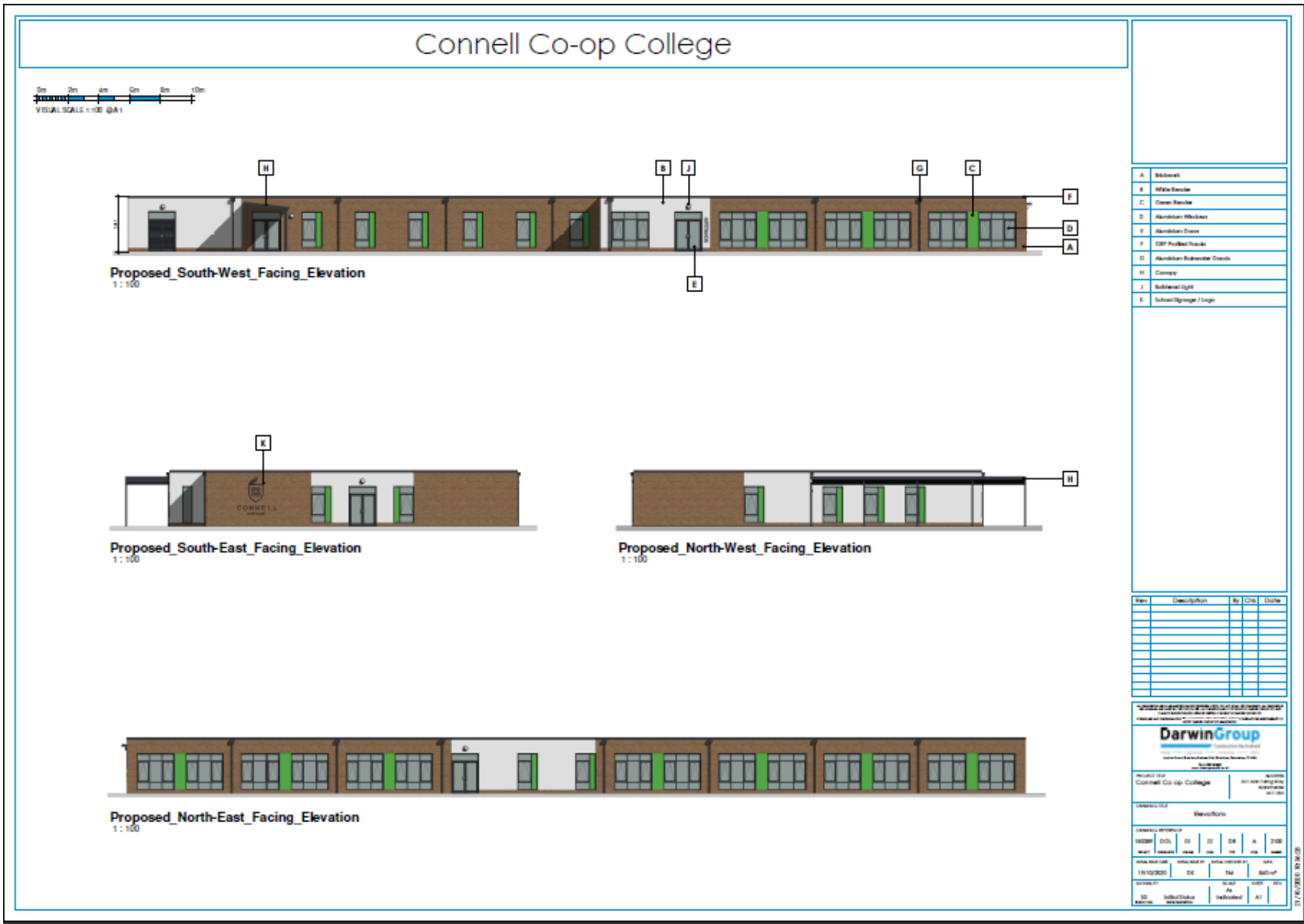


Proposed Block Plan





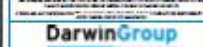
Proposed Elevation Plan



¹⁰ Please Note: 3D Visuals are for reference only. ¹¹

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4. 2008年12月1日，甲公司以公允价值为1000万元的固定资产换入乙公司公允价值为800万元的固定资产，另收到乙公司支付的补价200万元。假定不考虑相关税费，甲公司换入乙公司固定资产的入账价值为（ ）万元。



Page 10 of 10
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Student ID: Connell College	Name: Mr. [unclear] [unclear]
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353_Visuals

COMPONENTS OF THE SYSTEM						
COMPONENT	TYPE	SIZE	UNIT	VALUE	UNIT	VALUE
COMPONENT 1	TYPE 1	SIZE 1	UNIT 1	VALUE 1	UNIT 1	VALUE 1
COMPONENT 2	TYPE 2	SIZE 2	UNIT 2	VALUE 2	UNIT 2	VALUE 2
COMPONENT 3	TYPE 3	SIZE 3	UNIT 3	VALUE 3	UNIT 3	VALUE 3
COMPONENT 4	TYPE 4	SIZE 4	UNIT 4	VALUE 4	UNIT 4	VALUE 4
COMPONENT 5	TYPE 5	SIZE 5	UNIT 5	VALUE 5	UNIT 5	VALUE 5
COMPONENT 6	TYPE 6	SIZE 6	UNIT 6	VALUE 6	UNIT 6	VALUE 6
COMPONENT 7	TYPE 7	SIZE 7	UNIT 7	VALUE 7	UNIT 7	VALUE 7
COMPONENT 8	TYPE 8	SIZE 8	UNIT 8	VALUE 8	UNIT 8	VALUE 8
COMPONENT 9	TYPE 9	SIZE 9	UNIT 9	VALUE 9	UNIT 9	VALUE 9
COMPONENT 10	TYPE 10	SIZE 10	UNIT 10	VALUE 10	UNIT 10	VALUE 10

SECTION 6 | SUITABLY QUALIFIED SECURITY SPECIALIST (SQSS) EVIDENCE



Alan Meyrick, BA(Hons), MSc, CPP, CSMP, CCTP, MSyl, MISMI, MIAPSC



PROFILE

Alan is a highly-skilled security practitioner with 16 years of experience. With his knowledge of risk and security methodologies and theories he provides a robust underpinning to the consultancy work he undertakes, allowing him to deliver risk-based projects across numerous environments and sectors.

Alan has successfully transitioned his own roles, focusing on delivering risk assessments and risk analysis products for transnational clients, and providing support to fee-paying clients in the sports and leisure services, financial and petrochemical industries.

Alan's area of expertise includes the application of Risk Management and the Risk Assessment cycle (ISO 31000), Crime Prevention Through Environmental Design (CPTED), Situational Crime Prevention paradigms and Counter-Terrorism Strategy.

COMPLETED KEY PROJECTS

- **Etihad Rail Deutsche Bahn, UAE** – Consultant Lead for Security Strategy, Security Policy and Procedures
- **Dishoom Restaurant Chain** – Full Threat and Risk Assessment across portfolio, creation of Security Strategy documentation
- **Queen Mary University London** – Full Threat and Risk Assessment across all five campuses, creation of Security Strategy documentation
- **Hyatt, Abuja, Nigeria** – Threat and Risk Assessment, Gap Analysis, and Concept Design
- **Hyatt, Lagos, Nigeria** – Threat and Risk Assessment, Gap Analysis and Concept Design
- **Marriot, Abuja, Nigeria** – Threat and Risk Assessment, Gap Analysis and Concept Design
- **Jarir Commercial Investments, Saudi Arabia** – Threat and Risk Assessment, Gap Analysis and Concept Design
- **BMW, UK** – Threat and Risk Assessment
- **LAU-Rizk Hospital, Beirut, Lebanon** – Threat and Risk Assessment, Security document review and assessment
- **BRE** – SABRE Assessment
- **Natl Amusements** – Emergency Management Plan creation, Business Continuity Plan creation, Security documentation creation – Strategy documentation, Policies and Procedures
- **Metaswitch Head Office, London** – Threat and Risk Assessment, Gap Analysis, and Concept Design
- **Ecclesiastical Insurance Head Office, Gloucester** – Threat and Risk Assessment, Gap Analysis and Concept Design
- **Nordic Entertainment Group Head Office, London** – Threat and Risk Assessment
- **Multiple Clients** – Leeds, York, Doncaster, London, Hastings, Portsmouth – Security Needs Assessment (SNA)

PROFESSIONAL QUALIFICATIONS

MSc Security and Risk Management – University of Leicester
 Certified Security Management Professional (CSMP)
 Certified Counterterrorism Practitioner (CCTP)
 Certified Protection Professional (CPP) -ASIS

PROFESSIONAL MEMBERSHIPS

Member of the Security Institute (MSyl)
 Member of the International Security Management Institute (ISMI)
 Member of the American Society for Industrial Security (ASIS)
 Member of the Association of Security Consultants (MIAPSC)



PROFESSIONAL CERTIFICATION BOARD

VERIFIES THAT

Alan H. Meyrick, CPP

HAS RECERTIFIED AS A

CERTIFIED PROTECTION PROFESSIONAL

THROUGH

December 2018

15787

Certification Number



PCB President





University of
Leicester

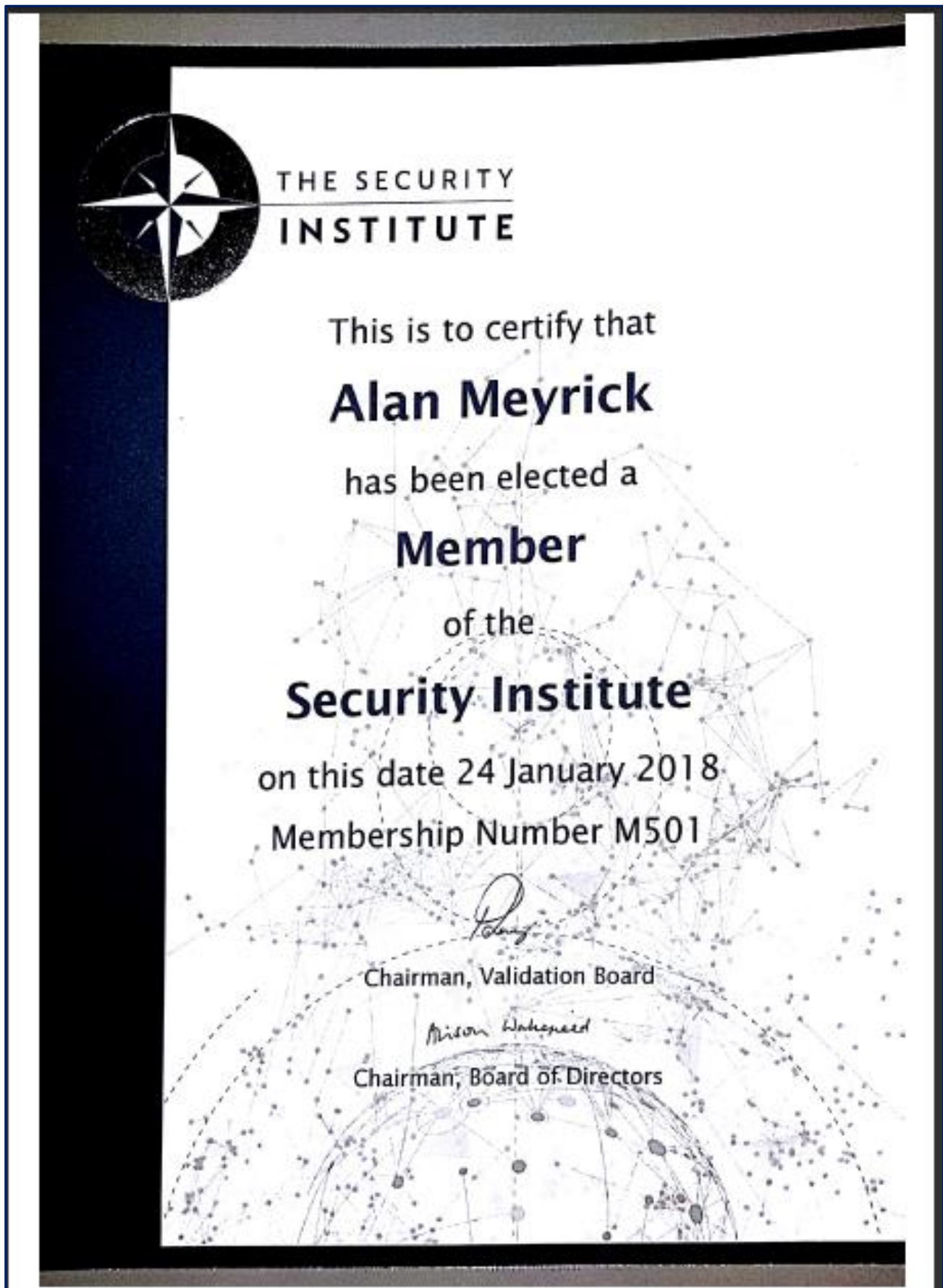
FACULTY OF THE SOCIAL SCIENCES

It is hereby certified that
Alan Henry John Meyrick
was admitted to the degree of
Master of Science
in Security and Organisational Risk Management
on the twenty fourth day of January 2003

Michael Ayles
CHANCELLOR

Robert Buzgon
VICE - CHANCELLOR

K. J. T. T.
REGISTRAR AND SECRETARY





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