Construction site security.

Summary

Demand reduction and safety on construction sites.

Scanning

- Due to changes in Police priorities crime on construction sites has increased.
- Through work on reducing crime in the built environment we realised the pre-build environment was not considered.
- Additional attention was drawn to the subject in London by partner agencies as well as protests from tradesmen elsewhere in the country.
- Whilst outside the standard threat/risk/harm profile attention was given due to the impact on livelihood, the impact on other services and the potential for large scale demand reduction.
- Police crime figures and business liaison data formed a demand profile.
- Crime data from the construction, plant hire, infrastructure and transport sector completed police data and aimed to identify cost savings and reduce liability.
- Fire Brigade data identified callouts identifying further costs.
- Transport for London data identified other priorities such as freight movement, healthy streets and improving traffic flow.

Analysis

- Aside from direct costs of crime, the cost of delays, of unauthorised trespass particularly where this resulted in serious injury and death and the cost to tradesmen in terms of livelihood were considered.
- Previously crime prevention advice was sporadic and inconsistent, resources reduced as budgets and police numbers fell forming the main crime drivers. Factors involved in trespass were often social media or protest related.
- Numerous site visits, industry forums and social research were undertaken.
- Behind this sat a business crime strategy focused on enabling businesses to protect themselves.

Response

- The goal therefore was to enable businesses to take action to protect themselves resulting in a reduction in demand on police services. Broadly the police would not commit dedicated or specialist responses to this.
- Proactive and reactive measures were considered, as these invariably involve police resourcing and funding these responses were discounted and a prevention response was chosen as success had been achieved in similar circumstances through the Secured by Design scheme.
- We therefore focused on business led responses, close engagement with industry to identify acceptability, cost and risk profile was required, confirmation of measures with the partner agencies was required to ensure their priorities were not compromised. Liaison with the physical security product industry was required in order to identify products or to get products to market to fill gaps.

Assessment

- Case studies were undertaken to provide a benchmark for likely crime reductions and impact evaluated over a six month period. Notably from the site survey conducted with partner agencies and staff on site no incidents were reported and other priorities were not negatively impacted yet the measures improved their quality.
- Following from this nationwide adoption of the Construction site security scheme occurred reducing any risk of displacement and this process managed by the Considerate Constructors Scheme an independent inspection body tasked with improving standards in the construction industry.
- This means a dedicated police resource is not required instead a response will occur through specific tasking from the CCS.

Description

Scanning

In 2018, a construction site in Aldgate, central London was selected as a study site into an holistic approach into construction site security and a way of reducing crime for the site and surrounding area as well as cost reduction for the contractors and, by extension, the wider community. Whilst carrying out the research for this project, I became aware that there was no resource available for giving advice on crime prevention for construction sites. This project forms item 1 in the appendix attached.

A study conducted in 2017 revealed that theft alone costs the UK Construction industry £800M per year. I found references to security in various publications but these were generally in the form of a single leaflet and only covered one or two small aspects of crime prevention, which though useful, was not what I considered to be comprehensive, nor suitable for all construction projects. Although initially my research was intended to be for a single site in London, I quickly realised that there was scope for a much wider piece of work that had potential for every site in the country. Due to the huge amount of money being lost each year by the industry, I realised that the benefit of compiling a guide would have a massive effect on the industry.

By speaking to various members of the industry, I quickly discovered that the monetary cost was only one part of the problem. I began using the following hypothetical incident to demonstrate the wide reaching impact of crime at a site. Using a real life example of an

incident where a drunk student had climbed over a hoarding, attempted to scale a crane and tragically losing his life, I formulated the following example;

“When considering the location and placement of hoarding around building sites, make sure to assess climbing aids and risks. Should a hoarding be placed next to a telephone exchange box or other similar street furniture, it offers an easy climb aid into your site. Should a drunk student, or simply a youth looking for adventure climb inside and, undetected, scale a crane or other insecure tall aspect of the site and fall, the response would cost you a great deal of time and money. The initial response when discovered would be, typically, a single Police response vehicle. Should the incident be a fatality, the Ambulance service would be called and the response would likely be a single crewed response vehicle. As is common on construction sites, access is often difficult and potentially hazardous. Should this be the case, the Fire Brigade would be called and potentially, specialist access teams required to access the scene. A Police supervisor, in the case of the Metropolitan Police, this is likely to be a Sergeant and probably also an Inspector. The investigation would then be passed to the local Criminal Investigation Department (CID) whereby a detective would be assigned and would attend. In time, a Detective Inspector would also attend. The Police Forensic Medical Examiner would also be assigned. This is a Doctor employed by the Police and would be used to assess whether the death is suspicious and also to pronounce life extinct. At the end of the Police investigation, the scene would be handed over to the Health and Safety Executive who would carry out their own, comprehensive investigation and would likely investigate all security measures on the site and ascertain whether there was any likelihood of fault at the hands of the construction firm running the site. All of these investigations are likely to last, conservatively, a week. During this time, the site will be closed and deadlines ultimately affected, which at the end of construction, are likely to incur financial penalties.

For a large construction firm, the time penalties are often factored in, but for small contractors and on site sub-contractors, this is likely to mean loss of earnings for at least two days while resources are moved around to other projects. In terms of traffic and congestion issues, the first 24 hours are the most critical. With a minimum of five Police vehicles, at least one Fire engine and one Ambulance Service vehicle, the likelihood of road closures is high. In central London, the knock on effect of this is huge. Transport For London will have to arrange bus diversions and spend time and money on making sure traffic service announcements are made and social media is updated."

This example has been very useful in demonstrating the wider reaching philosophy of construction site security and why it is so important.

Analysis

I began researching the level of crime and types of typical crimes experienced on construction sites and, using various Police recording and reporting indices began compiling crime data to be used at a later date for crime level comparisons and also to demonstrate the need for my guide. The original site used for the initial study served as a useful test subject site.

By analysing crime data for London for the month of April 2018, I found there were approximately 145 theft type crimes committed in and around construction sites. This figure is a very conservative estimate as the current Metropolitan Police call receipt system does not have a dedicated field for construction or building sites in the location field. With these figures in mind, I looked at the Home Office white paper for crime costing figures and

demonstrated that the average cost for construction site theft, using the figures for Burglary not in a dwelling, in one month across London is approximately £391,500. These figures are shown in item 2 of the appendix.

The current methods employed for security across sites vary greatly from site to site and from construction firm to construction firm. Most companies have their own guidance and the majority of them are written as a response to an issue they have experienced in the past. I found that in most cases, security measures are put in place, not by security specialists, but by tradesmen already employed by the company. For example, when CCTV is installed, most sites will utilise an electrical contractor who will normally place the cameras where it is convenient to do so, rather than install a system according to a security need. This approach appeared to be similar across the board, and was confirmed when I was contacted by several major construction firms with their security plans.

With regards to financial costs not being the only cost, I spoke to several contractors and sub-contractors who explained that when a site is closed down due to a major incident, they often have incidents of workers arriving for work and being unable to work. They are often forced to pay for their time in traveling to work, but most of these workers often have to find alternative sites to work on in a short space of time. This is often very difficult to do and can lead to people being unable to work, and ultimately, not being paid. This, coupled with the industry wide issue of theft of tools and plant poses a wide reaching social problem. Construction workers often find it difficult to insure tools due to the amount of theft on a

site across the country. When a small sub-contractor loses his tools, this can mean his means of providing for himself and his family is gone.

Response

My response to this problem was to compile a guide to be handed to major construction companies, contractors and sub-contractors and indeed, any person who relies on the construction industry for their income. This to include, but not limited to; demolition, plant and tool hirers, construction and its many strands and also security companies specialising in construction.

The following is the first edition of my Construction Site Security guide;

1. Hoarding

1.1. Consideration should be given to the placing of the hoarding at an early stage. Sharp, hidden corners should be avoided on both internal and external corners. Smoothing out of hoarding by using obtuse angled boards helps prevent loitering and anti-social behaviour due to the increased natural surveillance. This will also have the effect of reducing the attractiveness of the site to rough sleepers.

1.2. Blind alleys should be avoided to prevent hiding places for potential offenders.

1.3. Hoarding often needs to be placed in such a way that street cabinetry will be positioned flush against the side of the hoarding. If this is the case, in order to prevent steps to gain unlawful access to the site, using a sheet material such as plywood to create a smooth transition into the hoarding will eliminate footholds.

1.4. Angled extensions or “fans” fitted to the top of hoardings make climbing more difficult as well as reducing problems with litter or other materials being thrown over hoardings.

1.5. Existing street furniture should be considered when installing hoarding. Care should be taken not to install hoarding in such a way that existing street furniture becomes a climbing aid to gain access to the site.

1.6. Hoarding should be 2.4 metres high and of sturdy construction. Painting hoarding a light colour can make the development a more attractive place to pass by, particularly at night.

1.7. A regular maintenance program to clear any graffiti off the hoarding should be employed.

1.8. It is good practice to maintain a clear zone adjacent to hoarding and fencing to prevent climbing aids.

1.9. When putting in pedestrian and vehicle entrances for the site, care should be taken not to create climbing aids when installing lock mechanisms. Often, a hole will be cut out of the plywood hoarding for the locking bar to be accommodated and this then creates a useful step for unauthorised access to the site.

1.10. Ensure building materials or any other items are not stacked up alongside hoardings or fencing as doing so creates a climb risk into the site.

2. **Doors and Gates**

2.1. Entrances to the site should be kept to a minimum to make it harder for unauthorised people to gain access and for easier management of access.

2.2. 24/7 Security guards will prevent the casual or opportunistic thief. This, in conjunction with a fixed security post allows for greater control in and out of the site. A management strategy for visitors and contractors sign-in will ensure only people entitled to be on site are.

2.3. Pedestrian access to the site should be controlled. This could be via security guards with a signing in system or by electronic access control systems such as PIN codes, electronic fobs or cards, biometric devices or a combination of these.

2.4. Turnstiles are a good way of controlling access to a site. Particularly when paired to an electronic access control system.

2.5. Gates should be constructed so as not to have any gaps underneath them nor be easy to climb.

2.6. Locking systems and gates should be constructed to prevent easy access from outside. Shrouding locks and chains with a locking plate will achieve this.

2.7. Hinges on gates should be designed to prevent the gate from being lifted. This can be achieved easily by welding a plate or nut onto the hinge pins.

2.8. Gates should be protected by a good standard of lock. The Sold Secure Gold Standard is the Police preferred standard for padlocks and chains for construction sites. Alternatively, an electronic, battery operated closed shackle system is available via the Secured By Design Website.

2.9. Chains should be of an appropriate length, not excessively hanging down and the majority of the chain should be on the secure side of the gate.

3 Site Offices

3.1 Site offices should include protection from arson as well as burglary. Steel construction with security doors, multiple locks and window shutters secured from inside will assist.

3.2 An adequate level of cyber security, coupled with physical security in site offices, will help prevent cyber-crime to the company and offers data protection to payrolls and personal data.

3.3 Restrict access to keys. Consider using a key safe and a system for signing keys in and out.

3.4 Issuing of security passes and a policy of challenging anyone not wearing one, creates an atmosphere of vigilance from everyone on site.

4 Lighting

4.1 Lighting is often a deterrent to site intruders as well as assisting security patrols and making the area feel safer at night.

4.2 Hoardings should have a uniform lighting level on the exterior in order that the entire perimeter of the site is suitably illuminated to avoid areas of high contrast.

4.3 Lighting on the outside of the hoarding should be tamper proof and a maintenance schedule should be implemented in case of any damage.

4.4 Interior lighting should ensure that all entrance and exits points are well illuminated.

4.5 Wiring for site lighting should only be accessible to authorised personnel. This is particularly important for bulkhead style lights employed on the exterior of the perimeter hoarding.

4.6 Exposed lighting cables should be enclosed in a steel conduit.

4.7 An interference detection circuit connected to an alarm will also help with maintenance. In any case, security lighting systems should be routinely inspected and maintained.

4.8 Should recesses or hidden points exist, these should have particular attention paid to them with lighting and mirrors to increase visibility.

5 CCTV

5.1 CCTV on a site is a good deterrent provided it is used and installed correctly. The office of the CCTV Information Commission offers guidance on the subject.

5.2 CCTV cameras should be positioned to achieve recognition quality and should be positioned in such a way that site lighting does not interfere with picture quality.

5.3 CCTV footage can be recorded and monitored on site or from a remote location and this should be considered as part of a larger security plan.

5.4 Site security lighting should complement CCTV. Ensure that lighting does not create “white out glare”.

5.5 Infrared operation or low light operation should also be considered.

5.6 There are several portable CCTV systems available and these often work well for construction sites. They are easily moved so as the site progresses and the CCTV needs

change, these systems can change with the site. If these systems are to be used, the company providing them will advise on the built in security products and systems.

5.7 For a large site, consider an Automatic Number Plate Reader (ANPR) enhancement to the CCTV system. This is an effective way to manage vehicles coming onto site and monitoring any unauthorised vehicles that may attempt to enter.

6 Plant and Tools

6.1 All vehicles and plant should have ignition keys removed, and if possible, immobilised at the end of each day.

6.2 Consider recording all Vehicle Identification Numbers (VIN) as well as chassis and engine numbers for all vehicles.

6.3 The National Plant and Equipment Register (TER) record details of members' items, making it easier to return stolen items once recovered.

6.4 Consider using a fuel tank alarm on fuel stores. The Secured by Design website has a list of companies offering products.

6.5 Any electrical infrastructure that could be utilised to commit thefts to be disabled at the end of each working day. This includes generators and transformers used to power cutting tools.

6.6 Internal signage encouraging all contractors and personnel on site to mark their tools helps protect smaller tools and items. Postcode marking, painting tools an unusual colour as well as covert methods such as permanent marking inside drill housings make it easier to return stolen items.

6.7 Traceable liquids can be utilised for property marking.

6.8 If tools are to be left on site overnight, consideration should be given to using tool safes, or other high security storage sheds.

6.9 New technology advances in smart tools make it easier to secure small power tools. Tracking chips and internal security systems that render the tool inoperable by anyone other than the authorised user are now available.

7 Urban Explorers

7.1 Urban Explorers are a group of people who explore urban structures such as abandoned sewers or underground railways or the roofs of skyscrapers.

7.2 The following is a non-exhaustive list of things to consider with regards to identifying Urbex.

- Individuals or groups looking for access points (perimeter fences, doors, access panels or vents).
- Individuals or groups emerging from drains or buildings after dark.
- Carrying day sacks / rucksacks to hold their camera equipment as well as access equipment (bolt cutters, skeleton keys, lock picks, ropes etc.).
- Possession of a Drone.
- Known to wear hi-visibility clothing to look official.
- They generally operate during hours of darkness but will often carry out reconnaissance during daylight hours.
- They are security aware and have been known to distract security staff multiple times until they stop responding before entering locations.
- Known to befriend security to gain access without site owners' knowledge or permission.
- Will try to talk themselves out of trouble when stopped, saying 'only taking photos'.

7.3 Participants have caused damage to gain entry to sites and on some occasions have suffered serious injuries and in at least one case, death. The disruption to construction sites should this happen are severe and can lead to lengthy investigations which will ultimately incur high cost.

7.4 Cranes should be adequately protected. Rather than a large perimeter fence which tends to have materials and equipment stacked up against it, consider using a weld mesh fence of at least 3m high around the base of the crane mast, with a solid door and access control system protecting it.

7.5 Anti-climb paint in vulnerable areas, particularly any place where a climbing rope could be utilised will put off an Urbex. Anti-climb paint will cause considerable damage to expensive climbing ropes and make it unlikely that the Urbex will use the same rope again.

7.6 Traceable liquids are a common crime prevention method. There are various products which will transfer onto offenders and the warning signs are very effective at crime prevention.

8 General Advice

8.1 A culture of challenging anyone on site who should not be there, or does not have the correct ID is a simple method of monitoring who is on site.

8.2 All security personnel working on site must be SIA certified and briefed on any particular issues a site has.

8.3 Report suspicious behaviour to security or Police and report any thefts immediately.

8.4 Display warning notices of security measures to put off opportunist thieves.

8.5 Valuable building materials should be stored securely and protected by CCTV, security patrols and intruder alarms.

8.6 When nearing the completion of projects, special attention should be paid to the security of white goods, boilers and kitchen/bathroom suites.

8.7 Scaffolding, in particular towers and ladders should be kept secured when not in use. Scaffolding is often utilised as a climbing aid.

8.8 For any further information on Police accredited security products, visit the Secured By Design Website.

The methods listed above are not exhaustive. As mentioned previously, my intention has always been to treat the guide as a “living document” that is designed to be updated as crime trends evolve and technological advancements occur. I was very mindful not to include examples of specific products to ensure my guide was impartial and stood up to scrutiny around its impartiality.

Assessment

The initial response for the guide was extremely positive. I under-estimated the industries’ need and acceptance of a project like this. In terms of data, it has been difficult to collate at the time of writing, although the crime figures for the initial study site at Aldgate have shown a 40% reduction in crime and anti-social behaviour reported. I have judged the success of the guide on the number of companies and scale of interest in it. I approached a scheme called The Considerate Constructors Scheme. This scheme has for some years been the standard for many large scale construction projects across the UK and concentrates on several strands, referenced under item 3 in the appendix.

Care About Appearance

Respect the Community

Protect the Environment

Secure Everyone’s Safety

Value Their Workforce

Within these strands are several sub strands which each member company must adhere to in order to be awarded a considerate constructors scheme certificate for their project. I contacted the scheme with a view to including security as a sub-strand. The response was very positive and the scheme have agreed to my guide being included within their best practice hub with a long term goal of inclusion into the scheme as its own sub strand within the Secure Everyone's Safety heading.

The assessment, like all problem solving processes is an ongoing one with my vision for the future to include security in every construction site and development in the United Kingdom.

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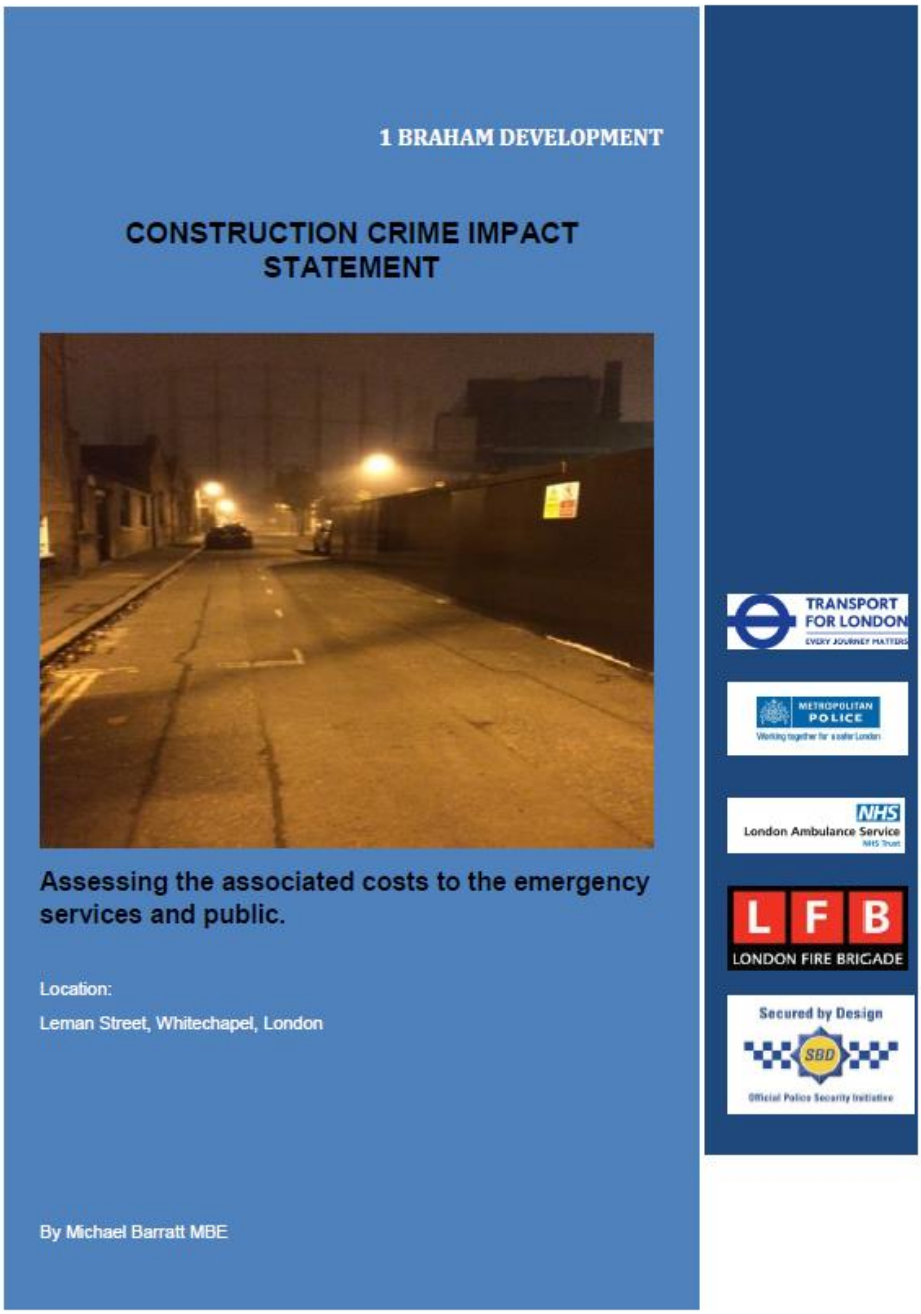
Appendices

Item 1

Construction Crime Impact Statement; Michael Barrett MBE 2018



Executive Summary

A collaborative method to assess and understand the impacts to the Emergency Services, Transport for London (TfL), the public and the developer during construction projects.

Advised intervention - Minor remedial changes with security additions

This construction site area has been assessed using the principles of Crime Prevention through Environmental Design (CPTED) to identify any potential opportunities for crime or cause the potential for fear of crime.

The costs from potential crime have also been calculated. This is from the perspective of person to person, anti social behaviour (ASB) and theft whereby at least one emergency vehicle has attended site.

The area surveyed involves demolition and a new build. The new structure will be at least 18 stories in height and the improvement measures suggested are for implementation and study related purposes which include:

- Control of access in and around site
- Defensible space
- Natural surveillance
- Maintenance and management

Michael Barratt MBE MSc IEng FIHT FIHE CMILT

Relevant qualifications:

Crime Prevention & Development Programme

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Contents

Introduction

Crime Prevention through Environmental Design (CPTED)

CPTED is a method of approach that manipulates the built environment during the design stage. This involves removing opportunities for crime by designing out the motivators' for the offender. These can be simple adaptations such as buildings facing each other, lowered boundaries and the introduction of basic security measures.

Crime Opportunity Theory

Many academics have investigated the reasons why people commit crimes. The argument put forward is that crime is not random and that offenders make rational choices based on a target that offers little effort and risk whilst having a greater payoff. For a crime to occur, it is dependant on a number of requirements; a motivated offender or offenders that is/are prepared and willing to commit a crime and the environmental conditions the offender/s are placed in and/or the lack of a capable guardian in place to prevent the crime taking place. On a building site, this would fit perfectly with there being no personnel on site during the hours of darkness or weekends. (Cohen L and Felson M, 1979).

CPTED aims to introduce cohesion into a neighbourhood from which the community will be more active and responsive in making its streets safer places to live. By doing so the theory is, an offender is less likely to offend due to the effort needed to succeed being greater and the likelihood of being caught.

CPTED is made up of four principles:

Natural Surveillance - is a method that removes the anonymity of the offender. This can be done by providing clear lines of sight, improve lighting types and coverage to remove darkened areas, reduce hedge heights and other types of high boundaries or any other obstructions that can create a hiding place that blocks vision. These methods can cause the offender to feel they are the one under surveillance. Natural surveillance is achieved by design. However, informal surveillance has a crossover with natural and is best described as the practical and actual surveillance carried out because of natural surveillance. For instance; the natural surveillance is clear lines of sight and the informal surveillance is the passer-by who can see the target and is able or in a position to call for assistance.

Formal surveillance is the usage of manned CCTV, security patrols, Police etc.

Access Control - refers to methods that limit or restrict access to and from properties e.g. intercom systems, lockable gates, fob controlled doors and reducing the permeability of an area (less escape routes). This can help highlight legitimate access whilst creating a perception of risk for the offender.

Defensible space - having clear boundaries gives a sense of ownership that can initiate challenges towards those who trespass. It can also cause an offender to be placed on the defensive, feel out of place or uncomfortable and
less likely to blend in.

Management and Maintenance - using the 'Broken Window model' whereby situations that are left to fester e.g. areas of vandalism and poorly maintained areas can lead to the escalation of anti-social behaviours. Levels of crime can increase which results in the withdrawal of community activity. This outcome enhances fear of crime. Ensuring places are well maintained can halt such escalation.

In addition - **Target Hardening** should be added to these principles to help form a complete package of crime reduction measures. This involves making the building more secure with physical security products e.g. robust structural design of doors and windows including; hardened steel bolts, secure locking systems, laminated window film, CCTV and alarms. The longer it takes an offender to access a property the more attention they could bring (Deutsch W, 2017).

By acting proactively in advance of development build, introducing such strategies can help towards reducing the reactive element which often results in a costly aftermath.

Urban Exploring

Urban Exploring, also referred to as Urbex, is the exploration of unseen or off-limit places or buildings.

In London, individuals and groups have entered buildings as trespassers (mainly at night) to gain access to the roof or crane and take photos of the London skyline.

In the words of one Urban Explorer:

"We do it because we love London and want to see it from a different perspective. We don't break anything or damage property, so we don't see what the problem is. We are just going in to have a look, that's all".

Why this is problematic?

Although they may not think they are doing anything wrong, the places they are entering are 'restricted' or 'off limits' for a good reason.

Not only are many of the buildings or locations private places and the owners do not want trespassers, there are also significant safety and security risks.

Urban Explorers are gaining access to high locations, often without protective equipment and with a significant risk of falling. These locations also have a variety of other risks such as unstable roofs and dangerous hazards (especially on buildings still under construction).

For the building owners there is always the risk that damage will be caused (whether it is intentional or not). There are also significant security concerns.

Security Concerns

The main security concern regarding the activities of Urban Exploring is:

"If they can do it, so can others"

Many of the locations already have security in place to prevent criminal activity such as burglary, or in the case of more sensitive locations, terrorism.

The activities of Urban Explorers have shown that on occasion these security measures can be breached.

Furthermore, many urban explorer websites detail how they gained access, which is an unintentional benefit to others who may wish to gain access for criminal purposes.

Mitigating the problem

Many of the buildings and locations targeted by Urban Explorers already have reasonable security measures in place.

Urban Explorers have admitted that before gaining access to a building a substantial amount of planning and research takes place. This means that they are visiting the locations and conducting reconnaissance.

By making you aware of this problem and by remaining vigilant whilst challenging any suspicious behaviour, it will help to disrupt and discourage Urban Exploring.

It is believed that there are currently only a small group of people in London taking part in these activities.

Healthy Streets

The Healthy Streets Approach is the system of policies and strategies to help Londoners use cars less and walk, cycle and use public transport more.

According to Will Norman (the Cycling and Walking Commissioner for London), increasing the number of people walking, cycling and using public transport has the potential to transform London and improve the lives of everyone who lives in, works in and visits this great city.

The importance of exercise:

Two 10 minute sessions of walking or cycling as part of daily travel is the easiest way for most Londoners to stay active. Undertaking these daily activities can maintain the minimum recommended levels and avoid the associated health risks from inactivity. At present, only about a third of adults in the capital are reporting this level of activity. It is our ambition for all Londoners to walk or cycle for 20 minutes every day.

- 28% do less than 30 min activity per week
- A quarter of men and a third of women aged over 65 do not leave their house at all on a given day

Fear of crime

Fear of crime has been linked to reduced on street activities in adults and children. Common reasons given for older children preferring not to walk to school is based on personal safety concerns. Healthy Streets, where more people are walking, cycling and using public transport, feel safer than streets with fewer people, and 'eyes on the street' can be a key factor in whether people consider streets suitable for walking. Improving the feeling of safety can be particularly beneficial for more vulnerable groups, and could be an important factor in helping them to be physically active.

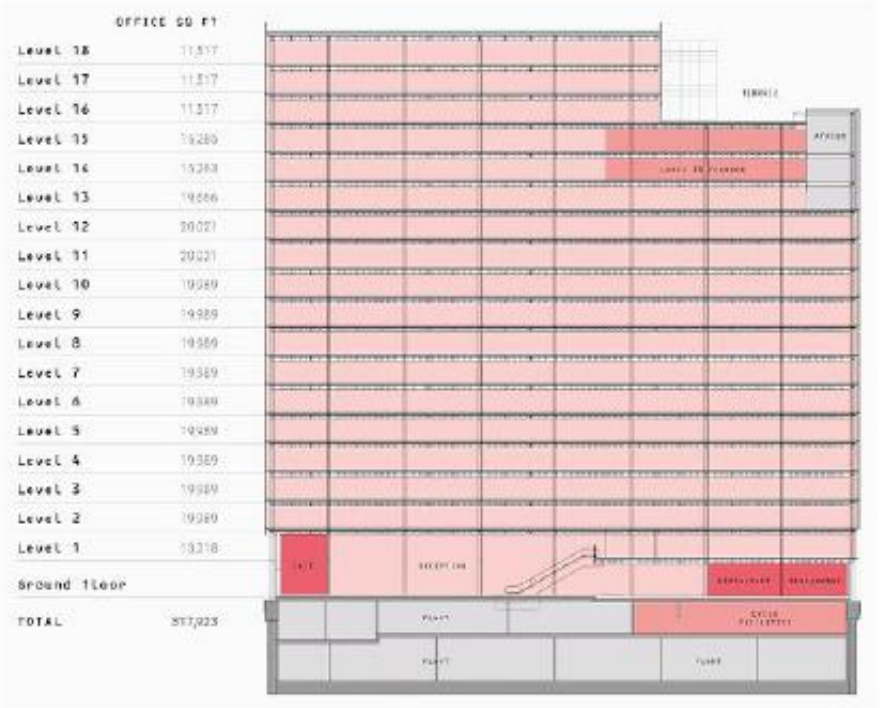
Glossary

ASB	Anti social behaviour
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
BSI	British Standards Institute
CCS	Considerate Constructors Scheme
CCTV	Closed Circuit Television
CO_2	Carbon Dioxide
CPTED	Crime Prevention through Environmental Design
DHF	Door Hardware Federation
DOCO	Designing Out Crime Officer
ILP	Institute of lighting professionals
LAS	London Ambulance Service
LFB	London Fire Brigade
MPS	Metropolitan Police Service
NPPF	National Planning Policy Framework 2012
SBD	Secured By Design

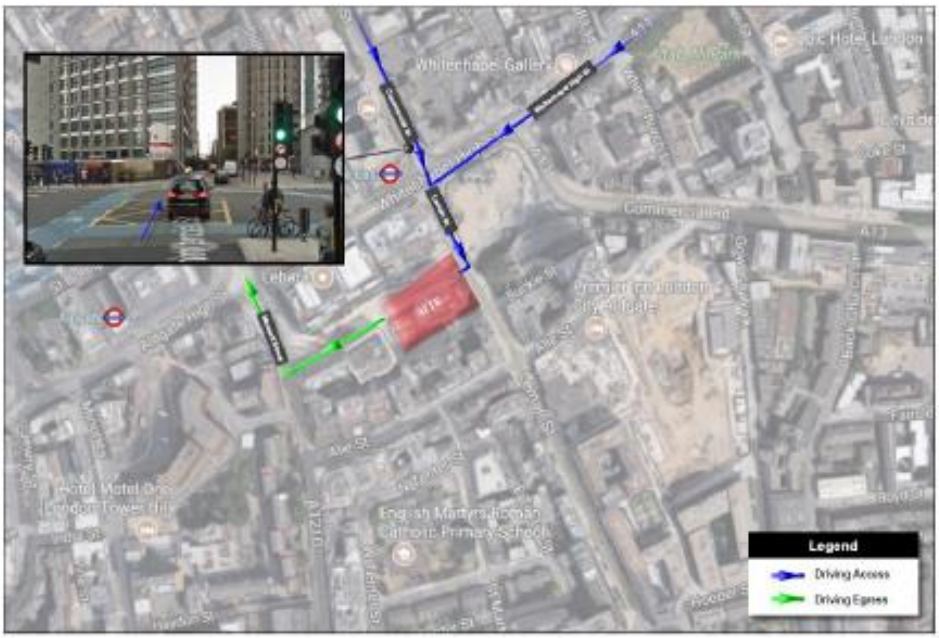
1.Desk Top Study

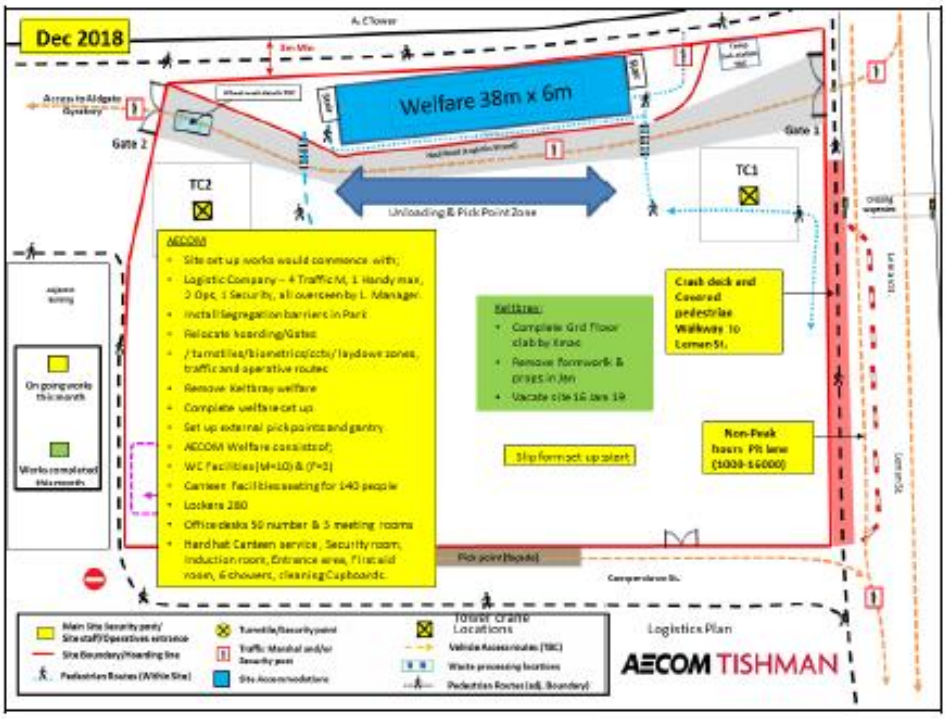
1.1 Development Description

18 levels of office space with urban realm



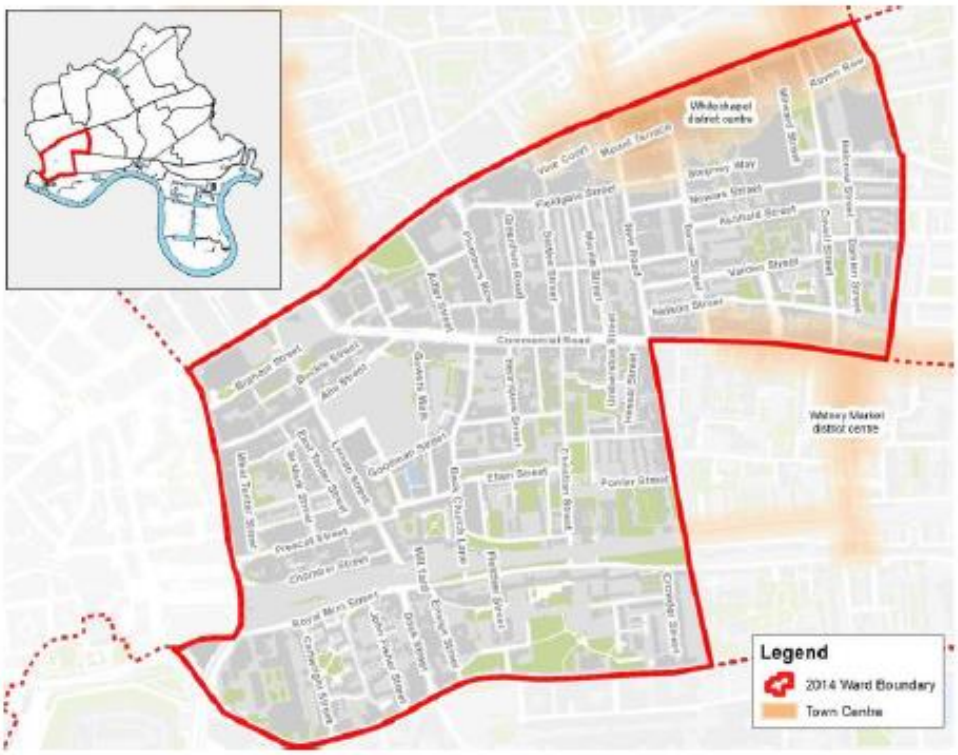
1.2 Location





Braham Site layout

1.3 Area Description



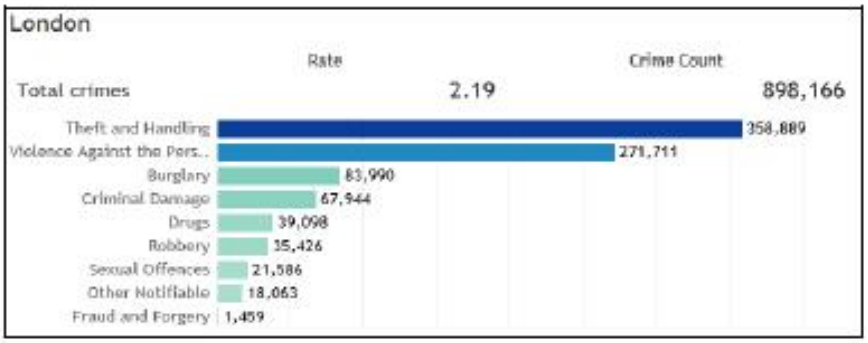
The site is located in the Whitechapel area within the London Borough of Tower Hamlets. Braham Street lies between Mansell Street (City of London) and Leman Street (Tower Hamlets). It is located 4 km east north-east of Charing Cross.

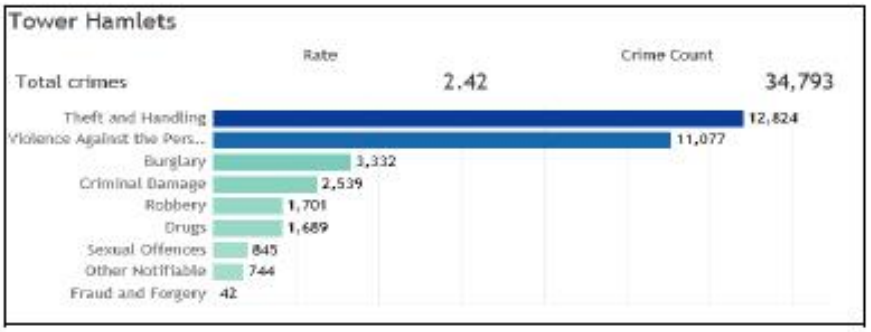
The site is close to Aldgate East Station and has a mix of office, retail and residential areas. There are a number of honey pots and an active night life.

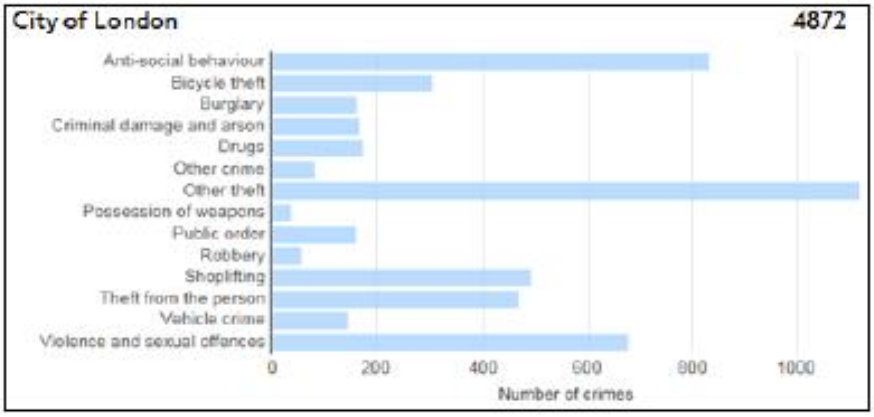
1.4 Crime Statistics:

Crime data has been extracted from the Metropolitan Police Service and City of London Police crime statistics websites.

Crime Data Dashboard – reported all crime (March 2017 – March 2018)







Cime and site locations (★)

Locations of crimes February 2018

Whitechapel

City of London

1.5. Demographic Make-up

Tower Hamlets:

Approximately 304,900 residents

The gender split is 52.2% male and 47.8% female. This is the 4th highest proportion of male residents in the UK. It also gives the borough around 13,300 more male residents than it has female residents.

Tower Hamlets has a relatively young population. In terms of median age, Tower Hamlets has the 4th youngest population of all the local authorities in the UK. The median age in the borough was 30.6 compared with 34.8 in London and 40.0 in the UK.

Almost half of all borough residents (47%) are aged 20-39, the highest proportion in the UK, and well above the London average (34%).

Conversely, Tower Hamlets has proportionately fewer older residents compared with other areas: 9% of Tower Hamlets residents are aged 60 or over, compared with 16% in London Tower Hamlets has the lowest proportion of over 60s out of the 391 local authorities in the UK.

City of London:

Approximately 7,400 residents

The gender split is 55.4% male and 44.6% female.

City of London population is unique as the population is very small compared to the numbers of people that work within the 'square mile'.

The majority of people that live in the City are aged between 20 and 54 which could be due to the business focus.

2.Holistic Costs

London Ambulance Service

- 2 member crew £109 per hour

Metropolitan Police Service

Category of Cost		Burglary not in a dwelling	Theft	Theft of commercial vehicle	Theft from commercial vehicle	Criminal damage	Robbery of person	Sexual Offences	Common assault	Commercial robbery
In anticipation of crime		**1520**	**48**	**8000**	**560**	**576**	**2080**	**64**	**2**	**2080**
Defensive expenditure		1440	48	5440	384	544	1920	64	2	1920
Insurance administration		80		2400	176	32	160			160
As a consequence of crime		**1920**	**80**	**7520**	**528**	**752**	**3680**	**240026**		**14721**
Emotional and physical impact							944	192021		11841
Value of property stolen										2400
Property damaged/destroyed		1920	80	7360	512	704	2400			
Property recovered										
Lost output		64		96	16	48	192	28803		192
Health services							80	17601		80
In response to crime		784	32	112	48	96	2240	6400	448	2240
Police activity		384	11	64	16	48	1088	3200	224	1136
Prosecution		32	1	3	1	1	32	96		
Magistrates courts		8		1	1	1	6	11		6
Crown court		16		3	1	1	64	288		64
Jury service		3					11	64	4	16
Legal aid		32	1	6	3	3	96	320		96
Non legal-aid defence		11		1		1	32	176	12	64
Probation service		32	3	9	3	3	32	96		32
Prison service		256	7	32	9	14	720	1920		720
Other CJS cost		16		1		32	112	256		112
Total cost per incident (£)		**4320**	**160**	**15520**	**1120**	**1424**	**8000**	**240026**	**880**	**19202**

Home Office Research Study 217 first published in 2000

London Fire Brigade

- TBC

Additonal costs for specialist crews

- Helecopter
- Rope teams

Costs to the public

- Emotional
- Physical impacts of victimisation
- Time off work (loss of earnings and employer costs)
- Fear of crime to local communities; leading to inactivity – health and wellbeing
- De-valuation of properties
- Local economy impacts

Costs to the developer

If the emergency services attend a site due to an incident there is a likelyhood that works will be halted until the crime scene (dependant on level of crime) has been deemed clear.

The calculations could cover the following attributes:

- Staff time
- Programme slippage
- Handover charges if delayed

Cost to the road network (users)

Scenarios:

1. if an incident causes an obstruction in the carriageway
2. if emergency vehicles cause an obstruction in the carriageway

- delay to buses
- delay to freight
- congestion – increased pollution
- potential increased conflict with vulnerable road users
- wider economic impacts

3. Site visits, observations and suggestions

Pictures	Observations and suggestions
Leman St	
	• Red route with high flows of traffic and pedestrians throughout the day • Slight recessed area for access gate • Good lighting levels from adjacent streetfurniture and buildings • Good natural surveillance from opposite buildings and traffic
Allie St	
    	• Low trafficked area with one remaining footway • Sharp hoarding corner at junction with Leman – trixi mirror in place • Multiple traces of ASB – graffiti, mini gas canisters, litter and cigarette buts. • Multiple recesses which could be used as a toilet • Projections have had chamfered tops to reduce climbing opportunity • Gate type supplies easy opportunity to climb • Lighting seems low – night time visit required • Road widened due to hoarding recess at bottom gate and alleyway entrance supplying easy waiting area and turning space. • Investigate removal of corner sections e.g. angle off or use bounce plates • Undertake lux level survey using ILP qualified engineers • Investigate installation of dusk till dawn lighting along the boundary • Review middle gate build and investigate removal of climbing points • Review vehicle access to bottom gate (swept path analysis) to close off and remove turning space

Half Moon Passage	
   	• Narrow walk through that is dark and unpleasant to use • Trixi mirror (Braham end) • ASB observed – evidence of rough sleeping, human waste, strong oddurs and litter • Darkened area • Liaise with adjacent building and if agreeable to block off each end of alleyway • Install emergency exit doors into blocked ends
Braham Street	
  	• Braham park section has good open visibility • There are benches along the northern side with visible evidence of drugs and alcohol use – glass bottles, cans, gas canisters, rizzla papers, torn card etc. • Benches are constructed for easy use to sleep on • Planting has gaps and high canopies t access building behind • Investigate removal or reduced seating • Investigate alternative planting to reduce access

	• Dark feel due to proximity of buildings and hoarding colour • No natural surveillance between buildings • Lighting columns adjacent to hoarding may assist climbing over hoarding • Undertake lux level survey using ILP qualified engineers • Investigating incorporating the columns within the hoarding eg board around with access to electrical units • Liaise with adjacent building on observation levels from that side
Onion Peel and AOB	
	High permability The area surounding the site has multiple escape route especially on foot Assess CCTV coverage Investigate viewing windows into site to reduce curiosity The above suggestions are not prescriptive and only supplies a brief overview for mitigation. Further surveys should be undertaken to gain a better understanding of the area and reasons of persistent loitering. Collaborative working with relevant stakeholders will help towards improving the area and reduce ASB opportunities. For further information suggest client looks at the SBD website and discusses with the local DOCO: http://www.securedbydesign.com/ **see examples of other site good approaches to site mitigation**

4. Examples of good approaches to site security mitigation

Examples	Mitigation
	Road name sign removed and replaced with flush plate to remove opportunity to use as climbing aid.
 	Lighting improvements and hoarding colour to remove darkened areas. Trixi mirrors and CCTV additions.
 	Angle tops to cover cabinets and remove litter and climbing opportunities. (requires approval from cabinet owners)

	Well designed, open and well lit gantry. Enables good natural surveillance for users and from opposite buildings and footways and reduces claustrophobic environment

5. Summary

Mitigating the opportunity of crime can greatly benefit the emergency services. This can help improve resilience whilst benefiting the public, local economy and help towards the 'healthy Streets Paradigm'.

Reactive mitigation can be time consuming and costly. It is therefore necessary that the construction industry takes a pragmatic approach with better understanding the issues caused by crime and the impacts involved.

By incorporating crime awareness during the design stage of site set up and management can help raise standards.

Next steps:

As soon as all involved stakeholders have assessed and agreed a concise method to present CPTED to the industry, discussions will need to take place with BRE and the CCS with direction from SBD.

6. References

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Item 2

United Kingdom Home Office report into cost of crime, June 2018

Table 4.5: Average cost estimates for crimes against the commercial and public sector

Category of cost	Best estimate (£ per incident)					
	Burglary not in a dwelling	Theft from a shop	Theft of commercial vehicle	Theft from commercial vehicle	Criminal damage	Robbery or till snatch
In anticipation of crime	**950**	**30**	**5,000**	**350**	**360**	**1,300**
Defensive (security) expenditure	900	30	3,400	240	340	1,200
Insurance administration	50	.	1,500	110	20	100
As a consequence of crime	**1,200**	**50**	**4,700**	**330**	**470**	**2,300**
Emotional and physical impact	.	.	.	.	.	590
Value of property stolen						
Property damaged/destroyed	1,200	50	4,600	320	440	1,500
Property recovered	.	.	.	.	.	.
Lost output	40	.	60	10	30	120
Health services	.	.	.	.	.	50
In response to crime	**490**	**20**	**70**	**30**	**60**	**1400**
Police activity	240	7	40	10	30	680
Prosecution	8	1	2	1	1	20
Magistrates courts	5	0	1	1	1	4
Crown court	10	0	2	1	1	40
Jury service	2	0	0	0	0	7
Legal aid	20	1	4	2	2	60
Non legal-aid defence	7	0	1	0	1	20
Probation Service	20	2	6	2	2	20
Prison Service	160	4	20	6	9	450
Other CJS costs	10	0	1	0	20	70
TOTAL cost per incident	**2,700**	**100**	**9,700**	**700**	**890**	**5,000**

Item 3

Considerate Constructors Scheme strand format;

Care about Appearance

Constructors should ensure sites appear professional and well managed

- Ensuring that the external appearance of sites enhances the image of the industry.
- Being organised, clean and tidy.
- Enhancing the appearance of facilities, stored materials, vehicles and plant.
- Raising the image of the workforce by their appearance.

Respect the Community

Constructors should give utmost consideration to their impact on neighbours and the public

- Informing, respecting and showing courtesy to those affected by the work.
- Minimising the impact of deliveries, parking and work on the public highway.
- Contributing to and supporting the local community and economy.
- Working to create a positive and enduring impression, and promoting the Code.

Protect the Environment

Constructors should protect and enhance the environment

- Identifying, managing and promoting environmental issues.
- Seeking sustainable solutions, and minimising waste, the carbon footprint and resources.
- Minimising the impact of vibration, and air, light and noise pollution.
- Protecting the ecology, the landscape, wildlife, vegetation and water courses.

Secure everyone’s Safety

Constructors should attain the highest levels of safety performance

- Having systems that care for the safety of the public, visitors and the workforce.
- Minimising security risks to neighbours.
- Having initiatives for continuous safety improvement.
- Embedding attitudes and behaviours that enhance safety performance.

Value their Workforce

Constructors should provide a supportive and caring working environment

- Providing a workplace where everyone is respected, treated fairly, encouraged and supported.
- Identifying personal development needs and promoting training.
- Caring for the health and wellbeing of the workforce.
- Providing and maintaining high standards of welfare.