# SURVEILLANCE CAMERA COMMISSIONER

# PASSPORT TO COMPLIANCE

**STAGE 2**

**TECHNICAL REQUIREMENT**

# INTRODUCTION

With reference to relevant guidance, codes of practice and national standards applicable to CCTV surveillance technology, the purpose of this section is to provide an easy to use guide in preparing a basic technical requirement for a proposed CCTV system. The problem analysis, objectives, scope and nature of the system will have been covered in Stage 1 (Planning and Feasibility) and this will prove invaluable when completing of the following sections.

Surveillance technology is changing rapidly and whilst this document does not attempt to cover all the technological aspects of a CCTV system it may assist those with limited knowledge to at least produce some requirements. These requirements will contribute toward the design, planning, operation and maintenance of the CCTV system.

This section will be used to identify the following:

- the purpose for the proposed surveillance camera system

- operational issues

- system requirements

- engineering issues

- maintenance

Within the following section there are a series of questions for each of the above headings, most of these can be answered by ticking the appropriate boxes, however, some will require further clarification within the free text area. Providing relevant information can assist in reducing costly mistakes and ensure that the system is fit for purpose. The references mentioned in the first column will lead to further detailed guidance on each requirement. In relation to BSEN 62676 it should be noted that a new section will be added. This additional section will be part 5 of the standard and will deal with Image Quality.

The example of a technical site assessment diagram below, will be referred to in the guidance.

# TECHNICAL SITE ASSESSMENT – SITE PLAN



**Cam 1 Location**: PTZ camera to cover junction of Crow Road and Ancaster Drive
**Target speed**: Variable
**Activity**: Car crime and Criminal Damage
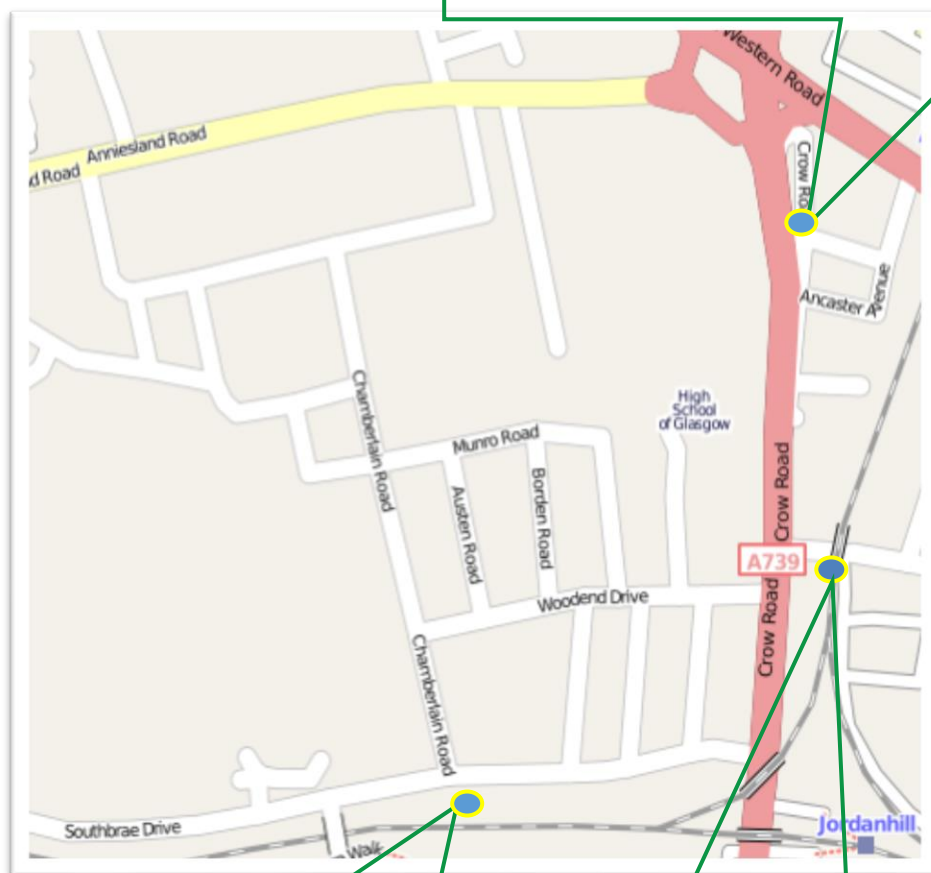**Purpose of observation**: Recognise 50%
**Cam View**: View of both Crow Road and Ancaster Drive
**Cam Make and model**: (To be completed)
**Cam Lens**: (To be completed)
**Lux**: (To be completed)
**Cam Mounting**: (To be completed)

**Cam 2 Location**: PTZ camera to cover junction of Southbrae Drive and Chamberlain Road.
**Target speed**: Variable
**Activity**: Theft, Assault, Violent crime and ASB
**Purpose of observation**: Identification 100%
**Cam View**: zoomed view of both Southbrae Drive and Chamberlain Road
**Cam Make and model**: (To be completed)
**Cam Lens**: (To be completed)
**Lux**: (To be completed)
**Cam Mounting**: (To be completed)

**Cam 3 Location**: Static Dome Camera Platform one of railway station. (view to south of station towards entrance)
**Target speed**: Variable
**Activity**: Theft, Assault, Violent crime and ASB
**Purpose of observation**: Observe/recognise 25%-50%
**Cam View**: view of platform one
**Cam Make and model**: (To be completed)
**Cam Lens**: (To be completed)
**Lux**: (To be completed)
**Cam Mounting**: (To be completed)

# TECHNICAL REQUIREMENTS

## DEFINING THE PURPOSE FOR THE CAMERA SURVEILLANCE

### Location of the camera

*Surveillance Camera Codes of Practice Principles 1 and 3; BSIEC 62676-4 Sections 4.4, 5.3 to 5.16, 6.6, 6.7, 6.8, 6.9, 6.11.1 and 6.11.2.*

**What location do you want to observe?** Divide the site plan into specific areas and focus on the problems within each section. Pinpoint each problem and be clear about the views required. (See system/picture performance below). There may be more than one problem so make sure each one is defined. Remember also to identify physical boundaries and limitations of the area e.g. buildings, bends in road, trees etc. During completion of Section one an 'Initial site assessment plan' should have been completed and this will assist with populating this 'Technical site assessment plan'. Please see the above example of how to complete a site assessment.

### Threat or activity to be observed

*Surveillance Camera Codes of Practice Principle 1; BSIEC 62676-4 Sections 5.3.5, 6.6 and 9.2*

**What potential or actual threat/activity do you wish to observe?** Refer to your problem analysis and your 'Initial Site assessment' to assist with identifying the activity. Specify the activity to be observed.

- ☐ Theft/Shoplifting
- ☐ Robbery
- ☐ Anti-Social Behaviour
- ☐ Traffic offences
- ☐ Flow of customers/crowds
- ☐ Unauthorised person(s)
- ☐ Other (please specify):

**What time of day, type and how often does the specified activity occur?**
Please specify for example: 'every weekday, evenings'. For example:

- Theft, Assault violent crime and ASB. Friday and Saturday during the evening
- Anti-social behaviour most evenings

## System/picture performance

*Surveillance Camera Codes of Practice Principles 1, 3.2.4, 12; BSIEC 62676-4 Sections 5.3.6, 6.7, 6.8, 6.9 also 13.3.2.6 to 13.3.2.11*

**How much detail do you need?**

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**Which of the six levels of image quality do you require?** Please specify which of the six levels are appropriate. Remember there may be more than one purpose for each location and so different image requirements may apply

- [ ] **Monitor or crowd control** – to watch the flow of traffic/ movement of crowds of people where it is not necessary to detect, recognise, identify or inspect individual images.
- [ ] **Detection** – to detect the existence or presence of a person
- [ ] **Recognition** – to recognise somebody you know, or determine that somebody is not known to you
- [ ] **Identifying** – to record high quality facial images which can be used to prove someone's identity beyond reasonable doubt
- [ ] **Inspect** – to view an image in extreme detail
- [ ] **Number plate identification**

**Please specify any other equipment/technology you intend to use** e.g. facial recognition, image analysis, ANPR, Body Worn Video etc.

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## Target speed

*BSIEC 62676-4 Sections 5.3.5*

**How fast will the target be moving?** This information is important to enable the appropriate frame-rate to be set for recording and viewing the camera footage. For example, some surveillance camera systems record in 'time-lapse' mode (to reduce the amounts of storage required), with only a certain number of frames per second. A low frame rate may be adequate if monitoring a long exit-less corridor, but a higher frame rate will be necessary if monitoring a busy street or doorway which people pass through frequently.

- [ ] Static
- [ ] Person
- [ ] Vehicle moving
- [ ] To be monitored only in response to an alarm trigger
- [ ] Other (Please specify)

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## OPERATIONAL ISSUES

### Who monitors

*Surveillance Camera Codes of Practice Principles 4, 5, 8 and 11; BS 7958 Management and operation of CCTV Sections 4.4, 5.0, 7.0, 8.0 and 9.0; BSIEC 62676-4 Section 5.3.10, 5.3.12, 5.3.14 SCC Principle 4 and 5; BS 7858 Screening of individuals employed in a security environment*

**Which of the following indicates how the system will be monitored?** The question of 'Who monitors' varies on the type of monitoring required, based on the purposes and extent of the surveillance system. Reference should be made to the previous and following sections to assist with answering this question. Please specify one or more of the following.

☐ Actively

☐ Passively

☐ Recording and post event investigation only

☐ Other (Please specify)

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### Who will monitor the system?

☐ Dedicated personnel whose sole responsibility is to operate the system and respond to events

☐ Casual operation by personnel, as a secondary function to their main role, such as a receptionist, or operators who have several roles

☐ Other (please specify) e.g. No monitoring, just for post event review

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### If the system is monitored have you considered the following?

☐ Will operators and associated staff require training?

☐ Will operators and associated staff require licensing?

☐ Will the above require security screening?

Please provide more details of the above (e.g. no operators licenses required as employed by owner to monitor own system and no contracts with third party; however, they will receive training in all associated aspects of role).

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### When the system will be monitored

*Surveillance Camera Codes of Practice Principle 3; BSIEC 62676-4 Section 5.3.7*

**What hours during the day and what days of the week is monitoring required?** Reference should be made as to the purposes defined for the system, risk assessment and activity sections. Please define operating hours of the system based upon defined purposes and risk assessment.

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## Where the system will be monitored

*Surveillance Camera Codes of Practice Principle 8; BSIEC 62676-4 Section 12; BS 7958 Sections 6.1, 6.2 and 6.3*

**Where will the monitoring take place?** Once again there are a variety of locations where a surveillance system may be monitored. These can range from an off-site arrangement which is monitored by a third party, or an area set aside for ad hoc monitoring, through to a purpose built CCTV Control room with the latest technology. If it is the latter option good design of the control room is fundamental to ensuring the effectiveness of your system.

☐ Private security premises

☐ Police control room

☐ Local Authority control room

☐ Other (please specify)

<br><br><br><br><br><br>

**Which standards apply?** If the monitoring is to be undertaken in a designated CCTV control room and it complies with the following please tick as appropriate.

☐ BS 62676-4

☐ BS 7958

☐ Other relevant standards (please specify)

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## Operator response

*Surveillance Camera Codes of Practice Principle 4 and 11; BSIEC 62676-4 Sections 5.3.13 and 5.4.4; BS7958 Section 7*

**Which of the following is covered in a response policy?** Research indicates that the effectiveness of surveillance cameras is linked to the capacity, capability and local knowledge of the operating staff and this will include the appropriate response actions.

☐ Clear responsibility for deciding when a response is required

☐ The types of responses and actions by the operator for each potential occurrence

☐ Who to contact in relation to the type of occurrence

☐ Any appropriate target times for each type of response

☐ Results of any responses made/not made

☐ Are appropriate operators and staff trained/ due to be trained regarding expected responses

☐ Other (please specify)

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# SYSTEM REQUIREMENTS

## Alert functions

*BSIEC 62676-4 Section 5.4.2, 5.4.3 and 12*

**What action should the system take when an event is detected?** Some systems are designed to activate a recording and/or alert an operator when a particular movement or activity is detected, such as intruders in unauthorised areas. In addition the event may be detected by the CCTV itself if it has an in build video motion-detection (VMD) capability or Video based Detection system (VBDS) also known as 'Intelligent Video'. A decision should be made regarding what type of activity needs to trigger an alert and then what form that alert should take. Please tick below where appropriate.

- ☐ Display the view from the camera to a monitor in front of operator. The monitor could remain blank and be activated only when an event is detected
- ☐ Visual alarms such as a flashing light that pinpoints the location of the event on a plan
- ☐ Audible simple auditable alarm
- ☐ Text message or image sent to a key holder
- ☐ Emergency relay – sent to local police station
- ☐ Record event data – records only when motion detected
- ☐ No Alert Function required
- ☐ Other (please specify)

## Display

*BSIEC 62676-4 Section 7 and 12*

**How will the images be viewed?** The number of display screens and configuration of the image display screens will depend on the activities you wish to detect, the available space and the display's size. It may be the case that one display is split to show the view of several cameras, or sequencing the views, however, there are compromises with both options. Displays are getting larger and cheaper so size will be partly a financial decision and partly dependent on the space available. It is advisable to seek advice regarding the options but first complete the adjacent column to provide some indication of any requirements. If live monitoring is required please tick if you considered the following should be considered.

| | |
|---|---|
| ☐ Number of camera views that require constant monitoring | |
| ☐ Number of cameras to be monitored | |
| ☐ Activities to be detected and image size (as per 'initial site assessment') | |
| ☐ Separate display (or viewing area) for reviewing recorded material | |
| ☐ Type of display – LCD, Plasma (if other, please specify) | |
| ☐ Positioning of cameras (produce map if not already completed in initial site assessment) | |
| ☐ Other (please specify and where possible enter requirements from above answers in this section) | |

## Recording

*Surveillance Camera Codes of Practice Principles 5 and 6; BSIEC 62676-4 Sections 5.3.5, Definition of Activity (speed of target) 5.3.10 (Monitoring and image storage), 9.2 (Frame Rate), 10 (Storage characteristics), 11.1 (Image Storage and export) and Annex A (Current Video Standard formats), Annex D (Guide to specifying VSS parameters, Annex C (Test method of image quality), 11.3 (Basic Metadata); BS EN 62676 -1-1 Section 6.1.3.6*

**If digital recording is to be purchased, have you considered the following?** Most new CCTV systems rely on digital recording technology and record onto a hard drive, similar to a standard computer. The drive has a finite storage capacity so a digital CCTV recorder operating continuously can only retain images on the system for a set period before it is overwritten. Once again, it may assist to obtain advice on the options available. While the following is not inclusive, it will assist in determining the storage capacity of your system.

☐ Retention period – this should reflect the organisation's purposes, usually 7 to 31 days

☐ Image quality – some digital recording can compress the images when saving them and this may reduce the quality when playback is used

☐ Frame rate – choose an appropriate frame rate for each camera based on activity you want to capture high speed or complex scene requires higher frame rate. If target slow a lower frame rate would suffice.

☐ Metadata – is text data you want to record alongside video images so decide what you require, this is usually, time and date, camera number and location.

☐ Other (please specify)

## Export, access and archiving

*Surveillance Camera Codes of Practice Principles 7 and 9 and 11; BSIEC 62676-4 Sections 5.3.11 (Exporting images), 11.6 (Image Export) and 11.7 (Replay of exported images); BS7958 Section 8 (Privacy and Disclosure issues) and 9 (Recorded material management)*

The digital recorder should provide a means of creating a permanent and useable record of an event or incident, which can then be used as evidence in any subsequent investigation. With digital systems incidents are copied from the hard drive to a storage device e.g. external hard drives, memory sticks etc. prior to it being overwritten. The CCTV system needs to be equipped with a suitable export facility, e.g. DVD writer/flash memory drive would suffice for short clips. Longer video clips might need other export methods e.g. USB drive, Network port or removable hard drive. If the exported video sequence is a non-standard format the manufacturers must provide additional software so that video can be replayed and viewed on a standard computer/tablet etc. Operating procedures should be in place to provide details as to who can access the control room and view footage and this must be strictly limited.

**How do you want to export data from the system to create a permanent record?**
e.g. via internal hard drive to external hard drive, memory stick etc.

**If non-standard format, how will the video be replayed by those needing to view images?**
e.g. manufacturer's software

**Who will require access to the data?** e.g. police, etc.

**What procedures are in place to cover the export of images, access to images and archiving?**

## ENGINEERING ISSUES

### Engineering issues

*Surveillance Camera Codes of Practice Principle 2; BSIEC 62676-4 Sections 6.8 (Field of view-other considerations), 8 Transmission; BSEN 62676-1-2 System Requirements; BSEN 62676 -2-1 Video transmission protocols – General requirements*

**What type of engineering/ transmission is required?** Consideration must be given to the transmission of the video signal from one location to another. There is an increasing array of options and more thought now needs to be given to the choice of transmission method. Those tasked with the transmission specification need to be able to understand the implications of choosing one method over another and both the physical and financial constraints of the intended CCTV system need to be considered. In addition to all the other engineering considerations the placement of cameras is vital, as if the camera positioned poorly then all the effort may be wasted. When specifying the camera placement, the points below (while not being exhaustive) should be considered.

**What is the required field of view?** Camera placement should be based on achieving the optimum view not ease of installation.

**What lighting is there, including shadowing, lux levels and obstructions (e.g. street furniture)?**

**What should be the height of equipment from the ground to obtain required view (e.g. identification) but high enough to deter vandalism?**

**What is the direction of the sun?**

**Do cameras need to be installed on private or public property? If so have the relevant permissions/wayleaves, access to power been granted?**

**Will camera images be restricted so as to view only areas subject to the purposes of the system and not include private areas?** (see the Privacy Impact assessment in Stage 1)

**What environmental factors are there?** e.g. things that can obscure views of cameras for instance trees, bushes other foliage, street furniture

**What access to a power supplies and cabling routes will there be?**

**Any other engineering requirements:**

## MAINTENANCE

### Maintenance

*Surveillance Camera Codes of Practice Principle 4; BSENIEC 62676-4 Section 17; BS 7958 Section 9 (Recorded material management)*

Without ongoing maintenance systems will deteriorate. If image quality declines through poor maintenance for example dirty lenses and display screens they will no longer be effective in achieving your stated purposes. Poor maintenance is the most common issue associated with the ineffectiveness of camera surveillance. Consider what regular maintenance is necessary prior to installation and these requirements should be established in your procedures. The requirements for maintenance should be undertaken by trained and qualified staff.

**What regular maintenance is required *and* who is responsible for ongoing maintenance tasks?**
When considering maintenance, the points below (while not being exhaustive) should be considered.

☐ Cleaning the equipment

☐ Repairs or replacing faulty equipment (an acceptable turnaround time from report to repair should be specified in any contract)

☐ Fitness for purpose checks (include who performs them, and what activities are undertaken)

☐ Maintaining camera positions and focus

☐ Upgrades (the expected working life of the equipment should be known and planned for)

☐ Equipment warranties

☐ Are cameras placed in accessible locations to allow for ease of maintenance work

☐ Other comments (please specify)