

WORKED EXAMPLE

NCP 104.3 - System Design Specification (including Risk Assessment, Site Survey and User Requirement)

MKG CCTV Security Systems

Document control

Specification Number: 041217/4

Issue Number: 01

Surveyor J Smith

Date of Survey: 20th January 2018

Standard: NCP 104(3)

Proposed location

Customer: Mr M.E. Seeall

Installation Address: The Little Shop, 23 High Street, Anytown, AN12 0WN.

Telephone: 01234 111222

Email: meseeall@me.org.uk

Risk assessment (Clause 4)

Risks include theft of goods from all public areas of the shop and potential assaults against staff and theft of cash and higher value items (tobacco/alcohol) from behind the counter area.

Site survey (Clause 5) (see attached)

Premises is a small licensed newsagents/general store in a busy high street. Opening hours are from 0630 to 2100 weekdays and weekends. Premises has an intruder and hold up alarm on police response which is set during the closed hours and supervises the public (shop area) and private (stock room/back office) areas.

There is a flat above the shop but there is no access from within the shop.

User requirement (Clause 6)

The user requirements were discussed and agreed with the customer during the risk assessment and site survey; the system is designed to meet these requirements. Should any of the risks or user requirements change, these may affect the ability of the system to meet its designed purpose. Changes should be notified to MKG CCTV Security Systems as soon as possible.

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Basic objectives (Clause 6.1)

Provide a visible deterrent to reduce likelihood of criminal activity and record criminal activity with the aim of prosecution of individuals.

Surveillance areas (Clause 6.2)

All public areas of the shop and the area behind the counter.

Activities to be captured (Clause 6.3)

Shoplifting, theft, criminal damage and assault.

System and image performance (Clause 6.4)

Individuals to be identified/identifiable.

Operational periods (Clause 6.5)

Shop opening hours 0630 to 2100, seven days a week. System to continue to record during closed hours to supplement intruder alarm system.

Environmental conditions (Clause 6.6)

All cameras to be placed internally. Entrance door and main windows are north facing so no expected issues with sun glare.

Product racking may cause issues with camera placement.

Resilience (Clause 6.7)

Shop continuously occupied during opening hours so no specific tamper requirements.

Shop would remain open during short power outages; consider cost of UPS for system for 30 min outage.

Secure container required to prevent record and store hardware from being removed during robbery/assault.

Monitoring, record and store (Clause 6.8)

Person behind counter and in back office to be able to monitor shop area. Counter monitor to be restricted to 17 inches due to limited space.

System to record 24/7 to monitor shop during closed hours (main shop lights not on during closed hours so unlikely that system will be able to identify any intruders but IR should permit monitoring) and supplement intruder alarm.

Recordings required for 14 days and the means will be provided to save images for longer periods in case of investigations.

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No current plans for user remote access to the system or have the system professionally monitored but these may be considered in the future.

Export (Clause 6.9)

Images to be exported to USB stick or CD/DVD.

Operational response (Clause 6.10)

None.

Operator requirements (Clause 6.11)

PC required to permit user to interface into NVR/DVR to view and review images.

Location would be an area in the back office.

PC likely to be provided by customer to be used to interface into NVR. Minimum requirements for the PC will be provided in the system design specification or on request if required earlier.

Training (Clause 6.12)

Initial training required for customer in the use of monitoring equipment and data management. User manuals to be provided for all equipment.

System expansion and integration (Clause 6.13)

No initial requirements for expansion or integration. However, additional camera ports may be available depending on solution offered.

Consideration will be given in the design for the capability of the system to be upgraded to remote monitoring by user.

Audio (Clause 6.14)

User has no requirements for audio.

Limitations of surveillance (Clause 6.15)

System will be subject to the requirements of the DPA and will have to be registered with the ICO by the system owner.

No or limited external images so no privacy concerns.

Signage to be posted by the system owner to advise that CCTV is being used within the shop to detect and record criminal activity.

NOTE - Proposal

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For many systems once the risk assessment, site survey and user requirement documentation are completed it should be possible to provide an estimated cost for the system in terms of equipment to be provided, likely timescales for the work to be completed and services to be provided by the security company and/or the customer.

Should the proposal be accepted then a full system design specification should be provided.

System Design Specification (Clause 7)

NOTE - All system design requirements have been included in this sample SDS. Where these are not relevant to a particular system design they do not have to be included.

All descriptions are taken from the point of view of an individual standing in front of the premises.

The system design specification is based on a four camera solution. Where there is the possibility that further cameras may be required to carry out additional surveillance of internal or external areas, the option to provide an eight camera solution has been provided.

This system will be subject to the provisions of the Data Protection Act/General Data Protection Regulation and must be registered with the ICO. www.ico.org.uk.

Site plan (Clause 7.2)

See attached.

Camera equipment (Clause 7.3), Functional cameras (Clause 7.4), Equipment housings (Clause 7.5), Field of view/object size (Clause 7.6)

Refer to site plan.

Camera 1 – **Identify** individuals as they enter the premises. Target distance max 8m.

IP Bullet camera; 2MP (1080p) varifocal 2.8 – 12 mm (set at approx. 6mm). FoV 35 deg approx. with IR capability up to 20m.

Mounted approx. 2.2 m above floor height (see site plan).

Camera 2, 3 and 4 – **Observe** individuals in the public areas of the premises. Target distance max 16m.

IP Dome camera; 2MP (1080p) varifocal 2.8 – 12 mm (set at approx. 3.4 mm). FoV 70 deg approx. with IR capability up to 20m.

Mounted on premises ceiling (see site plan).

NOTE – Cameras will operate with IR during closed hours. Image category for all cameras reduced to monitor during these periods.

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All cameras to be powered from NVR.

Detectors, video analysis, triggers, alerts and thermal imaging (Clause 7.7)

Not applicable.

Illumination (Clause 7.8)

Ambient shop illumination (>400lux measured) will be used during opening hours. Cameras will revert to IR operation during closed hours.

Video/audio performance (Clause 7.9), Video frame rate (Clause 7.10) Video resolution (Clause 7.11)

4 or 8 Channel NVR (8 Channel option for expansion).

2MP (1080p) resolution at 12 frames per second (fps), video encoding H.264.

Storage (Clause 7.12), Data compression (Clause 7.13), Encryption (Clause 7.14), Metadata (Clause 7.15), Image enhancements (Clause 7.16)

Storage calculation based on calculation carried out at following website. Other websites are available.

<https://www.cctvcalculator.net/en/calculations/storage-needs-calculator/>

Using the following assumptions:

- Number of cameras: 4
- Resolution: 1920x1080
- Compression: H.264 Main - high quality
- Motion detection: None
- Frames per second (fps): 12
- Frame rate when no motion (fps): 12
- Archive period (days): 14

Total storage 1.4TB.

NVR will be supplied with a 2TB hard drive. Option for 4 TB hard drive included.

No additional data compression will be carried out by the NVR. Images will be deleted after 14 days.

Where the customer saves images for investigative purposes, they are advised to only retain these images for as long as can be justified as necessary.

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Alteration of image quality, frame rate and retention period will affect the amount of data collected. If any of these values are changed, the memory capacity may not be capable of meeting the stated retention period and the image quality may be degraded.

No encryption requirements.

Cameras will be numbered in video (as identified in the site plan) and images will be date time stamped (1 second accuracy) by the NVR.

The system time is set internally by the NVR. Daylight saving times will be changed automatically. However, the system time will have to manually set. The means to do this will be covered during the user training.

Should the system be connected to the Internet, it may be possible to automate this process.

Image enhancement software will not be provided.

Image export (Clause 7.17)

Data will be exported in MPEG-4 (.mp4) format.

Export will be via USB port and can be written to any USB enabled media.

Training to be given on handover on the retention and export of video images where they may be required for investigative purposes.

Displays (Clause 7.18)

The display in the front of shop will be a 17 in monitor with all four camera images displayed simultaneously. Power to be provided from the power strip currently located under counter.

Operators monitor in back office to be provided by customer.

Network and transmission equipment (Clause 7.19), Network security (Clause 7.20)

Connections between NVR and cameras will be on an unstructured star network with the NVR acting as the hub.

No external network connections to be provided.

NVR has the capability to be remotely access though a broadband connection.

Estimated minimum of 3 Mbps uplink connection required for live viewing.

Should the PC in the back office be connected to the Internet in the future, it may be possible to access the NVR through this connection. Should this connection be made, the customer should implement suitable network and software security controls.

A LAN connection will be provided from the back office PC to the NVR through a local LAN connection.

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The PC will be configured with NVR management software to enable the customer to access and manage the data on the NVR through the LAN connection. Two levels of access will be configured; administrator and user. The functionality and capability of both accounts will be demonstrated at handover.

All password and user account information for the NVR management software will be passed to the customer on handover.

The customer is advised to change any passwords at the earliest opportunity.

The NVR and cameras will be left at the latest software and firmware upgrade/patch status at handover.

The customer is responsible for ensuring the security (software and access) of the back office PC.

Tamper (Clause 7.21), Backup power supplies (Clause 7.22)

NVR and (optional) UPS to be housed in secure container in back office (location as identified in the Site Plan).

Optional

750 VA UPS – will provide up to 5 minutes back up power for the CCTV system.

3KVA UPS – will provide up to 30 mins back up power for the CCTV system.

System integration (Clause 7.23)

N/A.

Audio (Clause 7.24)

No audio requirements stated by user. (Cameras will have any audio capability turned off during commissioning)

Control rooms (Clause 7.25), Operator workstations (Clause 7.26)

Workstation PC to be provided by customer.

Minimum specification:

CPU: AMD Phenom II X4 955 or equivalent

Memory: 4G - minimum

Graphic Card: ATI Radeon HD 4800 Series or equivalent

Operating System: Windows 7 (32-bit) (software is Windows 8 and 10 compatible)

Monitor: recommended minimum 21 in with 16:9 aspect ratio

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Cabling (Clause 7.27), Supporting structures (Clause 7.28)

All video (HDMI) and data (CAT5e) cabling plus mains connectivity internal to the secure container will be provided.

A patch panel will be provided within the secure container to interface between network camera cabling internal to the container (stranded core) and external to the container (solid core).

NVR LAN connection to back office PC will be on stranded patch cable.

Existing containment will be used to bring the video cable from the NVR into the counter area and run data cables into the cameras, where possible.

Additional containment will be provided for all remaining video and data cables where this is necessary.

A secure data cabinet plus a power distribution unit will be provided to house the NVR and (optional) UPS.

To power the data cabinet a 13A fused, un-switched mains spur is required to be installed on the stud walling to the left hand side of the desk in the back office. This should be fitted adjacent to the existing double socket. This work can either be carried out by the customer or we can undertake the work.

The customer is to ensure that mains is available for the monitor to be located on the shop counter.

Training (Clause 7.29)

Training on the administration and user functionality of the system will be provided to the customer at handover.

Training on setting and altering the system clocks will be provided.

User manuals will be provided to the customer; these may be provided as hard or soft copies.

Maintenance (Clause 7.30)

Apart from ensuring that viewing areas (camera lens covers and monitor screens) remain clear of dust and any obstructions, there is no requirement for any ongoing maintenance of the cameras or monitors provided.

Maintenance of the NVR should be limited to ensuring the fans used to cool the NVR and (optional UPS) are clear and free of dust.

It is recommended that a maintenance visit is carried out annually to check the following:

- The correct operation of the NVR and to apply any software and/or firmware patches or upgrades.
- Carry out image quality assessments to ensure the system still meets the UR.

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- Carry out an assessment of the physical condition of the system.
- Carry out functional tests of the UPS (optional).

Test, Commission and Handover (Clause 9)

A system test (test plan to be agreed with the customer) will be conducted prior to the system being handed over for use.

On handover, the following documentation will be provided to the user:

- Risk assessment
- User Requirement
- System Design Specification/As fitted documentation.
- Test plan
- Reference images from each of the cameras
- Operating instructions/manuals
- System account details and passwords
- System logbook.
- Handover checklist and Certificate of acceptance
- NSI Certificate of Compliance.

Items to be provided

NVR – 4 Ch.....	£xxx
1 Bullet camera	£xxx
3 Dome cameras.....	£xxx
1 Monitor – 17 in.....	£xxx
1 Secure container; includes power and cable distribution and fittings.....	£xxx
Containment and cabling.....	£xxx
Labour	£xxx
Total (inc VAT).....	£xxx

Options (inc VAT)

Additional camera capacity - 8 Ch NVR	£xxx
Additional memory – 4TB (recommended for 8 Ch NVR)	£xxx
Back-up power supplies:	
5 minutes - 600VA UPS.....	£xxx

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5 minutes - 1.2 KVA (recommended for 8 Ch NVR).....£xxx

30 minutes - 3KVA UPS.....£xxx

30 minutes - 5KVA (recommended for 8 Ch NVR).....£xxx

Customer provided equipment and services

PC and monitor (requirements identified in System Design Specification)

Mains for 17 in monitor by counter

Un-switched 13A fused spur in back office (requirements in System Design Specification)

NOTE – If the option for the 5KVA UPS is selected, a direct feed from the Main Consumer Unit will be required.

NOTE – All electrical work must be undertaken and certified by a suitably qualified electrician. Copies of certificates will be required before installation begins.

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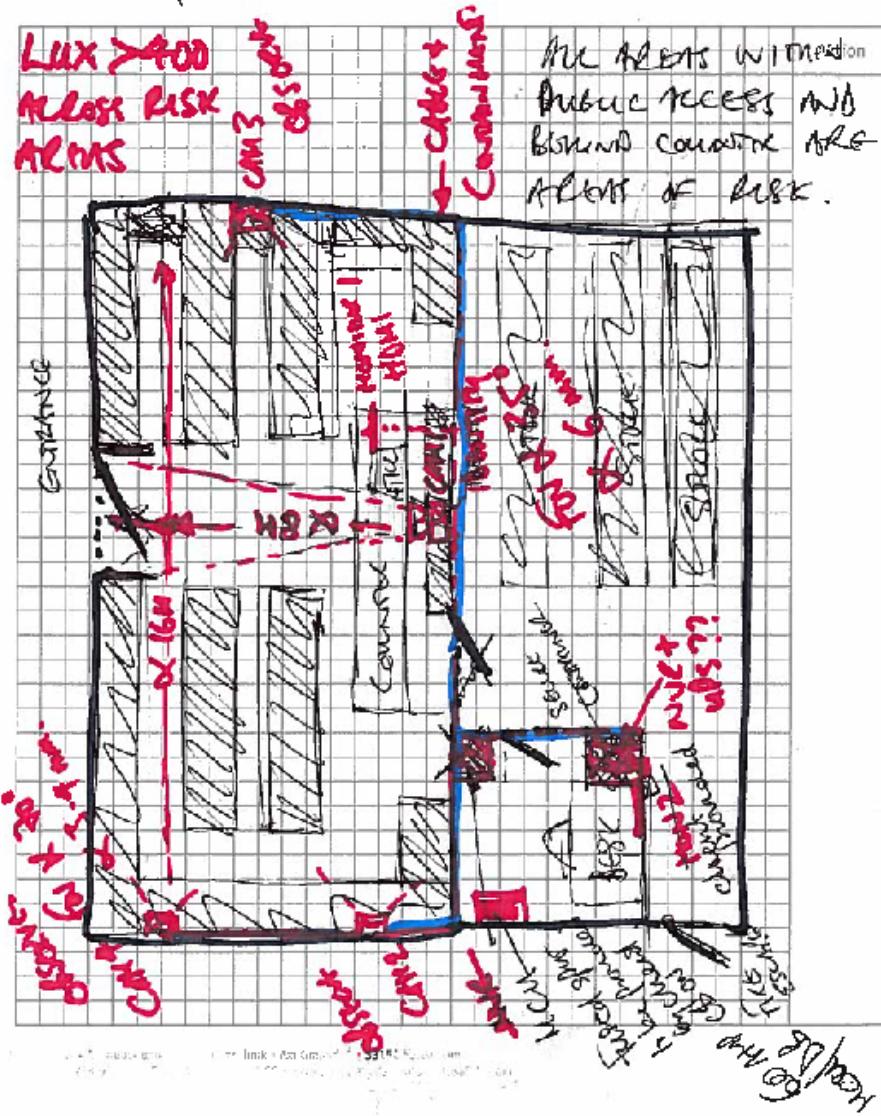
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Appendix

Site survey documentation (EXAMPLE ONLY - SURVEY NOTES AND SKETCHES SHOULD BE RETAINED IN THE SYSTEM DESIGN DOCUMENTATION BUT DO NOT NEED TO BE PROVIDED TO THE CUSTOMER)

SITE SURVEY & FIRE PLAN
FOL - 23 HIGH ST, ANYTOWN.

SEARCHED NS1 DATE 20 JAN 18
SEARCHED SMI CROFT, HLR INDEXED 08010550123
SEARCHED TE2 SERIALIZED SEARCHED
ADDRESS Little Shop - 23 Myl Rd. FILED SEARCHED
Anytown BY SEARCHED SEARCHED SEARCHED



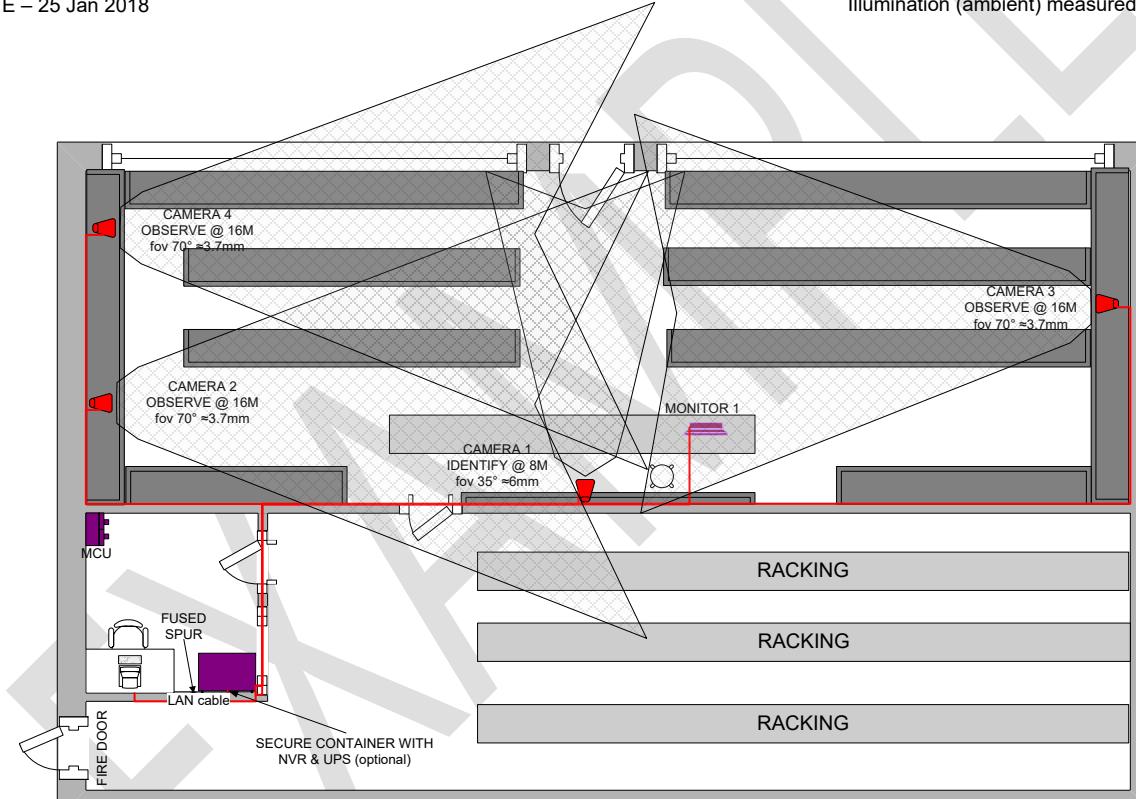
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Site plan

SITE PLAN – The Little Shop, 23 High St, Anytown, AN12 0WN
REVISION – 23 High St Site Plan 1.0.vsd
CONTRACT – 041217/4
DATE – 25 Jan 2018

NOTES
Risk of theft throughout public area of shop
Risk of theft/assault behind counter area
Illumination (ambient) measured at >400lux



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Running out list

NVR	Port 1	Camera 1
	Port 2	Camera 2
	Port 3	Camera 3
	Port 4	Camera 4
	Port 5	NA (Option)
	Port 6	NA (Option)
	Port 7	NA (Option)
	Port 8	NA (Option)
	HDMI 1	Monitor 1
	LAN 1	User PC

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