

**Correctional Service Canada
Facilities Branch
Electronics Security Systems**

March 10, 2016

**STATEMENT OF TECHNICAL REQUIREMENTS
FOR A
MCCP CONSOLE UPGRADE & RECONFIGURATION
AT
BOWDEN INSTITUTION**

AUTHORITY

This Statement of Technical Requirements is approved by the Correctional Service of Canada for the upgrade and reconfiguration of the MCCP Console at Bowden Institution.

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TABLE OF REVISIONS

Revision	Paragraph	Comment
0		Initial Document Issue
1		Revisions based on Lessons Learned from Phase 1 sites

Table of Contents

TABLE OF REVISIONS	ii
TABLE OF CONTENTS	iii
TABLE OF ABBREVIATIONS	5
TABLE OF DEFINITIONS	7
1.0 INTRODUCTION	11
1.1 General	11
1.2 Scope of Work	11
1.3 Requirement/Purpose	12
1.4 Description of Existing MCCP	12
1.5 Network CCTV System (Non-PIDS)	13
1.6 PIDS CCTV System	13
1.7 PIDS/FAAS Integration Unit (PIU/FIU)	14
1.8 Radio System (Motorola®)	14
1.9 Fire Alarm System	15
1.10 Door Control System	15
1.11 Telephone System	15
1.12 Public Address System	15
1.13 Uninterruptible Power Supply (UPS) System	15
1.14 Klaxon Alarm	15
2.0 APPLICABLE DOCUMENTS	16
2.1 Technical Acceptability	16
2.2 Applicability	16
2.3 Applicable Standards and Specifications	16
3.0 REQUIREMENTS	18
3.1 New MCCP Console	18
3.2 Scope of Work	20
3.3 General Requirements	20

3.4	Network CCTV System	21
3.5	PIDS CCTV System	22
3.6	PIDS/FAAS Integration Unit (PIU/FIU)	22
3.7	Radio System (Motorola®)	23
3.8	Fire Alarm System	23
3.9	Door Control System	23
3.10	Telephone System	24
3.11	Public Address System	24
3.12	MCCP Operator Chair	24
3.13	Stationery Storage/Shelving	25
3.14	CER Space	25
3.15	Klaxon Alarm	25
4.0	ADDITIONAL REQUIREMENTS	26
4.1	Communications	26
4.2	Cable Labels & Label Installation	26
4.3	Equipment Installation	27
4.4	Project Review Meetings	27
4.5	Cutover Planning	27
4.6	Institution Operations	28
4.7	Testing and Acceptance Procedures	29
4.8	Mounting	30
5.0	SUPPORT AND TRAINING	31
5.1	Support	31
5.2	Operator Training	31
5.3	Maintenance Training	32
6.0	DOCUMENTATION	33
6.1	Operator Manuals	33
6.2	Maintenance Manuals	33
6.3	As-Built Drawings	33

TABLE OF ABBREVIATIONS

Abbreviation	Expansion
API	Application Program Interface
ATP	Acceptance Test Procedure
BIFMA	Business & Industrial Furniture Manufacturers Association
BIX	Building Industry Cross-connect
BNC	Bayonet Neill Concelman
CA	Contract Authority
CCDA	Command Control Data Acquisition
CCTV	Closed Circuit Television
CD	Commissioner's Directive
CER	Common Equipment Room
CESM	Chief, Electronics System Maintenance
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DA	Design Authority
DCMS	Door Control and Monitoring System
DES	Director Engineering Services
EIA	Electronic Industries Association
FAAS	Facility Alarm Annunciation System
FAR	False Alarm Rate
FDS	Fence Disturbance Detection System
FIU	FAAS Interface Unit
GFE	Government Furnished Equipment
HVAC	Heating, Ventilation and Air Conditioning
IMS	Information Management Services
IP	Internet Protocol
IVRMS	Inmate Voice Recording and Management System
KVM	Keyboard Video Mouse
LCD	Liquid Crystal Display
LTU	Large Transponder Unit
MCCP	Main Communications and Control Post
MDS	Motion Detection System
MPIU	Monitoring Post Interface Unit
MTBF	Mean Time Between Failure
MTTR	Mean Time To Repair
NAR	Nuisance Alarm Rate
NTP	Network Time Protocol
NVUS	Network Video Unit System
OMS	Offender Management System
PA	Public Address
PC	Personal Computer
Pd	Probability of Detection

Abbreviation	Expansion
PFV	Private Family Visits
PIDS	Perimeter Intrusion Detection System
PIDTS	Perimeter Intrusion Detection Radar Tracking System
PIU	Perimeter Intrusion Detection System Integration Unit
PLC	Programmable Logic Controller
PPA	Portable Personal Alarm
PPAL	Portable Personal Alarm Locatable
PTT	Push to Talk
PTZ	Pan/Tilt/Zoom
RATS	Regional Administrator Technical Services
REPO	Regional Electronics Program Officer
RFP	Request For Proposal
SAT	Site Acceptance Test
SCC	Security Control Centre
SIDS	Supplementary Intrusion Detection System
SIO	Security Intelligence Officer
SOW	Statement of Work
STR	Statement of Technical Requirements
TCP/IP	Transport Control Protocol/Internet Protocol
TER	Telecommunications Equipment Room
UI	User Interface
USB	Universal Serial Bus
UPS	Uninterruptible Power Supply
V&C	Visits and Correspondence
VCR	Video Cassette Recorder
VDU	Video Display Unit
VESA	Video Standards Equipment Association
VGA	Video Graphics Array
VIRS	Visits Intercept and Recording System
VMS	Video Management System

TABLE OF DEFINITIONS

#	Term	Example(s)	Description	Function
1	Administrative User Interface		Monitor and Software that supports task specific User Interaction for System Administrators, located in a secure area	Provides administrative personnel with the ability to map enrolled users to the functional domains that they are allowed to access and change
2	Application	Cell Call Management, PA Management	Software that is used to deliver Application Support functionality for a sub-system	Software that provides the Operator Interface and supporting logic that allows a sub-system (Control Domain) to be managed
3	CCTV Monitor	PIDS or Range CCTV Monitor	Computer Monitor Hardware	Displays CCTV images for Operator viewing
4	Client		Rack mounted computer located in a secure area away from a Control Post or Control Desk.	Runs software and supports one or more Application
5	Configuration Data	Site floor plans showing quantity of cameras, doors, cells etc. Camera locations. Number of User Interfaces required in a Post.	Site and System specific information typically supplied by CSC that defines how a sub-system application is to be set-up for a site, location within a site, or post.	The configuration data provides the information that a sub-system application requires to tailor it to meet site, location within a site, or post user requirements.
6	Configuration User Interface		Monitor and software that supports task specific user interaction, located in a secure area	Allows suppliers or qualified personnel to add, delete and modify application configuration
7	Contract Authority		Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.	
8	Contractor		The company selected as the successful bidder.	
9	Control Console	MCCP Console, Living Unit Control Post Console	Console, typically located in a Control Post. Serves as the physical support infrastructure for Operator User Interfaces	Contains User Interfaces or Control Panels used by staff to execute their management responsibilities and interact with the domains over which they have control

TABLE OF DEFINITIONS

#	Term	Example(s)	Description	Function
10	Control Desk	Living Unit Control Desk	Desk, typically located in a Control Post or Office. Serves as the physical support infrastructure for Operator User Interfaces	Equipped with user interfaces used by staff to execute their management responsibilities and interact with the domains over which they have control
11	Control Domain	Cell Call, Guard Tour, Public Address	A group of physical and virtual devices or objects, often supported by specialized hardware and software, that performs a set of related functions	Collect information, or activate capabilities in their operational domain
12	Control Panel	PACP, Fire Alarm	Hardware and software device that provides an Operator Interface (I/O device), located in a Control Post	Allows Operators to manage one or more domain
13	Control Post	Living Unit Control Post/MCCP	Room or area, typically located in a secure area in an institution	Room used by staff to execute their management responsibilities and interact with the domains over which they have control
14	Custom Equipment		Equipment designed and/or manufactured specifically for a specific contract.	
15	Design Authority		Director, Electronic Security Systems (DES) Correctional Service of Canada (CSC) is responsible for all technical aspects of the system design and implementation.	
16	Edge Device	CCTV Camera, Managed Door, Call Origination Device	A specialized device, typically consisting of hardware and software	Provides data collection or activate functions associated with a specific system or sub-system
17	Enrolment User Interface		Monitor and software that supports task specific User Interaction, located in a secure area	Allows designated personnel to enroll and delete users from the Command, Control and Data Acquisition System.
18	Maintenance User Interface		Monitor and software that supports task specific User Interaction, located in the CER or Maintenance Service Provider Office	Provides maintenance personnel with the ability to interact with one or more systems to carry out their day to day tasks to troubleshoot and maintain systems and subsystems

TABLE OF DEFINITIONS

#	Term	Example(s)	Description	Function
19	Notification	Notification that a door is opened, or a door is closed, or a sensor is in alarm	A notification is a message that can be shown on a User Interface and/or logged in a database that represents a change in state or a command initiated by an operator.	
20	Off-the Shelf		Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.	
21	Operator User Interface	PIDS Display, Door Control and Monitoring System Display	Computer monitor and software that supports User Interaction (I/O device)	Provides an Operator with the ability to interact with one or more systems to carry out their day to day tasks at a Control Console or Control Desk
22	Project Officer		A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.	
23	Reporting User Interface		Monitor and software that supports task specific user interaction, located in a secure area	Provides management personnel with the ability to access preconfigured reports and to create custom reports
24	Server	Network Video Recorder	Rack mounted computer that runs software and is located in an equipment room such as a CER or TER	Runs software that is used to deliver services that support command and control applications to connect to sub-systems
25	State		The state of a device as reported to a sub-system or system	This is a logical representation of the state of a device that is being monitored or managed
26	Sub-system	Cell Call, Guard Tour	A group of physical and virtual devices or objects, often supported by specialized hardware and software, that perform a specific set of related functions	Collects information, or activates capabilities in their operational domain
27	System	PIDS	A group of physical and virtual devices or objects, often supported by specialized hardware and software, including devices from sub-systems that perform a more general set of related functions	Collects information, or activates capabilities in their operational domain

TABLE OF DEFINITIONS

#	Term	Example(s)	Description	Function
28	Touch Screen User Interface	Door Control and Monitoring System User Interface	Typically an LCD Monitor with touch screen technology	Allows an Operator to view and interact with the systems presented on the monitor
29	Workstation		Rack mounted computer located in a secure area away from a Control Post or Control Desk	Runs software that is used to deliver command and control capabilities

1.0 INTRODUCTION

1.1 General

Correctional Service Canada (CSC) has a requirement to replace and upgrade the Main Communications and Control Post (MCCP) console at Bowden Institution in the Prairies Region. This Statement of Technical Requirements (STR) will cover the requirements for the work.

1.2 Scope of Work

CSC has a requirement to address operational, technical, and environmental limitations associated with the existing User Interfaces (UI) and supporting equipment in the MCCP at Bowden Institution.

Over time, the core Perimeter Intrusion Detection System, Facility Alarm Annunciation System, Radio Management and Telephone sets have been upgraded by additional user interfaces, monitors and controllers as new systems have been installed at the institution. The equipment installed in the MCCP includes but is not limited to:

- Perimeter Intrusion Detection System (PIDS) UI
- Facility Alarm Annunciation System (FAAS) UI
- Radio System UI
- Closed Circuit Television (CCTV) Monitors
- Public Address System UI
- Door Control System UI
- Fire Alarm System UI

The existing MCCP console and the space above and surrounding the console have become cluttered and the working environment has become ergonomically challenging for Operators. This could potentially result in sub-optimal operational performance under normal operating conditions and impact the ability of an Operator to manage a security situation.

In addition to the equipment and user interfaces, there are a number of items of equipment, such as computers, cross-connect panels, housed in the existing MCCP console bays that need to be relocated to the CER.

This project is intended to replace and upgrade the existing MCCP Console and to relocate, upgrade, or replace select MCCP security electronics at this Institution. Bowden Institution is a medium-security facility located in 2.5 miles south of Innisfail, Alberta.

1.2.1 Objective

At the completion of the project, the MCCP will be equipped with an ergonomically correct low profile console including reconfigured and upgraded user interface equipment. All security electronics not required by the MCCP Operator will be relocated to the CER.

1.3 Requirement/Purpose

This STR supports the procurement and installation of Electronic Security Systems and equipment to be installed in CSC facilities. The STR provides prospective suppliers with sufficient information that they can define the scope of the system architecture, equipment, installation, testing, acceptance, training and handover steps required to deliver a fully functioning and upgraded MCCP Console.

This STR defines the general and site specific technical requirements and the scope of the work required to replace the MCCP console and associated security electronics that are reaching the end of their service life. This work must be accomplished with minimum disruption to the daily operation and security of Bowden Institution.

This STR also indicates the extent to which both general and particular CSC specifications are applicable to the implementation of this requirement. Bidders must comply with the STR and the listed specifications and standards unless specifically identified in this STR. The STR takes precedence over the subordinate documents such as a Statement of Work, a Specification or a Standard.

1.4 Description of Existing MCCP

The MCCP at Bowden Institution is currently equipped with a six (6)-bay console assembled in a “bay-bay- 45°wedge-bay-bay-45°wedge-bay-bay” configuration. A 381mm (15”) wide writing surface spans the length of the console. The console is supplemented by a shelf unit located immediately to the far left of the console and one (1) standalone floor model cabinet. All console bays are 19” EIA standard units. The cabinet and console bays are numbered on-site according to the numbering scheme detailed in Figure No. 1.

A description of the existing security electronics installed in the MCCP cabinet and console bays, as numbered in Figure No.1, is provided in the following sections. CSC will provide Bidders with a series of detailed and annotated photographs of the MCCP and the MCCP Console showing currently installed racks, console bays and equipment layout at the Mandatory Site Visit that will be held following the posting of this project.

The MCCP is equipped with a dimmer controlled ceiling pot light located immediately above the Operator and nine (9) fluorescent light fixtures equidistantly spaced in a 3x3 grid suspended from the ceiling.

The MCCP room is equipped with an HVAC system and an Operator accessible thermostat.

Typically, any upgrades required for the MCCP HVAC will be handled by the Institution. Bidders must review any potential HVAC upgrade requirements at the Mandatory Site Visit for Bidders. The Contractor must coordinate security installation activities with the site to avoid congestion on the part of the Contractor in the MCCP and ensure that all works completed in its proper sequence.

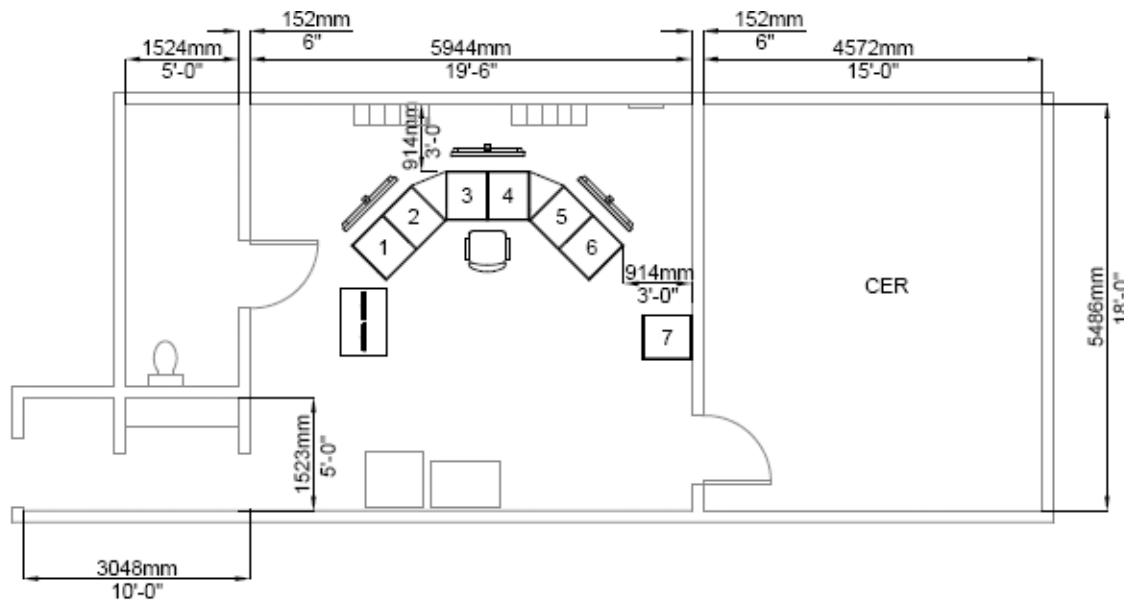


Figure No. 1: Existing MCCP Console Bays/Cabinets Layout

1.5 Network CCTV System (Non-PIDS)

The MCCP is equipped with five (5) Genetec Omnicast[®] video monitors. Two (2) 22" ViewSonic[®] monitors are mounted on the shelf unit located immediately to the left of Console Bay #1. The monitors are connected to a NVUS installed in the CER via IOGEAR CAT VGA extenders. The monitors share a desktop mouse that is connected to the CER NVUS using a USB extender. The three (3) extenders are patched through a single gang CAT6 patch plate located in the rear of Console Bay #1.

Three (3) additional monitors are ceiling mounted directly behind the MCCP Console using telescopic mounts. Two (2) of the monitors are 50" units and the other is a 42" unit. The 42" monitor, which is to the left of the Operator, is used to display 16 construction cameras and has a dedicated mouse connected via a USB extender. The mouse sits on the console desktop immediately in front of Console Bay #2. The two (2) 50" monitors share a common mouse that is extended from a CER NVUS using a SIIG CAT USB extender. All three (3) monitors are connected to their respective clients using a High-Grade VGA cable. The centre monitor is equipped with a camera tree.

1.6 PIDS CCTV System

Two (2) Genetec Omnicast[®] workstations located in the CER support PIDS CCTV camera viewing and switching using four (4) 15" video monitors located in the MCCP Console. Two (2) of the monitors are located in Console Bay #1 while the other two (2) are located in Console Bay #2. All four (4) monitors are connected to their respective NVUS using High-Grade VGA cables.

1.7 PIDS/FAAS Integration Unit (PIU/FIU)

1.7.1 PIDS/FAAS Touch Screens

The existing PIDS and FAAS Operator User Interface touch screens are located in Console Bays #3 and #4 respectively in Figure No.1. Their associated speakers are fastened to a metal bar in the rear of the console.

1.7.2 Maintenance Station (Senstar 100®)

A shelf mounted Senstar 100® PIDS maintenance monitor and a 1RU pull out rack mount keyboard are installed in Cabinet #7. This monitor is used by maintenance staff to perform PIDS/FAAS/PA system maintenance and by CSC trainers to simulate PIDS/FAAS alarms.

1.7.3 Matrix Printer (Senstar 100®)

A Senstar 100® PIDS/FAAS dot matrix printer is located on top of Cabinet #7.

1.7.4 PIDS PA/FDS Audio Panel (Senstar®)

A 2RU PIDS PA/FDS Audio Panel is rack mounted in Console Bay #5. A handheld PTT PIDS PA microphone is connected to the front of the panel and is clipped to the face of the console. The PIDS PA microphone is connected to the panel. The panel is in turn connected to a PA switcher located in the CER.

The FDS Audio portion of the panel is equipped with five (5) buttons: ALL, ALL MASK, ALL SECURE, OFF, & SECTOR. Depending on which button is active, the audio from the selected FDS zone(s) will be sent to the FDS speaker (located in the rear of Console Bay #7). In addition, there is an FDS volume potentiometer, which is used by the Operator to raise and lower the audio signal level at the FDS speaker.

1.8 Radio System (Motorola®)

The Motorola® system uses a 17" touch screen located in Console Bay #5 to provide Operator channel controls. The system is equipped with a desktop gooseneck PTT microphone.

Two (2) independent (SELECT and UNSELECT) speakers (with integral volume control) are installed immediately below the Motorola touch screen.

The following Motorola® equipment is installed in the rear of Console Bay #5:

- A Motorola® Device/Network Switch complete with 48VDC Power Supply.
- A Belkin VGA extender
- A touch screen USB extender

1.9 Fire Alarm System

A 22" Fire Alarm touch screen monitor is installed in Console Bay #6 along with a keyboard and mouse. A Fire Alarm PC is shelf mounted in the rear of Console Bay #6. Sitting on top of the Fire Alarm PC is a fire alarm system printer.

1.10 Door Control System

A 17" Door Control System touch screen monitor is rack mounted in Console Bay #4 and is connected to a computer installed in the CER.

1.11 Telephone System

The MCCP is equipped with three (3) telephones designated as Emergency, General Use and Dedicated Outside Line

1.12 Public Address System

A 4RU Public Address Control Panel is rack mounted in Console Bay #5. In the rear of Console Bay #5, there is a PA I/O terminal block assembly strapped to a cabinet rail.

1.13 Uninterruptible Power Supply (UPS) System

An 8kVA UPS running at 50% capacity is installed in the CER. The UPS provides CER/MCCP backup power through a CER 40 circuit distribution panel that has 20 available breaker slots.

1.14 Klaxon Alarm

A 4RU plate fitted with a 1.5" red coloured mushroom shaped button is installed in Console Bay #5. This button is a site wide alarm warning system.

2.0 APPLICABLE DOCUMENTS

2.1 Technical Acceptability

CSC operational environment is unique for its diversity of locations, climate exposures and the physical restrictive construction techniques of penal institutions. Maintaining national security, the safety of staff and offenders alike is CSC's commitment to the government and public. Electronic security systems operating in this unique environment must maintain very high standards of dependability and reliability.

CSC Facilities Branch has established Statements of Work (SOW), technical specifications and standards for electronic security electronic systems, which are based on very specific, and restrictive operational performance criteria. Technical acceptability of these systems means that the systems equipment and components comply with the pertinent CSC SOW, specifications and standards.

2.2 Applicability

The provisions contained in the documents listed in the following paragraphs must apply to all aspects of this requirement, unless these provisions have been exempted or modified by this STR.

2.3 Applicable Standards and Specifications

ES/SOW-0101	Statement of Work for Electronic Systems for the Correctional Service of Canada Institutions
ES/SOW-0102	Statement of Work for Quality Control for the Installation of Electronic Security Systems in Federal Correctional Institutions
ES/SOW-0110	Statement of Work for Structured Cable Systems for Electronic Security Installations for the Correctional Service of Canada Institutions
EIA-310-C	Electronic Industry Association Standard for Racks, Panels and Associated Equipment
ES/SPEC-0006	Electronics Engineering Specification – Conduit, Space and Power Requirements for Security Systems for use in Federal Correctional Institutions

ES/STD-0228	Electronics Engineering Standard – Network Video User Station
ES/STD-0227	Electronics Engineering Standard – LCD Colour Computer Monitor
ES/STD-0277	Electronics Engineering Standard – Colour Monitor

Design Requirements for the Main Control and Communications Post Room (MCCP) Console for use in Federal Correctional Institutions (15 May 2015)

3.0 REQUIREMENTS

3.1 New MCCP Console

The Contractor must supply and install a new MCCP console in accordance with the CSC Specifications, Statements of Work, Standards and Design Requirements noted in Section 2.3 of this STR.

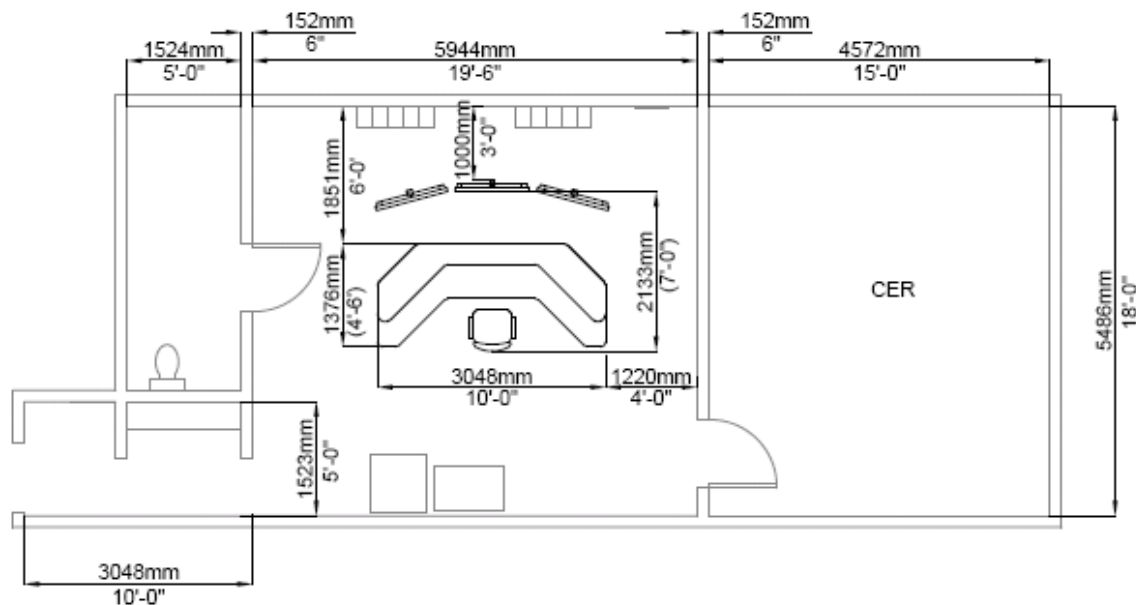


Figure No. 2: New MCCP Console Location

The new MCCP console must be based upon a flattened U-shaped desktop configuration with a maximum footprint of 3048 mm (10') long by 1376 mm (4'6") wide as shown in Figure No.2. The console is designed to support one (1) Operator in normal operations and a second Operator on an emergency basis. The desktop is divided into six (6) user interface stations and has an arrangement of video monitor displays mounted to the rear of the desktop positioned between a maximum distance of 2133 mm (7') and minimum distance of 1219 mm (4') from the Operator. A user interface station is defined as either a 22" video monitor (16:9 aspect ratio) or a desktop turret. The video monitor arrangement at the rear of the desktop consists of four (4) 24" video monitors arranged in a 2x2 monitor configuration flanked on each side by a 42" video monitors shown in Figure 3.

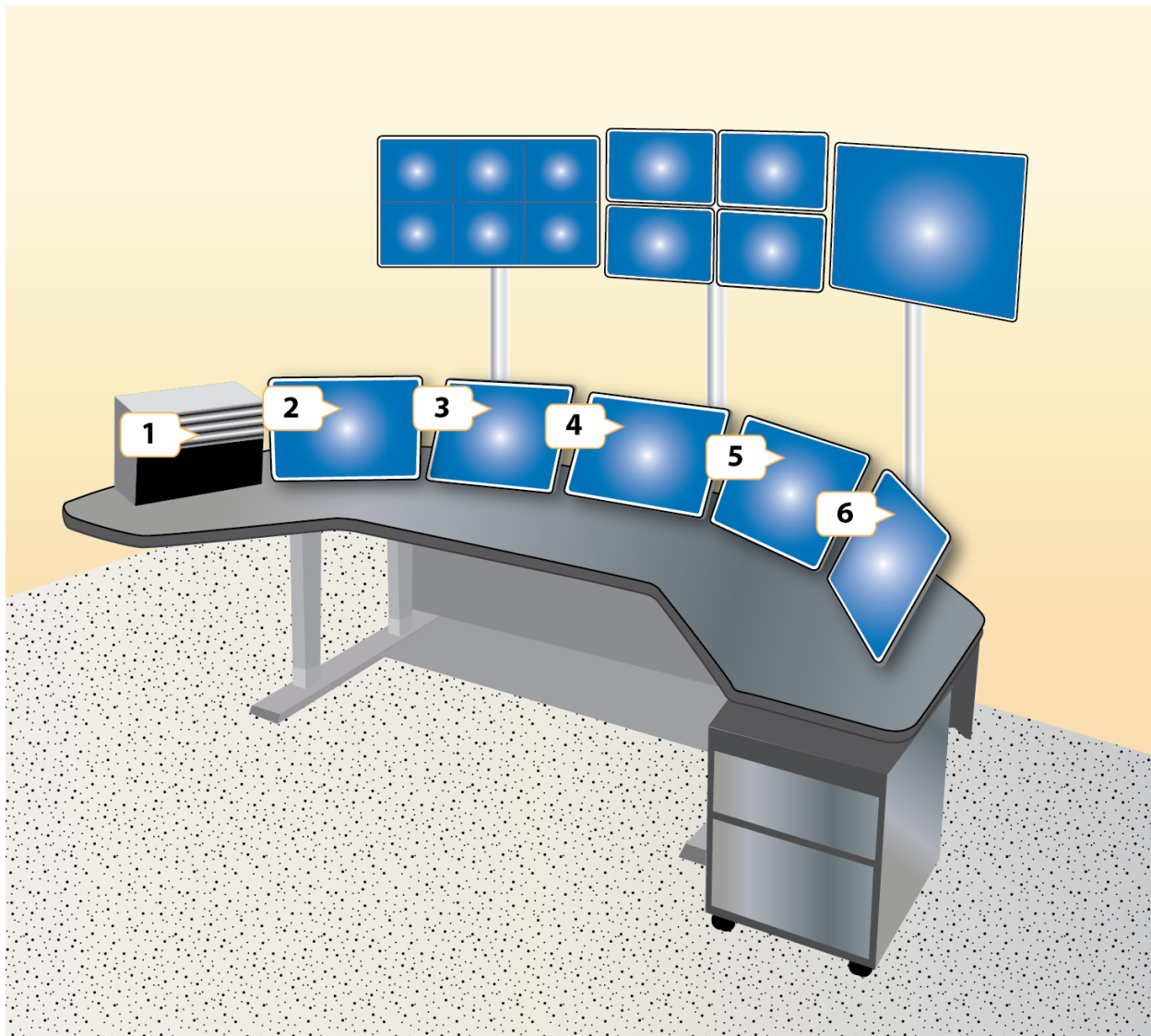


Figure No. 3: Conceptual drawing of updated MCCP Console

The six (6) desktop user interface stations at Bowden Institution must be configured as follows:

- 1) Desktop enclosure for PA Control Panel (supplied and installed under this project)
- 2) Motorola® Radio Touch screen (22" Touch screen unit supplied under this project)
- 3) PIDS Touch screen (22" Touch screen supplied under this project)

-
- 4) FAAS Touch screen (22" Touch screen supplied under this project)
 - 5) Video Management System (VMS) monitor (22" unit being supplied under this project)
 - 6) Door Control System (new 22" Touch screen supplied under this project)

Notes:

- 1) The final position of each Operator-User Interface Monitor is subject to change based upon further design review and will be confirmed following the provision of the Preliminary Design Report
- 2) The VMS monitor and the addition of a remote viewer plug-in will provide the Operator with a camera tree for selecting views and posting them to an available monitor/viewing pane on the VMS monitor and the 42" monitors.

3.2 Scope of Work

In order to obtain the configuration shown in Figure No. 3, the Contractor must modify the existing security sub-systems and supply any new hardware, software, cabling, installation, testing, training and documentation as detailed in Section 3 of this STR.

3.3 General Requirements

The Contractor must:

- a. Carry out a review and analysis of the existing MCCP Console and its associate electronic security sub-systems, including all components not being replaced under this contract.
- b. Review the CSC standards and documents noted in Section 2.3 of the STR and incorporate them into the system and implementation.
- c. Design, supply, assemble, and install a MCCP Console (complete with Operator chair and durable protective mat for the floor area) as noted in the STR and related documentation.
- d. Supply and install new floor tiles for the entire room. The replacement tiles must be 24" x 24" woodcore with 1/16" high pressure laminate surface. The tiles must meet or exceed 1,000 lbs per sq inch concentrated load. All cable entry holes through the floor tiles must be equipped with a suitable grommet to prevent cable chafing. The colour of the tiles must be approved by the Design Authority.
- e. Supply and install three (3) ceiling mounted LED lighting fixtures that provide an illumination level of 540 lux (50 fc) and a minimum illumination level of 325 lux (30 fc) when dimmed for the console desktop. The fixtures must be positioned to eliminate glare and reflections in the video and desktop monitors and must be equipped with a dimmer control switch located next to the switch for the general room light fixtures and a second dimmer switch installed on the console.
- f. Conduct pre-testing on all existing MCCP electronics prior to commencing with any cutover work.
- g. Provide a cutover plan that clearly identifies all systems that will be affected, the timing, duration and associated risks. In addition, a back out plan and a description of the capabilities that will be unavailable to CSC operational personnel for the duration of the cutover must also be provided.
- h. Modify, upgrade, relocate, or decommission existing security electronics as noted in this STR.
- i. Identify, in conjunction with CSC, space in CER racks that with some equipment reconfiguration would accommodate relocated equipment from the MCCP. The Contractor must complete the identified equipment reconfiguration.
- j. Appropriately package, clearly label and deliver all decommissioned equipment to ADGA.

-
- k. Use existing copper cables wherever possible. Potential bidders must familiarize themselves with the existing cabling during the mandatory site visit. If the existing cabling is not of sufficient length, provide additional hardware/materials and copper cabling as required.
 - l. Where cable lengths exceed the maximum length specified by the equipment manufacturer; the use of KVM extenders is permitted.
 - m. Following contract award, identify cabling not associated with the current security systems. Others will inspect the cabling not being replaced by the Contractor and provide feedback to the Design Authority. The Contractor must remove all unused cabling identified by the Design Authority.
 - n. Identify in the Preliminary Design Report all abandoned security equipment located in the console or cabinets throughout the MCCP. The Contractor will hand over the abandoned equipment to CSC for reallocation.
 - o. Identify in the Preliminary Design Report all unused cabling associated with equipment being removed or upgraded. Cabling must be removed from the site and disposed in an environmentally friendly manner. Removal is limited to the confines of the MCCP and CER.
 - p. Identify in the Preliminary Design Report all of the old console and cabinets designated as waste. The Contractor must remove and dispose of all old consoles and cabinets in an environmentally friendly manner.
 - q. Hand over all software updates, touch drivers, etc. required to support the upgrade and include the applicable documentation in the Maintenance Manual.
 - r. Label all User Interfaces, Monitors and CCTV Monitors and equipment in MCCP.
 - s. Obtain all necessary information to design, build and install any soft key touch custom interface.
 - t. Remove any and all abandoned security and/or fire alarm equipment/panels located on the walls of the MCCP and turn them over to CSC for disposal or reallocation.
 - u. Provide operational training to Correctional Staff and maintenance training for the Electronic Security Systems maintenance technicians that are provided by the National Maintenance Service Provider.
 - v. Provide one year of full warranty support of the MCCP Console Upgrade, once it has been accepted by CSC. This support must include troubleshooting, the correction of any deficiencies and the resolution of operational or technical problems.

3.4 Network CCTV System

The Contractor must:

- a. Decommission the three (3) existing video monitors ceiling mounted to the rear of the MCCP console.
- b. Decommission the two (2) existing video monitors on the shelf unit to the left of Console Bay #1.
- c. Supply and install two (2) 42" video monitors to the rear of the console and one 22" video monitor for the desktop. The two (2) 42" video monitors will be located as illustrated in Figure No. 3. These monitors must be mounted in accordance with the Design Requirements for the Main Control and Communications Post (MCCP) Console for use in Federal Correctional Institutions.
- d. Mount the desktop 22" monitor to the VESA mount provided by the Contractor with the MCCP console. This monitor must be configured to display a camera tree for the MCCP Operator to select available cameras and camera/monitor layouts for the monitor and the 42" monitors.
- e. As required, supply, license, and install NVUS in the CER to ensure that each monitor has its own NVUS. Install remote viewer across all three (3) workstations. The VMS monitor will hold the camera tree and control call-ups for all three (3) workstations.

- f. Provide a desktop mouse for the VMS workstation.
- g. Program selectable camera/monitor layouts associated with the Genetec Omnicast[®] VMS to replace the fields of view and tile layouts that were available on the video monitors that were removed.

3.5 PIDS CCTV System

The Contractor must:

- a. Decommission the four (4) PIDS video monitors.
- b. Supply and install four (4) 24" video monitors arranged in a 2x2 monitor configuration mounted above and behind the MCCP console as shown in Figure No. 3
- c. As required, supply, license and install the appropriate number of NVUS workstations such that a maximum of two (2) monitors are connected to one NVUS workstation. One NVUS workstation will manage two (2) 24" monitors (PIDS 1 and PIDS 2). The second NVUS workstation will manage the remaining two (2) 24" monitors (PIDS 3 and PIDS 4).
- d. Re-program the PIDS camera/monitor call-ups per MCCP requirements.

3.6 PIDS/FAAS Integration Unit (PIU/FIU)

3.6.1 PIDS/FAAS Touch Screens

The Contractor must:

- a. Decommission the existing PIDS and FAAS touch screens.
- b. Supply and install two (2) new S100 compatible 22" capacitive touchscreens with integral speakers compatible with the existing Senstar 100[®] computer speaker on articulating VESA mounts. Align the new PIDS and FAAS touchscreens using the existing Senstar 100[®] maintenance feature and install at the locations detailed in Figure No. 3. The new touch screen must be able to support serial and USB touch protocols. Elo Accutouch[®], Elo SmartSet[®], and Elo IntelliTouch[®] are the serial touchscreens protocols supported by Senstar 100[®].

3.6.2 Maintenance Station (Senstar 100[®])

The Contractor must:

- a. Decommission the existing Senstar[®] maintenance monitor/keyboard.
- b. Supply and install a wall mounted fold out desktop unit on the wall between the MCCP and CER near the CER door. The unit will be used by CSC trainers for setting up a Senstar 100[®] alarm simulation monitor and keyboard.
- c. Supply and install a VGA and keyboard jack inside the foldout desktop unit.
- d. Supply and install a 22" desktop maintenance monitor and keyboard for deployment and use by CSC trainers as required.
- e. Supply and install cabling from the wall mount fold out desktop to the S100 in the CER.
- f. Relocate the PIDS/FAAS dot matrix printer on a Contractor supplied shelf installed in available CER rack space.

3.6.3 PIDS PA/FDS Audio Panel (Senstar®)

The Contractor must:

- a. Decommission the existing 2RU PIDS PA/FDS Audio Panel and all associated electronics and wiring.
- b. Provide a S100 FDS audio soft key solution to be implemented on the PIDS perimeter map or secondary PIDS map. The solution will include all hardware and wiring changes, S100 FDS soft key programming, attenuator and speaker installation.

3.7 Radio System (Motorola®)

The Contractor must:

- a. Upgrade the existing Motorola® touch screen monitor to a 22" unit and install it at the location detailed in 3.1
- b. Relocate the two (2) existing speakers (SELECT and UNSELECT) to the new desktop immediately to the left and right of the new radio system touch screen monitor.
- c. Relocate the existing Motorola® Device/ Console Switch to a hanging bracket under the console. Install and secure the console switch using a rack mount kit. Reconnect the existing extenders to re-establish connections with the new touch screen monitor location.
- d. Reinstall the existing PTT microphone in close proximity to the new touch screen monitor location. In the event that any of the existing cables are too short, the Contractor must supply and install new cables.
- e. Supply and install a desk mounted Connex 172124 N jack to Jack Bulkhead Adapter adjacent to the Motorola® Radio System location. The Bulkhead adapter will be used to connect a hand held Motorola® radio antenna socket to the main antenna in the event of a power failure.

3.8 Fire Alarm System

- a. The Contractor maintaining the fire alarm system at Bowden will move the existing fire alarm system equipment from the MCCP console to a CSC approved standalone unit in the MCCP to be located against the wall between the MCCP and CER. The unit will be compatible in design with the new MCCP console. All testing, acceptance, training and handover steps to deliver a fully functioning fire alarm system will be included in the work to be completed.
- b. The Contractor must coordinate the fire alarm system work with CSC and the Contractor maintaining the fire alarm system at Bowden to ensure that the work is completed in concert with the overall project schedule.
- c. PWGSC will include the cost of the fire alarm system relocation work into the contract awarded for the Upgrade and Reconfiguration of the Bowden MCCP.

3.9 Door Control System

The Contractor must:

- a. Upgrade the existing DCS touch screen to a 22" unit and install it on the new desktop at the location detailed in 3.1.

3.10 Telephone System

The Contractor must:

- a. Relocate the three (3) existing telephones and their telephone jacks to the new console desktop.
- b. In the event that the existing cables are of insufficient length, provide a controller telephone junction splice box.

3.11 Public Address System

The Contractor must:

- a. Provide and install a desktop turret as detailed in 3.1.
- b. Relocate the existing 4RU Public Address Control Panel and its terminal block assembly to the new turret

3.12 MCCP Operator Chair

The Contractor must supply and install a new MCCP Operator chair that meets or exceeds the following criteria:

- a. Durability: Intensive Use Rated (24/7/365)
- b. Warranty: Five (5) years on all components including parts and labour.
- c. Construction:
 - Standard Seat Dimensions: >20" (508 mm) Width x >19" (483 mm) Depth.
 - Seat: Dual density moulded polyurethane foam with 8-ply hardwood.
 - Base: Five (5) point base with heavy duty castors.
 - Backrest Dimensions: >19" (483 mm) Width X >24.5" (622 mm) Height.
 - Weight Capacity: >350lbs (158.8kg).
 - Fabric: Abrasion resistant
 - Fabric Colour: Black or Charcoal
- d. Adjustability:
 - Backrest: Fully upholstered backrest system with a minimum 5" (127 mm) range of vertical adjustment.
 - Headrest: Mechanical vertical control
 - Lumbar: Adjustable (air) support
 - Seat Height: Adjustable to between 17.5" (445 mm) to 22.5" (572 mm).
 - Back/Seat Angle: Heavy duty, 3-lever independent back/seat angle control.
- e. The Contractor must supply and install a diamond plate 100% vinyl mat to protect the floor from the Operator's chair. The mat must be at least 1/8" thick and cut from a 10' x 10' piece to fit the floor area that the Operator's chair would normally come into contact with.
- f. The Contractor must include a second chair that meets or exceeds the prescribed criteria in the spares list.

3.13 Stationery Storage/Shelving

To accommodate office supplies (logbooks, paper, stapler, clipboards, etc), the Contractor must supply and install a credenza equipped with lockable castors.

The provided credenza must match the style of the console and meet the following criteria:

- Overall Height (including castors): Maximum 24" (610mm)
- Overall Width: Minimum 19" (483mm)
- Overall Depth: Maximum 24" (610mm)
- Frame: Fully welded, steel construction
- Top Surface: Thermo laminated Finish (colour matched to new console)
- Sides/Rear: Laminated Wood Grain Finish (colour matched to new console)
- Access: Equipped with two drawers on sliders or height adjustable shelving and a hinged front door.

3.14 CER Space

- a. There is sufficient space in the CER within the existing cabinets in the CER with some equipment reconfiguration for relocated equipment from the MCCP.

Note:

CSC will complete a heat survey for the CER to determine if improvements to HVAC are required as a result of relocated equipment from MCCP. Should any additional capacity be required, CSC will handle any HVAC work required.

3.15 Klaxon Alarm

The Contractor must:

- a. Relocate the existing Klaxon Alarm button to the wall behind or to the right of the Operator.
- b. In the event that the existing cable(s) are of insufficient length, supply and install a controlled junction splice box either in the CER or under the MCCP floor to extend the cables.

4.0 ADDITIONAL REQUIREMENTS

4.1 Communications

The Contractor must adhere to the following Communications Requirements:

- a. Communications between the Contractor, the Institution Representative and the Maintenance Technician(s) is of the utmost importance during interruptions to existing systems to ensure that additional and/or alternative security procedures can be engaged during the interruption of individual systems.
- b. The Contractor must work in liaison with the Maintenance Technician(s) during interruptions to existing systems. The on-site Electronics Maintenance Contractor responsible for the maintenance of all security systems with the institution is currently "the ADGA Group". If the service provider changes during the course of these projects this information will be provided to the applicable contractor.
- c. Prior to commencement of each work period, the Contractor must advise the institutional Representative and Maintenance Technician(s) of the work that will be performed during that period.
- d. During the work day the Institutional Representative and Maintenance Technician(s) must be kept regularly informed of the progress being made and will be notified prior to any required disruption in system availability.
- e. As a minimum, the parties must meet at the beginning and end of the working day.
- f. The Contractor is responsible for briefing institution staff prior to leaving the work site for the day. The briefing must be given to the Correctional Manager in charge of the day to day operation of the Institution (or their designate) and must include, as a minimum:
 - Work performed that day
 - Operation status of the system, including any limitations in functionality or peculiarities
 - Contact name and number in the event of a system failure
 - Emergency contact numbers of installation technicians
- g. The Contractor must address all requests for change or deviation from this STR with the Design Authority before any on site discussions, to ensure all changes are consistent with National Policy and Technical Standards, and to ensure the Design Authority maintains a complete awareness of the project expectations and time-line.

4.2 Cable Labels & Label Installation

The Contractor must adhere to the following cable label requirements:

- a. The labels must be bold face laser quality, black print on white background.
- b. The labels must be self-adhesive, one piece, label and clear cover wrapped around cable.
- c. The wording on the labels must be approved by the Design Authority prior to manufacture.
- d. The Contractor will install labels on each end of the cable.
- e. The Contractor will install labels not less than 150mm from termination end of cable.
- f. All labels must be clearly visible and readable after final termination of cables without having to move or rotate cables.

4.3 Equipment Installation

The Contractor must adhere to the following equipment installation requirements:

- a. Install all existing equipment in/on the new console or in security equipment cabinets located in the CER as indicated by the Design Authority in the STR.
- b. Install all MCCP/CER cabling beneath the computer flooring or in the CER overhead cable tray and fasten it using Velcro type tie-wraps.
- c. The entire length of any existing cable that is contained entirely within the MCCP/CER to connect any new or relocated equipment must be replaced with new cable and connectors of the same type.
- d. Except as noted in item c) above, if any existing cable that is connected to equipment in other areas of the institution from equipment in the CER/MCCP is of insufficient length to connect to the new or relocated equipment location, it may be spliced.
- e. Splices may be made by using switchable DIN rail mounted terminal blocks or connectors compatible with the existing cabling.
- f. Splices to existing cable must be kept to an absolute minimum and must be identified by the Contractor in the Preliminary Design Report for review.
- g. Extending UTP cables between the MCCP and CER using a union will not be accepted.
- h. Provide one 20A non-UPS circuit with a 20A breaker in the new console for maintenance usage.

4.4 Project Review Meetings

The Contractor must adhere to the following project review requirements which are above and beyond those identified in document ES/SOW-0101.

- a. Upon contract award the Contractor must meet with CSC and/or their designated representative to discuss the scope of work and develop a full understanding of the parameters of the project.
- b. On a regular basis the Contractor must meet with CSC and its representatives to discuss security requirements, shut downs, cutover strategies, temporary measures, and other similar requirements.
- c. The Contractor must meet with CSC and/or their representatives prior to making any Genetec Omnicast® or Senstar 100® configuration changes to ensure that said changes are agreeable to Design Authority.

4.5 Cutover Planning

The Contractor must adhere to the following cutover planning requirements:

- a. Ensure that at no time will the institution be without a 100% functional Personal Portable Alarm (PPA) System, Fence Detection System (FDS), Radio System, or Motion Detection System (MDS).
 - b. No disruptions will be allowed without receiving written permission from the Design Authority at least 48 hours in advance. Permission must be requested at least 48 hours in advance of any disruptions in service to any sub-system(s).
 - c. Make provisions for the possibility that, while all necessary preparations may be conducted during regular working hours, the final cutovers for any sub-system(s) might need to be between 23:00 and 06:00.
 - d. Ensure that the existing sub-systems remain fully operational until the migration from the old console
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to the new console commences.

- e. Coordinate with CSC/ADGA the issuance of GFE handheld radios to the MCCP operator for use during the cutover process.
- f. Consider the CSC guidelines provided below as a suggested methodology for the MCCP console cutover. However, CSC is willing to consider other cutover plans.
 - Pre-install any required junction (splice) boxes.
 - Pre-install and terminate any new or replacement cables.
 - Conduct a pre-cutover test of the existing sub-system(s).
 - Relocate the existing Senstar[®] audio input connections to the CER.
 - Verify two (2) way radio transmissions are functional on all institutional base channels in all areas of the Institution.
 - Supply and install a temporary workstation table in the MCCP against the wall behind the Operator and temporarily relocate the remaining existing MCCP electronics to the temporary location. The supplied workstation table must be heavy duty, sturdy, and capable of supporting (as a minimum), twice the load of the equipment placed upon it.
 - Assemble and install the new MCCP console at the designated location.
 - Assemble and install any and all new monitors and monitor mounts.
 - Route pre-installed cables (low voltage and power) from beneath the computer flooring to the MCCP console.
 - Relocate the MCCP security electronics from the temporary workstation table to the new console.
- g. Perform a full functionality check on all components associated with the various MCCP sub-systems prior to commencing with any cutover related tasks and submit the results to the Design Authority. Sub-system cutovers will not commence until the Design Authority has provided authorization to proceed.
- h. Perform a full functionality pre-Site Acceptance Test (SAT) check on all components associated with the various MCCP sub-systems upon completing the cutover process and prior to commencing with the final SAT.
- i. Submit the completed pre-SAT to the Design Authority for review prior to the completion of a final SAT at which time the Design Authority may ask the Contractor to perform a sample of the tests carried out in the pre-SAT, or, depending on system performance, all of the tests may be repeated.(See section 4.7 below for SAT requirements.)

4.6 Institution Operations

The Contractor must adhere to the following on site operational requirements:

- a. The Contractor must take every precaution to minimize any disturbance to institutional operations.
- b. The Contractor and his staff must cooperate fully with operational staff and conform to all security requirements.
- c. As the existing MCCP is in operation 24/7/365 special attention must be paid to ensure that any upgrades, relocations, or cutovers have limited impact on the operation of the existing systems and that when cutovers are required, the cutover time is kept to a minimum.
- d. The Contractor must ensure that the number and duration of interruptions to existing systems are kept to an absolute minimum.

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- e. The Contractor must ensure that all cabling and cabinet preparations required for the relocation of existing equipment is completed prior to the interruption of any sub-system.
 - f. All down time must be coordinated with the Assistant Warden Operations on site or his/her designate.
 - g. The Contractor must submit to the Design Authority, for review and approval, a detailed schedule indicating when an interruption to each system is to occur and the duration of the interruption.
 - h. The Contractor must submit to the Design Authority, for review and approval, a detailed description of the proposed procedures to be followed for each interruption.
 - i. The Contractor's staff may be required to work during evenings, nights and/or weekends to reduce the amount of down time and to meet operational requirements. If the Contractor requests to work on a weekend it must be approved by the Institution. If the Institution does not approve the request it will not be deemed as a delay in the delivery of the contract.
 - j. Interruptions to the following systems must be done individually. During interruption of one system all other systems must be fully operational.
 - Two-way Radio System.
 - Facility Alarm Annunciation System (FAAS).
 - Perimeter Intrusion Detection System (PIDS).
 - Fence Detection System (FDS).
 - Perimeter Motion Detection System (MDS).
 - PIDS CCTV System.
 - Personal Portable Alarm (PPA) System.
 - Non-PIDS CCTV System.
 - Uninterruptible Power Supply System.

The timing and scheduling of these interruptions is subject to review and approval of the Institutional management and may be subject to change to accommodate site specific operational requirements. Depending on the security level of the Institution some of these systems will be interrupted during regular working hours while the others may need to be interrupted between the hours of 23:00 and 05:00. The Contractor must include the approved schedule for interrupting these systems in the cutover plan.

4.7 Testing and Acceptance Procedures

The Contractor must adhere to the following on site testing requirements:

- a. The Contractor must provide a detailed editable draft SAT plan to the Design Authority, or his designated representative, by mail or email, for approval at least two (2) weeks prior to the start of any installation requirements.
- b. The draft SAT must detail tests and procedures to be undertaken by the Contractor and witnessed by the Design Authority, Institutional Representative and Maintenance Technician to demonstrate that each system is fully functional and operational as it was prior to relocation to new equipment cabinet.
- c. The Design Authority must review the draft SAT, and may request revisions or additional tests to ensure all required testing is performed prior to accepting the work as completed.
- d. The draft SAT must be provided by the Contractor to the Design Authority in an itemized format indicating each test to be performed and the method in which it is to be performed.
- e. The Contractor must complete one hundred percent of the tests included in the SAT approved by the Design Authority prior to the final SAT being carried out for the Design Authority.

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- f. The Contractor must provide a fully completed and signed copy of the final SAT to the Design Authority, or his designated representative, by mail or email, within two weeks of completing the final SAT.
 - g. In the case where subcontractors have been used, the Contractor must provide written confirmation that the work of their subcontractor has been inspected and verified. This verification must be sent to the Design Authority or his designated representative, by mail or email, at least two (2) days prior to the start of the final SAT.
 - h. Testing may be witnessed by the Design Authority, a designated representative or a third party contractor.
 - i. If an unacceptable level of failed tests is encountered during the final SAT the testing must be halted until the Contractor has corrected the failures.
 - j. If a minor deficiency that does not affect the operational effectiveness of the equipment installation is encountered during the final SAT, the testing may continue. If a major deficiency is found during the testing that does affect the operational effectiveness of the installed equipment or system; the testing must cease until the deficiency has been corrected.
 - k. The final SAT must be conducted during normal working hours, 08:00 to 16:00, Monday to Friday. Testing at other times will only be done in an emergency situation or when stipulated by the Design Authority.
 - l. The Design Authority or designated representative must sign-off on the final SAT upon the successful conclusion of the testing. Any minor deficiencies identified during the testing must be indicated on the final SAT form. This signature indicates the Conditional Acceptance of the system.
 - m. The installed systems will be subjected to operational testing for a period of two (2) weeks following the Conditional Acceptance of the system. CSC will formally accept the system from the Contractor at the end of this two (2) week period, but only if all deficiencies have been corrected.
 - n. Any deficiencies noted by CSC during this two (2) week operational testing period will be communicated to the Contractor, who must then correct the deficiencies. The two (2) week operational testing period will begin again after all deficiencies have been cleared.
 - o. Equipment warranty period will start on the date the system is formally accepted.

4.8 Mounting

The Contractor must adhere to the following requirements when installing equipment in the racks in the CER.

- a. Install all existing equipment in the new console or in security equipment cabinets in the CER as indicated.
- b. Route all cabling through cable chases and neatly fasten using Velcro type tie-wraps.

5.0 SUPPORT AND TRAINING

5.1 Support

The Contractor must meet the following support requirements:

- a. CSA/CUL Certification:
 - I. Given the sensitive nature of all electronic components and the need for high reliability and safety, it is a requirement that all material and equipment be CSA/CUL certified.
 - II. Evidence of compliance must include certified test reports and definitive shop drawings.
- b. The Contractor is fully responsible for all work performed by a Contractor-provided subcontractor.
- c. System Support:
 - I. The Contractor must provide full support of the system through completion and acceptance by CSC and for one full year after acceptance (warranty period).
- d. This support must include applicable system upgrades (as they become available), troubleshooting, the correction of any system bugs or deficiencies, and the resolution of any operating problems.

5.2 Operator Training

In accordance with ES-SOW/0101 the Contractor must prepare and present two (2) two (2) hour Operator training courses to the trainers responsible for training MCCP staff. The training course must be provided at the site to two (2) groups of five (5) Operator-trainers in English. The course must provide a general functional overview of the operation of all subsystems relocated to the new console with a detailed focus on the specific changes implemented as a result of the MCCP console reconfiguration, which includes the following:

- a. Operation of the VMS desktop monitor (with camera tree and preconfigured layouts) to call up camera views/layouts on the two (2) large video monitors,
- b. Operation of Genetec Omnicast[®] for viewing preset layouts,
- c. Deployment of the Senstar100[®] Training Station,
- d. Operation of the soft keys on the PIDS touch screen that provide the Operator with the ability to select FDS audio, and
- e. Use of adjustable features associated with the new MCCP operator chair.

The course must be presented on site within two (2) weeks of successful acceptance testing of the system. Training sign-in sheets and a hard and soft copy of the training material must be included in the final documentation package, clearly identifying the name, date, institution, printed name of attendees, signature of attendees, and attendee comments on training.

In addition, the Contractor must provide short informal Operator training sessions as systems are cutover and at shift change to ensure on duty operational staff is informed of any reconfiguration changes to MCCP operations. As part of the informal training sessions the Contractor must provide a written description documenting the before and after system status and configuration for the changes implemented to MCCP operations after a system cutover. The total number of informal sessions provided

by the Contractor should coincide with the Contractor's proposed cutover schedule.

5.3 Maintenance Training

In accordance with ES/SOW-0101 the Contractor must prepare and present a four (4) hour training course to individuals responsible for maintenance of the equipment. The training course must be provided to one group of five (5) technicians in English. The course must provide a general functional overview of the maintenance and operation of all subsystems relocated to the new console with a detailed focus on the specific changes implemented as a result of the MCCP console reconfiguration, which includes the following:

- a. Detailed review of any and all implemented operational changes (refer to Section 5.2 of this STR),
- b. Procedures for making console adjustments to the console actuators and monitor mounting hardware,
- c. Location, functions, and interconnect details of any and all deployed MCCP junction boxes,
- d. Review of the implemented S100 programming modifications, and
- e. Thorough review of the updated as-built documentation provided by the Contractor.

The course must be presented on site within two (2) weeks of the successful acceptance testing of the system. The course syllabus must be presented to the CESM for approval at least two (2) weeks prior to training commencement. Training sign-in sheets and a hard and soft copy of the training material must be included in the final documentation package and must clearly identify the name, date institution, printed name of attendees, signature of attendees, and attendee comments on training.

6.0 DOCUMENTATION

6.1 Operator Manuals

In accordance with specification ES/SOW-0101, the Contractor must provide an Operator Manual that includes an overview of the functionality of all security systems that were cutover to the new MCCP console as well as a detailed description of any operational changes implemented as a result of the MCCP console reconfiguration. The provided Operator Manual must refer the reader to the original Operator Manuals for specific information related to the operation of any security systems that existed prior to the MCCP console reconfiguration. The Contractor must provide ten (10) hard copies and one (1) soft copy of the updated documentation in English to the site. The Contractor must provide one (1) soft copy of the updated documentation in English to each of the Design Authority, CESM, the REPO, and the National Maintenance Service Provider Headquarters (attn: Project Manager, CSC National Maintenance Program).

The Operator Manual updated documentation must include a drawing of the new console with each user interface clearly identified by name, purpose, and function. Any and all new operational features that have been introduced to the MCCP console must be clearly detailed using suitable text and screenshots.

6.2 Maintenance Manuals

The Contractor must provide Maintenance Manuals, in accordance with specification ES/SOW-0101, that includes an overview of the functionality of all security systems that were cutover to the new MCCP console as well as a detailed description of the equipment and maintenance changes implemented as a result of the MCCP console reconfiguration. The provided Maintenance Manual must refer the reader to the original subsystem Maintenance Manuals for specific information related to the maintenance of any security subsystem electronics that existed prior to the MCCP console reconfiguration.

The Contractor must provide all copies of the Maintenance Manual updated documentation in English. The Contractor must provide one (1) hard copy of the Maintenance Manual updated documentation to the site and four (4) soft copies of the Maintenance Manual updated documentation on CD or DVD as follows: one (1) soft copy to the Design Authority, one (1) soft copy to the CESM, one (1) soft copy to the CSC project engineer and one (1) soft copy to the National Maintenance Service Provider Headquarters (attn: Project Manager, CSC National Maintenance Program).

The Maintenance Manual updated documentation must include the duly completed and approved copies of the SAT and copies of the SAT results.

The Maintenance Manual updated documentation must contain a Contractor generated maintenance handover report which includes details of the equipment, dates of warranties, Contractor contact information and other project information.

6.3 As-Built Drawings

The Contractor must provide amended copies of the as-built drawings provided to prospective Bidders at the Mandatory Site Visit that reflect all of the changes completed during the execution of the project..

The Contractor must provide copies in AutoCAD 2013 format of the updated as-built drawings of the site installation and in accordance with specification ES/SOW-0101. The Contractor must provide one(1) hard copy and one (1) soft copy of the as-built drawings to the site, one (1) hard copy to the CESM, one (1) hard copy to the REPO, and one (1) hard copy to the National Maintenance Service Provider Headquarters (attn:Project Manager, CSC National Maintenance Program)."

The as-builts must form part of the requisite Maintenance Manual updated documentation detailed in Section 6.2 of this STR.