

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving - PWGSC / Réception des
soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Thermal Image Camera Pilot Project	
Solicitation No. - N° de l'invitation 21120-154770/A	Date 2015-04-01
Client Reference No. - N° de référence du client 21120-15-2104770	
GETS Reference No. - N° de référence de SEAG PW-\$\$HN-323-67083	
File No. - N° de dossier hn323.21120-154770	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-06-10	
Time Zone Fuseau horaire Eastern Standard Time EST	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Dubeau, Stéphane	Buyer Id - Id de l'acheteur hn323
Telephone No. - N° de téléphone (819) 956-1533 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Electrical & Electronics Products Division
11 Laurier St./11, rue Laurier
7B3, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation

21120-154770/A

Amd. No. - N° de la modif.

File No. - N° du dossier

hn32321120-154770

Buyer ID - Id de l'acheteur

hn323

CCC No./N° CCC - FMS No/ N° VME

21120-15-2104770

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PART 1 GENERAL INFORMATION

1. Security Requirement

A site clearance is required prior to the site visit and prior to admittance to the institution. For additional information, see Part 2, clause 5 – Mandatory Site visit and Part 6, Resulting contract clauses, clause 1, Security Requirement and Clause 1.2 Classification of this document is not classified.

2. Requirement

The statement of technical requirement is detailed under clause 2 of Part 6 - Resulting Contract Clauses.

2.1 Delivery Requirement

Delivery and installation of the goods are requested to be completed as soon as possible.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

4. Trade Agreement

The requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

PART 2 BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada. Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2014-09-25) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days Insert: ninety (90) days

1.1 SACC Manual Clauses

SACC Reference	Section	Date
A9033T	Financial Capability	2012-07-16
B1000T	Condition of Material	2014-06-26

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC Bid Receiving Unit will not be accepted

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

4. Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "*former public servant*" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"*lump sum payment period*" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S. 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes** () **No** ()

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes** () **No** ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

5. **Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

6. **Mandatory Site Visit**

It is mandatory that the Bidder or a representative of the Bidder visit the work site.

Arrangements have been made for site visit to be held as per the following schedule:
Mission institution, 8751 Stave Lake Street, Mission, British Columbia, V2V 4L8:
May 6th, 2015 at 10:00 AM PDT. Interested Bidders must meet at the Principal Entrance

Bidders will be required to sign an attendance form. Bidders should confirm in their bids that they have attended the site visit. Bidders who do not attend or send a representative will not be given an alternative appointment and their bids will be rejected as non-compliant. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

The onus is on the bidders to arrive at the site visit in a timely manner. Bidders arriving late may not be permitted to attend the site visit.

The Bidder must have at least one attendee at the site visits.

It is also a mandatory condition of this requirement that all attendees have a site clearance prior to the site visit. To apply for the site clearance, the bidders must complete a CPIC Clearance Request form (preferably in typed format), Annex G and submit the duly completed and signed form by each participant, by fax to (819) 953-4944 or by e-mail to stephane.dubeau@pwgsc.gc.ca. It is a mandatory condition that the CPIC Clearance Request be submitted for each site visit. It is requested that the CPIC Clearance Requests be received by this office no later than April 22, 2015. Site Clearance Request Forms received after April 22, 2015 may not be accepted. A site clearance obtained for work performed under similar requirements is not acceptable.

Bidders are requested to clearly identify the name of the participant, the name of the company they represent, telephone number, facsimile number and e-mail address.

Bidders should submit in writing to the Contracting Authority, a list of issues that they wish to table and the language they would like to address questions and answers, no later than five (5) calendar days prior to the scheduled site visit.

Bidders are advised that any clarifications or changes resulting from the site visits must be included as an amendment to the bid solicitation document through GETS – Guy and sell web site.

As proof of attendance, the Bidder must sign the attendance form provided by the CSC representative at the site visit.

7. Improvement of requirement during solicitation period

Should the bidder consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least five (5) calendar days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

PART 3 BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

- Section I: Technical Bid (2 hard copies)
- Section II: Financial Bid (1 hard copy)
- Section III: Certifications (1 hard copy)
- Section IV: Additional Information (1 hard copy)

Canada request that prices appear in Annex B - Basis of Payment only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process **Policy on Green Procurement** (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/Achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders must:

- Explain and demonstrate how they propose to meet the Minimum Performance Specifications in Annex C;
- include complete specification / descriptive literature.

Section II: Financial Bid

Bidders must submit their financial bid in Canadian funds in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

1. Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

Section III: Certifications

Bidders must submit the certifications required under Part 5.

Section IV: Additional Information

Additional Information

Bidder is requested to submit the following information with his bid. If not submitted, Public Works and Government Services Canada will request the bidder to submit the information within five (5) working days after bid solicitation closing date.

1. While delivery is requested as indicated above, the best delivery that could be offered are for:

1.1 Delivery Date – Item 001

Delivery must be received on or before _____ number of calendar days from the effective date of the Contract.

1.2 Installation – Item 003

Installation will be carried out within _____ calendar days of delivery date of item 001 and be completed within _____ calendar days from the effective date of the Contract.

2. Contractor Representatives

Name and telephone number of the person responsible for:

General enquiries

Name:

Telephone No.

Facsimile No.

E-mail address:

Delivery follow-up

Name:
Telephone No.
Facsimile No.
E-mail address:

3. Make and Model

Indicate the make and model number of the products offered (identify specific components which make up the system and option(s)).

Name of Manufacturer : _____
Model/Part Number : _____
Component(s)/option(s) : _____
Literature attached : Yes:() No:()

4 Warranty Repairs

It may be necessary for warranty repairs to be performed on site. You are requested to provide response time and location of nearest office/depot providing staff for this work. Response time shall not exceed forty-eight (48) hours. The contact person is as follows:

Response Time: _____
Name: _____
Telephone No.: _____
Facsimile No.: _____
Email/Internet Address: _____

5 Emergency Services/Repairs

If requested by Correctional Service Canada, the Contractor shall be required to provide on-site emergency service/repairs not covered under the warranty provision of the General Conditions 2030 during the contract period. The emergency crew shall be paid as indicated herein. The response time shall not exceed four (4) hours. The contact person is as follows:

Name: _____
Telephone No.: _____
Facsimile No.: _____
Email/Internet Address: _____

PART 4 EVALUATION PROCEDURES AND BASIS OF SELECTION

You are reminded that this solicitation requires the compliance and/or completion of requirements attached as an Annex and forming part of this document.

1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two (2) or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two (2) responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

Evaluation Criteria

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

1.1 Technical Evaluation

1.1.1 Mandatory Technical Criteria

The following Mandatory requirements must be submitted with the bid for evaluation.

- Technical compliance to Annex A - Requirement;
- Technical compliance to Annex C - Minimum Performance Specifications;
- Acceptance of all terms and conditions as mentioned in the bid solicitation;
- Completion of the Proposal;
- Attendance to mandatory site visit.
- Genetec Certified, Pivot3 Vstac Certified, and be a licensed dealer of Agent VI with experience with the installation and configuration of VI Systems and VI Search.

1.2 Financial Evaluation

The following Mandatory requirements must be submitted with the bid for evaluation.

- Compliance with Pricing Basis;
- Completion of Annex B - Basis of Payment.

The bid price will be determined by processing items at Annex B- Basis of Payment as follows: Sum of all items total price (firm unit/lot prices x quantity).

1.2.1 Pricing Basis

The bidders must quote firm unit/lot prices in Canadian dollars, DDP Delivered Duty Paid, destination: Mission institution, 8751 Stave Lake Street, Mission, British Columbia, V2V 4L8., Applicable Taxes extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

2. Basis of Selection

A bid must comply with the requirement of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price on an aggregate basis of items 001 to 004 will be recommended for award of a contract.

PART 5 CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract. Canada will declare a bid non-responsive if the required certifications and related documentation are not completed and submitted as requested.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder' certifications. Failure to comply with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](#)" list (http://www.labour.gc.ca/eng/standards_eq/emp/fcp/list/inelig.shtml) available from [Human Resources and Skills Development Canada \(HRSDC\) - Labour's](#) website. Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list at the time of contract award.

1.3 General Environmental Criteria Certification

By submitting the bid, the bidder certifies that the information submitted in the General Environmental Criteria table found at [Annex H](#) is accurate and complete.

By submitting the bid the Bidder certifies that it meets, and will continue to meet throughout the duration of any resulting contract, a minimum of four out of seven requirements identified in the General Environmental Criteria Table found at [Annex H](#); Additional Information: The Bidder must complete [Annex H](#) by inserting a checkmark next to every criteria that are met. Bidders are requested to submit [Annex H](#) with their bid. As this is a new procedure, Canada reserves the right to request [Annex H](#) after bid closing. The Contracting Authority will inform the Bidder of a time frame within which to provide it. Failure to provide [Annex H](#) within the required time frame will render the bid non-responsive.

2. Additional Certifications required with the Bid

Bidders must submit the following duly completed certifications with their bid.

2.1 Canadian Content Certification

SACC Manual clause A3050T (2010-01-11) Canadian Content Definition

This procurement is conditionally limited to Canadian goods. Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the good(s) offered are Canadian goods, as defined in clause A3050T, may be considered. Failure to provide this certification completed with the bid will result in the good(s) offered being treated as non-Canadian goods.

The Bidder certifies that:

- () the good(s) offered are Canadian goods as defined in paragraph 1 of clause A3050T.

Signature

Date

2.2 Certification

2.2.1 The bidder must provide a copy of their Certification.

The Bidder must provide Genetec Certification, Pivot3 Vstac Certification, and be a licensed dealer of Agent VI with experience with the installation and configuration of VI Systems and VI Search.

PART6 RESULTING CONTRACT CLAUSES

1. Security Requirement

A site clearance is required prior to admittance to the institution. The Contractor must submit completed CPIC forms for all employees who will be working at the institution. The duly completed and signed CPIC forms must be submitted ten (10) working days prior to start- up date as stipulated in the Statement of Technical Requirement.

1.2 Classification of this document is Not Classified.

NIL security screening required, no access to sensitive information or assets. Contractor personnel will be escorted in specific areas of the institution as /where required, by authorized Correctional Service Canada personnel.

Contractor personnel shall submit to a local verification of identity/information, by Correctional Service Canada, prior to admittance to the institution. Correctional Service Canada reserves the right to deny access to the institution, of any Contractor personnel, at any time.

2. Requirement

The Contractor must provide the goods and services in accordance with the statement of technical requirements stated herein at Annex A and in the quantities stated at Annex B- Basis of Payment.

Delivery to destination, installation and training are included.

2.1 SACC Manual Clauses

SACC Reference	Section	Date
B1501C	Electrical Equipment	2006-06-16
B7500C	Excess Goods	2006-06-16
A9068C	Government Site Regulations	2010-01-11
A2000C	Foreign Nationals (Canadian Contractor)	2006-06-16
A2001C	Foreign Nationals (Foreign Contractor)	2006-06-16

2.2 Additional Work

The Design Authority may, at any time before issuing the final acceptance notice, order work or material in addition to that provided for in the Statement of technical requirement. The contractor must perform the work in accordance with such orders, deletions and changes pursuant to Part 6, Article 17 - Design Change, Additional Work of New Work and on the same terms and conditions contained or referenced herein.

3. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

3.1 General Conditions

2030 (2013-06-27), General Conditions - Goods (Higher Complexity), apply to and form part of the Contract.

2010C (2013-06-27) General Conditions - Services (Medium Complexity), apply to and form part of the Contract

3.2 Supplemental General Conditions

4001 (2013-01-28), Supplemental General Conditions – Hardware Purchase, lease and Maintenance, apply to and form part of the Contract.

4003 (2010-08-16), Supplemental General Conditions – Licensed Software, apply to and form part of the Contract.

4004 (2013-04-25), Maintenance and Support Services for Licensed Software, apply to and form part of the Contract.

4012 (2012-07-16), Supplemental General Conditions – Goods – Higher Complexity, apply to and form part of the Contract.

4. Term of Contract

4.1 Delivery Date item 001 (to be filled in only at contract award by the Contracting Authority)

Delivery must be received on or before _____ (number of calendar days from the effective date of the Contract).

4.2 Installation – Item 003 (to be filled in only at contract award by the Contracting Authority)

Installation will be carried out within _____ calendar days of delivery date of item 001 and be completed within _____ calendar days from the effective date of the Contract.

4.3 Training sessions

Coordination for the training session will be arranged between the Contractor and the Design authority within ten (10) calendar days after delivery of the equipment. The training session must be provided in accordance with Annex A- Statement of technical requirement and Annex B - Basis of Payment.

5. Authorities

5.1 Authority

The Contracting Authority for the contract is:

Stéphane Dubeau
Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Logistics, Electrical, Fuel and Transportation Directorate
HNDivision, 7B3, Place du Portage, Phase III
11 Laurier Street, Gatineau, Quebec, K1A 0S5
Telephone : (819) 956-1533
Facsimile: (819) 953-4944
E-mail address: stephane.dubeau@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Procurement Authority

The Procurement Authority for the Contract is:

(Name of Procurement Authority)

(Title)

(Organization)

(Address)

Telephone: ___ - ___ - ___

Facsimile: ___ - ___ - ___

E-mail: _____ .

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Design Authority

The design authority for the Contract is:

Name: *will be inserted at contract*
Title: *will be inserted at contract*
Telephone : (xxx) xxx-xxxx
Facsimile: (xxx) xxx-xxxx
E-mail address: Fill In

The design authority is the representative of the department or agency for whom the work is being carried out under the Contract and is responsible for all matter concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Design Authority, however the Design Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.4 Contractor's Representative

Name and telephone number of the person responsible for:

General Enquiries

Name: *will be inserted at contract*
Telephone No. *will be inserted at contract*
Facsimile No. *will be inserted at contract*
E-mail address: *will be inserted at contract*

Delivery Follow-up

Name: *will be inserted at contract*
Telephone No. *will be inserted at contract*
Facsimile No. *will be inserted at contract*
E-mail address: *will be inserted at contract*

5.5 Warranty Repairs

The contact person for warranty repairs to be performed on site as it may be necessary is as follows:

Response Time: will be inserted at contract

Name: will be inserted at contract

Telephone No.: will be inserted at contract

Facsimile No.: will be inserted at contract

Email/Internet Address: will be inserted at contract

5.6 Emergency Services/Repairs

If requested by Correctional Service Canada, the Contractor shall be required to provide on-site emergency service/repairs not covered under the warranty provision of the General Conditions 2030 during the contract period. The emergency crew shall be paid as indicated herein. The response time shall not exceed four (4) hours. The contact person is as follows:

Name: will be inserted at contract

Telephone No.: will be inserted at contract

Facsimile No.: will be inserted at contract

Email/Internet Address: will be inserted at contract

6. Proactive Disclosure of Contracts with Former Public Servants (if applicable)

By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

7. Payment

7.1 Basis of Payment – Milestone Payments

7.1.1 Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using [PWGSC-TPSGC 1111](#), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form [PWGSC-TPSGC 1111](#) have been signed by the respective authorized representatives;
- (c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada

7.1.2 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the contract is as follows:

1st milestone Delivery of equipment as specified in Annex B – Basis of Payment, Item 001

2nd milestone Installation of equipment as specified in Annex B – Basis of Payment, item 003

3rd milestone Completion of training as specified in Annex B – Basis of Payment, Item 004

7.2 SACC Manual Clauses

SACC Reference	Section	Date
G1005C	Insurance	2008-05-12

7.3 Travel and living Expenses

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

All payments are subject to government audit.

Estimated Cost: \$ _____

8. Invoicing Instructions –Delays and design changes payments

8.1 The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

8.2 Invoices must be distributed as follows:

- (a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
- (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

9. Certifications

9.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and HRSDC-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by HRSDC will constitute the Contractor in default as per the terms of the Contract.

9.3 SACC Manual Clauses

SACC Reference	Section	Date
A3060C	Canadian Content Certification	2008-05-12

10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*Supply specialist will insert the name of the province or territory as specified by the Bidder in its bid, if applicable*)

11. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the supplemental general conditions 4012 (2012-07-16), Supplemental General Conditions – Goods – Higher Complexity;
- (c) the supplemental general conditions 4001 (2013-01-28), Supplemental General Conditions – Hardware Purchase, lease and Maintenance;
- (d) the supplemental general conditions 4003 (2010-08-16), Supplemental General Conditions – Licensed Software;
- (e) the supplemental general conditions 4004 (2013-04-25), Maintenance and Support Services for Licensed Software

-
- (f) 2030 (2014-09-25), General Conditions – Goods (Higher Complexity), apply to and form part of the Contract.
 - (g) Annex A, Statement of Work;
 - (h) Annex B, Basis of Payment.

12. SACC Manual Clauses (Delivery)

SACC Reference	Section	Date
D2000C	Marking	2007-11-30
D2001C	Labelling	2007-11-30
D9002C	Incomplete Assemblies	2007-11-30

12.1 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

1. Delivered Duty Paid (DDP) Mission institution, 8751 Stave Lake Street, Mission, British Columbia, V2V 4L8, Incoterms 2000 for shipments from a commercial contractor.
2. The Contractor is responsible for all delivery charges, administration, costs and risk of transport and customs clearance, including the payment of customs duties and taxes.

13. Inspection and Acceptance

- 1) Inspection

Inspection must be carried out by the Design Authority or the authorized representative at destination.

- 2) Final Acceptance

- a) The Contractor must be required to present the work, for final acceptance, when such work has been designed, manufactured, delivered to site and installed and has successfully passed all tests in strict accordance with the specification and terms and conditions, and the Contractor has performed all other work and complied with all the terms and conditions of the contract.
- b) Upon verification of the above, the Design Authority will by written notice to the Contractor so acknowledge, and such notice shall constitute final acceptance. Final Inspection and acceptance will take place at destination when all goods are delivered services rendered, and after all deficiencies identified by the Design Authority or the authorized representative are rectified and accepted.

14. Software updates

- 13.1 The Contractor must provide all software updates and new releases to the Design Authority for a period of one (1) year following the Final Acceptance as detailed in Article 17 - Final Acceptance, at no additional cost.
- 13.2 Note: The word "updates" means all enhancements, extensions or other modifications to the software. The word "releases" means enhancements or modifications to the software or new modules or supplementary modules that function in conjunction with the software, that represent the next generation of software, and which the Contractor has decided to make available to its customers usually for an additional charge.

15. Meetings

A meeting may be convened after contract award at a location to be determined by the Design Authority to review contractual and technical requirements. The Contractor will be responsible for the preparation and distribution of the minutes of meeting. The meeting will be held with representatives of the Contractor and CSC and the minutes will be sent to Contracting Authority.

16. Delay by Canada

In the event that an installation crew proceeds to the site but is unable to perform the work due to an inmate disturbance or other delays caused by Canada at the site, the Contractor shall immediately notify the Design Authority. The cost of holding the installation crew on standby shall be paid as indicated herein. In no event shall a crew remain on standby for more than four (4) hours per day without prior authorization.

17. Procedures for Design Change or Additional Work

The Contractor must follow these procedures for any proposed design change/deviation to contract specifications. The Contractor must complete Part 1 of form PWGSC-TPSGC 9038, Design Change/Deviation, and forward one (1) copy to the Technical Authority and one (1) copy to the Contracting Authority. The Contractor will be authorized to proceed upon receipt of the design change/deviation form signed by the Contracting Authority. A contract amendment will be issued to incorporate the design change/deviation in the Contract and a price support could be requested.

18. T1204 - Information Reporting by Contractor

1. Pursuant to paragraph 221 (1)(d) of the Income Tax Act, R.S.C. 1985, c.1 (5th Supp.), payments made by departments and agencies to contractors under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T1204 Government Service Contract Payments slip.

-
2. To enable departments and agencies to comply with this requirement, the Contractor must provide the following information within 45 calendar days from date of contract award:
- (a) the legal name of the Contractor, i.e. the legal name associated with its business number or Social Insurance Number (SIN), as well as its address and postal code;
 - (b) the status of the Contractor, i.e. an individual, a sole proprietorship, a corporation, or a partnership;
 - (c) the business number of the Contractor if the Contractor is a corporation or a partnership and the SIN if the Contractor is an individual or a sole proprietorship. In the case of a partnership, if the partnership does not have a business number, the partner who has signed the Contract must provide its SIN;
 - (d) in the case of a joint venture, the business number of all parties to the joint venture who have a business number or their SIN if they do not have a business number.
3. The information must be sent to the person and address specified below. If the information includes a SIN, the information should be provided in an envelope marked "PROTECTED".
Contact: _____ Address: _____

Annex A
Statement of Technical Requirement
To expand the Thermal Image Camera Project
At Mission Institute

1.0 INTRODUCTION

1.1 General

CSC has a requirement to expand the existing Thermal Image Camera Pilot Project at Mission Institution.

The existing thermal imaging pilot project consists of two Axis thermal cameras, Agent VI video analytic software recorder of Genetec software version 4.6 and utilizing Pivot3 vSTAC's for storage.

This STR will cover the technical requirements for the required work, with minimum disruption to the daily operation and security of the institution.

The Mission Institution is a medium-security facility located three (3) kilometers north of Mission, in the central Fraser Valley, and about 80 kilometers east of Vancouver. The Institution opened in April 1977.

1.2 Scope

The Contractor must supply, install, test, and train operators/maintenance personnel on the installed equipment, as described in this STR. The Contractor must provide acceptable documentation for the operation and the maintenance of this equipment.

1.3 Requirement

The Contractor must be Genetec Certified, Pivot3 Vstac Certified, and be a licensed dealer of Agent VI with experience with the installation and configuration of VI Systems and VI Search.

1.4 Concept of Operation

The Thermal Imaging Cameras have the ability to monitor the perimeter area of the institution 24/7 and detect the presence of persons and animals. The cameras and the associated software have the ability to generate alarms to alert personnel to the presence of a possible intruder. These cameras are set up with the specific field of view and are designed to generate an alert when the field of view is changed or motion is detected.

The existing Thermal Imaging Cameras utilizes the existing PIDS camera system infrastructure. The expansion of the Thermal Imaging Cameras will utilize the same infrastructure expanding the network switches as required.

The alarms are generated through Agent VI video analytic software and interfaced to the Genetec Omnicast system version 4.6 and recorded on Pivot3 vSTAC watch.

1.5 Alarm Integration

Thermal Imaging Camera System must report alarms to the Genetec Maintenance Monitor for the following conditions:

1. Camera not recording.
2. Camera not working/no image.
3. Agent VI off line.

1.6 Terminology

This section provides a glossary of acronyms and definition of frequently used words contained in the Statement of Technical Requirements.

CER	Common Equipment Room
CSC	Correctional Service Canada
DA	Design Authority
RTEO	Regional Telecommunications and Electronics Officer
FDS	Fence Disturbance Detection System
PA	Public Address
CCTV	Close Circuit Television
NVR	Network Video Recorder
NVUS	Network Video User Station
UPS	Uninterruptible Power Supply
ODTR	Optical Time Domain Reflectometer
IP	Internet Protocol
PIU	PIDS Intrusion Unit
PIDS	Perimeter Intrusion Detection System
SIDS	Supplementary Intrusion detection System
STR	Statement of Technical Requirement
MDS	Motion Detection System
FDS	Fence Detection System
MCCP	Main Communications and Control Post
ATP	Acceptance Test Plan
ADGA	CSC Electronic Maintenance Contractor
CCO	Coordinator Correctional Officer
CPIC	Canadian Police Information Centre
CESM	Chief Electronic System Maintenance

2.0 REFERENCE DOCUMENTS

2.1 Applicability

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

2.2 Applicable Standards and Specifications

- | | | |
|----|-------------|---|
| a. | ES/SOW-0101 | Electronics Engineering Standards
Procurement and Installation |
| b. | ES/SOW-0102 | Quality Control |
| c. | ES/SOW-0110 | Structured Cable Systems |
| d. | ES/SOW-0502 | Electronics Engineering Standards
Test and Evaluation Guidelines |

Items a., b.,c. and d. are available at Annex I

2.3 Drawings

Site drawings are available at Annex D-Site Plan for overview of site and camera location.

2.4 Language

The language at all Pacific Region Institutions is English; all PIU display and control information must be in English. The operator, maintenance manuals and as-built drawings must be provided in English. Training and documentation must be provided as per Paragraphs 5.1 through 5.4.

3.0 OPERATIONAL CRITERIA

3.1 General

The operational parameters of the installed equipment must meet the performance and operational requirements in accordance with the Specifications and Standards listed in paragraph 2.2.

4.0 TECHNICAL REQUIREMENTS

4.1 Systems Requirements

The contractor must supply and install 15 fixed, IP, POE, IP66 rated thermal outdoor cameras, around the perimeter of the Institution, the 2 existing thermal imaging cameras must be replaced.

The Contractor must utilize and connect the cameras and associated to the existing PIDS CCTV equipment.

The Contractor must replace the equipment required in the PIDS CCTV Utility Boxes as required to expand the capacity on the camera system.

The Contractor must install the cameras on the existing guard towers and Lamp Standards around the perimeter of the Institution.

The Contractor must upgrade the existing Genetec version 4.6 Omnicast software to version 4.8.

The Contractor must integrate the cameras to the existing Thermal Camera Pilot Project System, Genetec Omnicast, Pivot3 and Agent VI.

The Contractor must supply the cameras licences for Genetec and Agent VI for the 13 new cameras, two cameras as part of the Pilot project must be replaced and the licences reused.

4.2 Camera Requirements

CSC does not presently have a standard for a Fixed Thermal Imaging Camera; the Contractor must meet or exceed the following Thermal Imaging Camera Specifications:

Video compression H264

Video Resolution 640 x 480

Video time Rate 30fps

At least 2 H264 Video Streams

Casing IP66 Rated

Power POE IEEE 802.xxx

Operating Temperature -40° C to +60° C

Open API for software integration

4.3 **Removal of Equipment and Cable**

The Contractor must remove all of the redundant cables, and redundant equipment located in tower boxes, on the fences, in the CER or in MCCP. Care must be taken to ensure that any cables and conduits of other systems are not damaged. The Contractor must return any electronic equipment to ADGA and must dispose of all of the wire or cabling off site in an environmentally friendly way.

4.4 **System Installation**

The Contractor must provide, install and test the new CCTV equipment to ensure a complete and fully functional, IP based PIDS CCTV system. The new CCTV system must meet or exceed all of the performance and operational requirements contained in the STR, applicable Standards and Specifications listed in Section 2.2.

The Contractor must avoid, as much as possible, the use of conduit in inmate accessible areas. The Contractor must utilize existing pipe chases, existing conduit in the walls, etc., where possible. New lengths of conduit must be of the minimum necessary length. All newly installed conduits carrying video for this project must be identified, except in inmate accessible areas, by prominent labels with bright green wording. These labels must be located at each end of the conduit run, on both sides of any penetration of a wall, and at 3.5 metre points along its length.

All data cables and data jumper cables (minimum 23 gauge), jacks and connector boots installed, whether CAT 6 or fibre optic, must be bright green in colour. All cables must be FT4 rated.

All patch cables must be stranded cable with RJ45 connectors. RJ45 connectors must be attached to solid conductor cable.

All installed(*) runs of CAT6 cable must be solid conductor cable and terminated into patch panels in equipment racks or faceplates in other locations.

(*)An installed cable is any cable that is run through a conduit, run from one area in a building to another area, any cable that travels farther than the adjacent equipment cabinet in a series of cabinets.

5.0 **ADDITIONAL REQUIREMENTS**

5.1 **Operator Training**

The Contractor must prepare and present a one-day training course at Mission Institution, in English, to a group no more than five Operator/Trainers in the group, responsible for the operation of the equipment in accordance with the specification ES/SOW-0101 Statement of Work. The course must concentrate on the features and proper operation of the installed system with hands on experience. The course must be presented on the site within two (2) weeks of the successful acceptance testing of the system.

5.2 **Maintenance Training**

The Contractor must prepare and present two (2) two-day training course, in English, to up to seven (7) persons responsible for the maintenance of the equipment. The course must concentrate heavily on the material contained in the technical and site manual . The course must be presented on the site within two (2) weeks of the successful acceptance testing of the system. Training can be combined at Mission Institution.

5.3 **Manuals**

The Contractor must provide the operator and technical manuals in accordance with the specification ES/SOW-0101 Statement of Work. The Contractor must provide ten (10) hard copies of the operator manual in English to the site. The Contractor must provide one (1) hard copy of the operator manual in English to each of the DA, the CESM and ADGA Headquarters (attn: Project Manager, CSC National Maintenance Program).

Maintenance manuals must all include completed ATP forms. The Contractor must provide copies of the completed Maintenance Handover Report Form contained in Annex C - Maintenance Handover Report Form.

The Contractor provide maintenance manuals and upgrade as-built drawings that include all of the information and drawings found in the existing IP CCTV system manuals and as-built.

The Contractor must provide all copies of the maintenance manuals in English. The Contractor must provide two (2) copies of the maintenance manual to the site, one (1) hard copy to the DA, one (1) copy to the CESM and one (1) copy to ADGA Headquarters (attn: Project Manager, CSC National Maintenance Program).

All manuals must be delivered in electronic format CD, DVD, or Thumb Drive. All manuals must have an interactive index that must link the table of contents to documents within the manual. All documents within the manual must be presented in Adobe Acrobat PDF format.

5.4 As-Built Drawings

The Contractor must provide electronic and hard copies as-built drawings of the site installation in a format and in accordance with specification ES/SOW Statement of Work. The Contractor must provide two (2) hard copies of the as-built drawings to the site, one (1) to the DA, one (1) to the CESM and one (1) to ADGA Headquarters (attn: Project Manager, CSC National Maintenance Program) within thirty (30) days of an accepted ATP.

5.5 Software

The Contractor must provide CD copies of any system software in accordance with specification ES/SOW-0101 Statement of Work. The Contractor must provide two (2) copies of the software to the site, one (1) to the Design Authority and one (1) to the RTEO.

5.6 Testing

- 5.6.1 The Contractor must provide a detailed ATP to the DA, or his designated representative, by fax or email, for approval at least two (2) weeks prior to the start of installation of the CCTV equipment and system.
- 5.6.2 The Contractor must complete (one hundred percent (100%)) of the tests outlined in the ATP prior to the ATP testing being carried out by the DA.
- 5.6.3 The Contractor must provide a fully completed and signed copy of the ATP to the DA, or his designated representative, by fax or email, at least two (2) working days prior to the start of the final ATP testing. This copy of the ATP must include all of the results of the tests carried out in Section 5.6.2.
- 5.6.4 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 DA or his designated representative, by fax or email, at least two (2) days prior to the start of the ATP.
- 5.6.5 Testing may be carried out by the DA, a designated representative or a third party contractor
- 5.6.6 If necessary, the DA could repeat all of the ATP tests done by the contractor or a percentage of them. If there is an unacceptable level of failed tests during the ATP testing by the DA; the ATP testing will be halted until the Contractor has corrected these failures.

-
- 5.6.7 If the DA during the ATP testing finds a minor deficiency that does not affect the operational effectiveness of the CCTV equipment or system, the ATP testing may continue. Any minor deficiency must be rectified within thirty (30) days; an extension must be approved by the DA and or the RTEO. If a major deficiency is found during the ATP testing that does affect the operational effectiveness of the CCTV equipment or system; the testing must cease until the deficiency has been corrected.
- 5.6.8 ATP testing must be done during normal working hours, 08:00 am to 4 pm, Monday to Friday. ATP testing at other times must only be done in an emergency situation.
- 5.6.9 The DA or designated representative must sign-off on the ATP, upon the successful conclusion of the testing. Any minor deficiencies noted during the testing must be indicated on the ATP form. This signature indicates the Conditional Acceptance of the system.
- 5.6.10 The system must be subjected to operational testing for a period of two (2) weeks following the Conditional Acceptance of the system. CSC must formally accept the system from the Contractor at the end of this two (2) week period, but only if all deficiencies have been corrected.
- 5.6.11 Any deficiencies noted by CSC during this two (2) week operational testing period must be communicated to the Contractor, who must then be required to correct the deficiencies. The two (2) week operational testing period must begin again after all deficiencies have been cleared.
- 5.6.12 The equipment warranty period must start on the date the system is formally accepted.

5.7 **Operational Down-Time**

Equipment and systems operational down time must be kept to a minimum. All down time must be coordinated with the Coordinator of Correctional Operations (CCO) on site or designate. The Contractor's staff could be required to work during evenings, nights and/or weekends to reduce the amount of down time and to meet operational requirements.

5.8 **Institutional Operations**

The Contractor must take every precaution to minimize any disturbance to institutional operations. The Contractor and his staff on site must cooperate fully with operational employee and conform to all security requirements.

5.9 **Institution Address**

8751 Stave Lake Street
Mission, British Columbia
V2V 4L8

5.10 **Security**

The Contractor must submit completed CPIC forms for all employee who will be working at the Institutions. The CPIC forms must be submitted to the CESM , or his designate, ten (10) working days prior to the start-up date.

5.11 **Safety**

The Contractor must comply with the document entitled" Safety Regulations for Security Electronics Contractors Working at CSC Institutions" attached as Annex B.

5.12 **Communication Responsibility**

The Contractor must be responsible for briefing institution employee prior to leaving the work site for the day. The briefing must be given to the Correctional Manager Operations (CMO), and will include, as a minimum:

- a) Work performed during the day
- b) Operation status of the system, including any limitations in functionality or peculiarities
- c) Contact name and number in the event of a system failure

Below, use this format to do yours. It preferable to have a good cost break down in case that we have only one responsive bidder

**Annex B –
Basis of Payment
To expand the Thermal Image Camera Project
At Mission Institute**

Item	Description	Unit of Issue	Qty	Firm Unit	Extended Price
001	Supply the thermal Image Cameras as per Annex A, Statement of Technical requirement	EA	1	\$____/unit	\$_____
002	Delivery cost per Annex A, Statement of Technical requirement	LOT	1	\$____/lot	\$_____
003	Installation per Annex A, Statement of Technical requirement (excluding travel and living expenses)	LOT	1	\$____/lot	\$_____
004	Training per Annex A, Statement of Technical requirement (excluding travel and living expenses)	LOT	1	\$____/lot	\$_____
005	Travel and living expenses associated with the installation and training of the equipment. To include all costs for travel, accomodation, meals, wages, living expenses and all other associated costs for the vendor's representative. Travel required; Yes: ___ No: ___ Estimated number of individuals: ___ Estimated number of days: ___			\$____/lot	
Total Bid Price - Customs duties are included and Applicable Taxes are extra. (Total of items 001 to 004)					\$_____

Product Proposed (filled out at time of Contract award by contract authority)

Name of Manufacturer : _____
 Model / Part number : _____
 Components and/or options : _____

Annex C

Minimum Performance Specifications

Bidders must complete and include this Minimum Performance Specifications with their bid in the technical bid section.

- 1) Bidders must address any concerns with the Minimum Performance Specifications in written detail to the Contracting Authority before bid closing as outlined in the RFP.
- 2) Bidders must address each Minimum Performance Specifications, listed below, whether the products offered “Meets or Exceeds” or “Doesn’t Meet” and provide supporting documentation for each item. Bidders must identify on their supporting documentation where the information can be found and, if applicable, “N/A” if documentation is not Available.
- 3) Bidders are requested to cross reference by Req no. on their supporting document where it clearly shows the specification meets or exceeds each minimum specification. Lacking published supporting literature, Bidders must, at a minimum, certify below that no published specifications exist for Req. No. identified as N/A and that product offered is compliant with the Minimum Performance Specifications.

Req. No.	Requirement	Meets	Doesn't Meet	Page number from supporting documentation
1.0	SYSTEM REQUIREMENTS			
1.1	The contractor must supply and install 15 fixed, IP, POE, IP66 rated thermal outdoor cameras, around the perimeter of the Institution, the 2 existing thermal imaging cameras must be replaced.			
1.2	The Contractor must utilize and connect the cameras and associated to the existing PIDS CCTV equipment.			
1.3	The Contractor must replace the equipment required in the PIDS CCTV Utility Boxes as required to expand the capacity on the camera system			
1.4	The Contractor must install the cameras on the existing guard towers and Lamp Standards around the perimeter of the Institution			
1.5	The Contractor must upgrade the existing Genetec version 4.6 Omnicast software to version 4.8.			
1.6	The Contractor must integrate the cameras to the existing Thermal Camera Pilot Project System, Genetec Omnicast, Pivot3 and Agent VI			
1.7	The Contractor must integrate the cameras to the existing Thermal Camera Pilot Project System, Genetec Omnicast, Pivot3 and Agent VI.			
1.8	The Contractor must supply the cameras licences for Genetec and Agent VI for the 13 new cameras, two cameras as part of the Pilot project must be replaced and the licences reused.			

2.0	CAMERA REQUIREMENTS			
CSC does not presently have a standard for a Fixed Thermal Imaging Camera; the Contractor must meet or exceed the following Thermal Imaging Camera Specifications:				
2.1	Video compression H264			
2.2	Video Resolution 640 x 480			
2.3	Video time Rate 30fps			
2.4	At least 2 H264 Video Streams			
2.5	Casing IP66 Rated			
2.6	Power POE IEEE 802.xxx			
2.7	Operating Temperature -40° C to +60° C			
2.8	Open API for software integration			
3.	<p>Removal of Equipment and Cable</p> <p>The Contractor must remove all of the redundant cables, and redundant equipment located in tower boxes, on the fences, in the CER or in MCCP. Care must be taken to ensure that any cables and conduits of other systems are not damaged. The Contractor must return any electronic equipment to ADGA and must dispose of all of the wire or cabling off site in an environmentally friendly way</p>			
4.	System Installation			
4.1	The Contractor must provide, install and test the new CCTV equipment to ensure a complete and fully functional, IP based PIDS CCTV system. The new CCTV system must meet or exceed all of the performance and operational requirements contained in the STR, applicable Standards and Specifications listed in Section 2.2			

4.2	The Contractor must avoid, as much as possible, the use of conduit in inmate accessible areas. The Contractor must utilize existing pipe chases, existing conduit in the walls, etc., where possible. New lengths of conduit must be of the minimum necessary length. All newly installed conduits carrying video for this project must be identified, except in inmate accessible areas, by prominent labels with bright green wording. These labels must be located at each end of the conduit run, on both sides of any penetration of a wall, and at 3.5 metre points along its length			
4.3	All data cables and data jumper cables (minimum 23 gauge), jacks and connector boots installed, whether CAT 6 or fibre optic, must be bright green in colour. All cables must be FT4 rated.			
4.4	All patch cables must be stranded cable with RJ45 connectors. RJ45 connectors must be attached to solid conductor cable.			
4.5	Provide and install 3 NVR remote monitoring workstations at the existing Pelco cameras controller location.			
4.6	All installed(*) runs of CAT6 cable must be solid conductor cable and terminated into patch panels in equipment racks or faceplates in other locations (*)An installed cable is any cable that is run through a conduit, run from one area in a building to another area, any cable that travels farther than the adjacent equipment cabinet in a series of cabinets.			

Solicitation No. - N° de l'invitation
21120-154770/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur
hn323

Client Réf. No. - N° de réf. du client
21120-15-2104770

File No. - N° du dossier
hn32321120-154770

CCC No./N° CCC - FMS No./N° VME

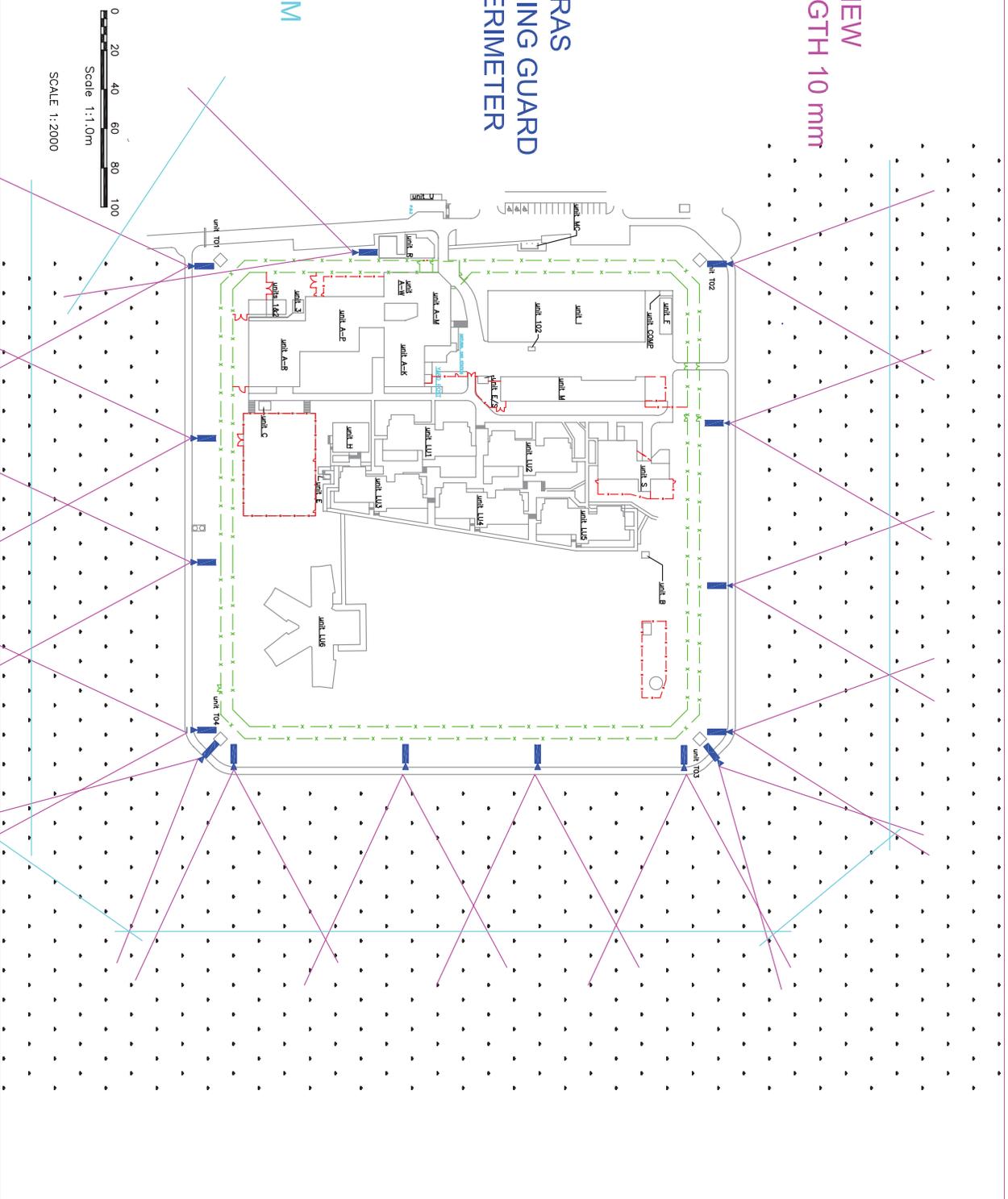
Annex D	site plan
Annex E	Maintenance Handover Report Form
Annex F	Design Change/Deviation, PWGSC-TPSGC 9038
Annex G	Institutional Access – CPIC Clearance Request, CSC/SCC 1279
Annex H	General Environmental Criteria Certification
Annex I	ES/SOW-0101 Electronics Engineering Standards Procurement and Installation
	ES/SOW-0102 Quality Control
	ES/SOW-0110 Structured Cable Systems
	ES/SOW-0502 Electronics Engineering Standards Test and Evaluation Guidelines

Annexes D, E, F, G, H and I are included as follows:

FIELD OF VIEW
FOCAL LENGTH 10 mm

THERMAL CAMERAS
TIED INTO EXISTING GUARD
TOWERS AND PERIMETER
LIGHT TOWERS

LINE CROSSING 80 M



CORRECTIONAL SERVICE OF CANADA
TECHNICAL SERVICES BRANCH
ELECTRONICS SYSTEMS

MAINTENANCE HANDOVER REPORT FORM

INSTITUTION:

DATE:

SYSTEM/EQUIPMENT:

APPLICABLE CONTRACT NO:

DSS FILE NO:
SPECIFICATIONS:

EQUIPMENT SUPPLIER (NAME AND ADDRESS):

SUPPLIER CONTACT (NAME AND TELEPHONE):

WARRANTY DETAILS:

Expiry date on materials/parts:

Expiry date on installation:

Expiry date on factory labour:

Travel & living expenses during the warranty period:

chargeable to CSC

not chargeable to CSC

Equipment transportation costs are paid by CSC for:

sending to the supplier

returning from the supplier

Negotiated rates for emergency repairs at site due to misuse/abuse during warranty period are as follows:

Not applicable.

Negotiated rates for labour at site after warranty period are as follows:

Not applicable.

DEFICIENCIES:None remain List attached **DOCUMENTATION:**

Maintenance manual:

Supplied

Due by ;

As-built drawings, cabling and wiring diagrams:

Supplied

Due by ;

Acceptance test results:

Supplied

Due by ;

DISTRIBUTION OF DOCUMENTATION:

1 copy to CESM sent on:

1 copy to RATIS/RTEO sent on:

2 copies to institution sent on:

SPARES:All delivered

Delivery to be completed by ;

EQUIPMENT LIST:See attached list. **MAINTENANCE TRAINING:**Completed

Scheduled for ;

SIGNATURE: Project Manager**DISTRIBUTION:** CESM, NHQ
RATIS/RTEO, RHQ
AWMS, Institution

SAFETY REGULATIONS FOR SECURITY ELECTRONICS CONTRACTORS
WORKING AT CSC INSTITUTIONS

1. Acts and Regulations

- a. The contractor must, at all times, be in full compliance with the latest issue of the following Acts and Regulations:
1. The Occupational Health and Safety Act of the province where the work is being carried out,
 2. The Canada Labour Code Part II,
 3. The National Building Code Part VIII,
 4. The Workers' Compensation Board regulations of the province where the work is being carried out,
 5. Safety regulations and procedures prepared by the Institution where the work is being carried out,
 6. All other safety regulations in effect at the work site.
- b. In the event of conflict between any provisions of the above authorities the most stringent will apply.

2. Safety Plan

- a. The contractor is responsible to ensure that a site specific Safety Plan has been completed and maintained on site. The contractor must provide the Safety Plan, when requested, to Institution Staff and the Safety Officers and Inspectors authorized by the Acts and Regulations listed in Paragraph 1.a. above. The Safety Plan will include a hazard assessment, controls, an emergency plan and a communications strategy.
- b. The contractor will complete a hazard assessment. All critical tasks and the associated hazards will be identified.
- c. Once hazards are identified, controls will be put in place to minimize the risks. The controls will include but not be limited to Safe Work Practices, Standard Operating Procedures and safety inspections.
- d. An emergency plan will be prepared that takes into consideration all of the identified hazards and the potential problems that could arise during the project. The emergency plan will outline the emergency procedures to be taken in the event of an accident and will include the contact names and telephone numbers of emergency response persons and services. The list of emergency response persons and services should include but not be limited to the following:
- Ambulance,
 - Fire Department,
 - Police Department,
 - Institutional Safety Officer.
- e. A communications strategy will be put in place that will ensure that information concerning hazards, controls and the emergency plan is communicated to all of the contractor's staff, sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies working at the institution.

- f. The Safety Plan will address and confirm to the Acts and Regulations identified in Paragraph 1.a. above.
- g. The submission of the Safety Plan to Correctional Service Canada will not relieve the Contractor of any legal obligations as specified by the Acts and Regulations listed in Paragraph 1.a. above.

3. Safety Training

All of the contractor's staff , sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies working at the institution will have received the required safety training as mandated in the Acts and Regulations listed in Paragraph 1.a. above.



Design Change/Deviation Modification/Écart par rapport au modèle

Project No. - N° de projet	File No. - N° de dossier	Contract No. - N° de contrat
Customer Department - Ministère client		Design Change Serial No. N° de série de la modification
Contractor - Entrepreneur		<input type="checkbox"/> Permanent Change Modification définitive <input type="checkbox"/> Deviation Écart

1. Description of change and Reasons - Description de la modification et motifs

Total Estimated Cost - Prix de revient total prévu	_____	_____
	Contractor's Signature - Signature de l'entrepreneur	Date

2. Customer Department - Ministère client

Approved - Approuvé Date

3. Total Firm Price of Change - Prix Globale de la modification

Procurement Officer - Agent d'approvisionnement Date

4. Change, if any, on Delivery Schedule - Modification éventuelle du calendrier de livraison

5. Aggregate Value of Design Changes - Valeur totale des modifications

1. Additional Information - Renseignements supplémentaires



**INSTITUTIONAL ACCESS
CPIC CLEARANCE REQUEST**

**ACCÈS À UN ÉTABLISSEMENT
DEMANDE DE VÉRIFICATION DU DOSSIER AU CIPC**

PLEASE PRINT INFORMATION CLEARLY - VEUILLEZ ÉCRIRE EN LETTRES MOULÉES

Institution – Établissement	Request received / Demande reçue le _____ Date (YYYY/MM/DD) – (AAAA/MM/DD)	PUT AWAY ON FILE / CLASSER AU DOSSIER ➡ 3170-12
------------------------------------	--	---

A. PERSONAL INFORMATION – RENSEIGNEMENTS PERSONNELS

Surname Nom de famille	Full name (no nicknames or initials) Nom au complet (pas de surnoms ou d'initiales)	Maiden name (if applicable) Nom de jeune fille (s'il y a lieu)
---------------------------	--	---

Date of birth (YYYY/MM/DD) Date de naissance (AAAA/MM/JJ)	Place of birth – Lieu de naissance City/Town – Ville ou municipalité	Province/State – Province ou état	Country – Pays
--	---	-----------------------------------	----------------

B. PHYSICAL DESCRIPTION – DESCRIPTION PHYSIQUE

<input type="checkbox"/> Male Homme	<input type="checkbox"/> Female Femme	Height – Grandeur	Weight – Poids	Eye color – Couleur des yeux	Hair color – Couleur des cheveux
--	--	-------------------	----------------	------------------------------	----------------------------------

C. ADDRESS – ADRESSE

Street – Rue	City/Town – Ville ou municipalité	Province	Telephone number – Numéro de téléphone Home – Domicile Work – Bureau
--------------	-----------------------------------	----------	--

Representing (name of company/organization) – Représente (nom de la compagnie ou de l'organisation)

D. GENERAL INFORMATION – RENSEIGNEMENTS GÉNÉRAUX

1. Have you ever been convicted of a criminal offence for which you have not been granted a pardon, or an offence for which you have been granted a pardon and such a pardon has been revoked? Avez-vous déjà été reconnu coupable d'une infraction criminelle pour laquelle on ne vous a pas octroyé un pardon ou d'une infraction pour laquelle on vous a octroyé un pardon qui a été révoqué?	<input type="checkbox"/>	Yes Oui	<input type="checkbox"/>	No Non
2. Do you personally know of any person incarcerated in a correctional facility? Connaissez-vous personnellement une personne qui est incarcérée dans un établissement correctionnel? _____ If so, provide names - Si oui, fournir son nom :	<input type="checkbox"/>	Yes Oui	<input type="checkbox"/>	No Non
3. Do you have any reason to believe coming into contact with this person could pose a risk to your or their personal safety? Avez-vous des raisons de croire que le fait d'entrer en contact avec cette personne pourrait présenter un risque pour votre sécurité personnelle ou la sienne ?	<input type="checkbox"/>	Yes Oui	<input type="checkbox"/>	No Non
4. Are you related/associated to an inmate or on an inmate's visiting list? Êtes-vous apparenté ou associé à un détenu ou inscrit sur la liste des visiteurs d'un détenu?	<input type="checkbox"/>	Yes Oui	<input type="checkbox"/>	No Non

If you have answered YES to any of the above, please explain below. – Si vous avez répondu OUI à une des questions ci-dessus, veuillez fournir une explication ci-après.

E. SIGNATURE (When sections A to E are filled out completely, please return the completed form to the institution for approval.)

(Une fois que les sections A à E ont été remplies, veuillez retourner le formulaire dûment rempli à l'établissement aux fins d'approbation.)

In making this application, I hereby give the Correctional Service of Canada my consent to use the information provided on this form to conduct such inquiries with police authorities as may be necessary to ascertain my suitability. Finally, I acknowledge that the Correctional Service of Canada has no responsibility for any harm that may come to me in the course of my activities, except where such harm is a direct result of negligence on the part of an employee(s) of the Service.

En soumettant la présente demande, j'autorise le Service correctionnel du Canada à se servir des renseignements fournis dans le formulaire afin de mener, auprès des services de police, toute enquête jugée nécessaire pour vérifier mon admissibilité. Par ailleurs, je conviens que le Service correctionnel du Canada ne peut être tenu responsable d'un préjudice subi dans le cadre de mes activités sauf si ce préjudice est directement attribuable à la négligence d'un ou de plusieurs employés du Service.

NOTE: Access may be denied for submitting false information. Passes may be issued for those receiving clearance and approval.

NOTA: Tout demandeur qui fournit de faux renseignements peut se voir refuser l'accès à l'établissement. Un laissez-passez peut être émis aux demandeurs dont la demande d'accès est approuvée.

Applicant's signature – Signature du demandeur	Date (YYYY/MM/DD) - (AAAA/MM/JJ)
--	----------------------------------

F. FOR OFFICE USE ONLY – RÉSERVÉ AU SCC

Reason for clearance – Motif justifiant la demande d'accès

Department making the request (please print) Unité qui soumet la demande (en lettres mouleées s.v.p.)	Signature of Division Head Signature du chef de la division	Date (YYYY/MM/DD) - (AAAA/MM/JJ)
--	--	----------------------------------

<input type="checkbox"/> No criminal record Aucun casier	<input type="checkbox"/> A possible criminal record #: Numéro du casier judiciaire	Last entry: Dernière entrée :
<input type="checkbox"/> An outstanding warrant/charge held by: Auteur du mandat non exécuté/accusation en instance :		

APPROVAL – APPROBATION

<input type="checkbox"/> Approved Approuvée	<input type="checkbox"/> Not approved Non approuvée	The individual has been advised. – Le demandeur a été informé de la décision. <input type="checkbox"/> Yes Oui <input type="checkbox"/> No Non	By: Par :
--	--	---	--------------

Security Intelligence Officer's signature Signature de l'agent de renseignements de sécurité	Date (YYYY/MM/DD) (AAAA/MM/JJ)	Institutional Head's signature Signature du directeur de l'établissement	Date (YYYY/MM/DD) (AAAA/MM/JJ)
---	-----------------------------------	---	-----------------------------------

Annex H

General Environmental Criteria Certification

The Contractor must meet and continue to meet four out of seven criterions during the entire duration of the contract.

Green practices within supplier's organization:	Insert a checkmark for each criteria that is met
Promotes a paperless environment through directives, procedures and/or programs.	
All documents are printed double sided and in black and white for day to day business activity unless otherwise specified by your client.	
Paper used for day to day business activity has a minimum of 30% recycled content and has a sustainable forestry management certification.	
Utilizes environmentally preferable inks and purchase remanufactured ink cartridges or ink cartridges that can be returned to the manufacturer for reuse and recycling for day to day business activity.	
Recycling bins for paper, newsprint, plastic and aluminum containers available and emptied regularly in accordance with local recycling program.	
A minimum of 50% of office equipment has an energy efficient certification.	
Registered to ISO 14001 or has an equivalent environmental management system in place	

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SOW-0101
Revision 3
15 April 2004

**ELECTRONICS ENGINEERING
STATEMENT OF WORK**

**PROCUREMENT & INSTALLATION OF
ELECTRONIC SECURITY SYSTEMS**

AUTHORITY

This Statement of Work is approved by Correctional Service Canada for the procurement and installation of all telecommunications and electronic security systems, subsystems, and equipment in Canadian penal institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service of Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:


Manager,
Electronics Systems Research

Approved by:

Director, 
Engineering Services
15 Apr 04

RECORD OF REVISIONS

Revision	Paragraph	Comment
3	10.1 – Manuals and Drawings	Added equipment operating software
	10.4 – Documentation Format	Added equipment operating software

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ABBREVIATIONS

The following abbreviations are used in this specification:

ATP	Acceptance Test Plan
CM	Corrective Maintenance
COTS	Commercial-Off-The-Shelf
CSC	Correctional Service Canada
DA	Design Authority
DCR	Design Change Request
DES	Director, Engineering Services
DL	Deficiency List
FDR	Final Design Report
MRT	Mean Response Time
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
PDR	Preliminary Design Report
PM	Preventative Maintenance
PW&GSC	Public Works & Government Services Canada
QA	Quality Assurance
RFP	Request For Proposal
SOW	Statement of Work
STR	Statement of Technical Requirement

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

1.0 INTRODUCTION

This Statement of Work (SOW) defines the work and responsibilities for the design, procurement, installation, test and integration of all telecommunications and electronic security equipment in CSC Institutions.

The SOW provides guidelines, procedures and responsibilities to the contractor and/or the project officer for the implementation of all telecommunications and electronic security systems in CSC facilities.

All work performed shall adhere to this SOW, CSC Specifications, Standards and Statement of Technical Requirements (STRs).

1.1 Commercial-Off-The-Shelf Equipment

The contractor shall use commercial off-the-shelf (COTS) equipment and proven designs to the maximum extent possible. All new equipment shall meet the specified lifespan requirements. New equipment designs shall be restricted to unique interfaces and common control console.

1.2 Technical Acceptability

The Correctional Service Canada (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 shall maintain very high standards of dependability and reliability.

The CSC Engineering Services Division has established technical specifications and equipment standards for specific electronic security systems which are based on very specific and restrictive operational performance criteria as detailed in its Electronic Engineering Standard. Technical acceptability of these systems means that the equipment complies with the pertinent CSC specifications and standards.

The technical acceptance process shall involve system and subsystem evaluation in accordance with the applicable CSC specifications in one of CSC facilities or may be tested in a CSC facility to verify the effectiveness of the proposed technologies when subjected to the restrictive operational environment.

CSC shall also verify in depth any of the system technical specifications called up. CSC may when it deems necessary, request the supplier to arrange for a full site demonstration. CSC may rely on manufacturer's test results for specific areas of the specification where an independent test facility has conducted the test, and the facility is deemed acceptable to CSC.

It is the supplier's responsibility to make new developments in products available to CSC for evaluation. Equipment qualification is an ongoing process and can be initiated at any time by a vendor. Any vendor can have access to the CSC specifications and standards. Any new development or products should be submitted to the CSC Engineering Services Division, Technical Authority in a suitable time frame prior to any tendering process to allow for an acceptable evaluation period. The evaluation period may take up to sixteen (16) months.

1.3 Equipment Procurement

Any ordering of equipment/material before the approval of the final design report will be undertaken at the contractor's own risk. The Design Authority may authorize the procurement of certain long lead items at, or shortly after the preliminary design review.

1.4 Quantity of Equipment

The quantity and location of the equipment required for CSC institutions will be contained in the specification identified in the STR.

2.0 APPLICABLE DOCUMENTS

CSC Specifications, Standards and STRs are approved by the Director of Engineering Services (DES) for the procurement and installation of all telecommunications and electronic security systems in all CSC facilities. These documents promulgate DES policy and shall not be modified or changed without prior consultation and approval of the Director. The documents of the issue in effect will form part of the Request for Proposal (RFP) issued by the contract authority.

3.0 REQUIREMENTS

3.1 The contractor shall:

- a. Design, procure or manufacture, install, test and document the installation of all electronic security and telecommunications systems in accordance with the CSC specifications, standards and STR;
- b. Provide the operator and maintenance training in accordance with the CSC requirements;
- c. Provide the maintenance support and spares in accordance with the CSC maintenance requirements;
- d. Provide quality assurance (QA) to ensure equipment performance and reliability are in accordance to CSC requirements;
- e. Provide warranty coverage to include spare parts provision and equipment repair;
- f. Provide a program schedule to show all major elements from a contract award to completion of the warranty period and shall include anticipated time of occurrence, interrelationships between events, and time scale; and
- g. Be responsible for the integration of the proposed system to any existing telecommunications and electronic security systems.
- h. Provide a lightning protection system for the installation of all electronic security systems/equipment in the CSC facilities. As a minimum, surge suppression type lightning arrestors shall be required for all power, communications and antenna cables/wires entering or leaving a building.

4.0 **SYSTEM DEVELOPMENT**

The contractor shall design systems and equipment to meet all of the requirements stipulated in the applicable CSC specifications. The system design shall be modular and address the following criteria:

- a. ease of operation and maintenance;
- b. optimize and concentrate control functions and capabilities;
- c. enhance the security of the working environment, extend staff capabilities to observe and control; and
- d. minimize the number and types of display and control devices.

4.1 **Preliminary Design**

The preliminary design baseline shall be established by the review and approval of the preliminary design report (PDR) by the Design Authority (DA) or his designate. Specifications, drawings and the approved PDR shall make up the preliminary design baseline.

The contractor shall prepare and submit two (2) copies of the PDR to the Design Authority and one (1) copy to the Contract Authority at least ten (10) days prior to the PDR meeting. The PDR shall consist of:

- a. performance specifications with functional block diagrams of the proposed system. The technical analysis and equipment performance data shall verify system requirements;
- b. preliminary equipment layouts including control consoles and racks;
- c. list of off-the-shelf equipment with part number, model number, manufacturer and the quantity of each item;
- d. list of custom designed equipment with model number and the quantity of each item;
- e. functional schematics for all custom designed equipment;
- f. conceptual drawings for all custom designed equipment;
- g. a proposed product assurance plan;
- h. a proposed maintenance plan;

- i. proposed sparing plan; and
- j. proposed training plan.

4.2 Preliminary Design Review

The PDR meeting shall be convened by the contractor to review the PDR contents. The contractor shall provide the venue and all of the necessary facilities. The Design Authority will identify any portions of the PDR that are not acceptable to CSC.

4.3 Final Design

The final design baseline shall be established by the review and approval of the Design Authority of the final design report (FDR). It establishes the start of change control in equipment design and performance. The FDR shall consist of:

- a. all elements of the preliminary design baseline;
- b. control console mockups, ergonomics considerations, etc., as necessary;
- c. drawings and operational descriptions for the custom designed equipment including interface specifications;
- d. Installation drawings and instructions; and
- e. availability model and analysis updates to reflect the final system design and hardware selection.

The FDR shall be prepared to good commercial practice. Two (2) copies shall be submitted to the Design Authority at least ten (10) working days before the FDR meeting.

4.4 Final Design Review

The final design review meeting shall be convened to review the contents of the FDR. The contractor shall provide the venue and all of the necessary facilities. All of the contractor's staff responsible for the system/equipment engineering shall be available.

4.5 Design Change Control

Design changes shall be in accordance with the following procedure:

- 4.5.1 **Type I.** Changes that affect cost, schedule, reliability, maintainability, or availability shall be submitted as a design change request (DCR).

Changes shall not be actioned until specifically directed in writing by the Design Authority through the Contract Authority.

- 4.5.2 **Type II.** Changes to correct a design error without affecting cost, schedule, reliability, maintainability, or availability shall not require a DCR.

Changes shall be reported to the Design Authority and the final design baseline shall be updated by the contractor. The Design Authority will review and acknowledge the change.

4.6 **Design Change Request (DCR)**

Type I changes shall be forwarded to the Design Authority through the Contract Authority on DCRs initiated by either the contractor or the Design Authority.

DCRs shall be reviewed and approved before implementation and shall include:

- a. specification requirement being effected;
- b. final design baseline element being changed;
- c. description of the design change;
- d. reason for the change;
- e. impact on cost, schedule, reliability, maintainability and availability; and
- f. trade-off recommendations.

4.7 **In-Plant Testing**

Details of in-plant tests are contained in the ES/SOW-0102, Statement of Work. In-plant tests shall be performed according to the Design Authority approved procedures.

Equipment with deficiencies as the result of the in-plant tests shall be subject to retest. The Design Authority reserves the right to add or modify tests.

5.0 **SYSTEM INSTALLATION**

The contractor shall be responsible for ensuring that sufficient site utilities are available. No work will be permitted at the site before the approval of the Design Authority. All installation activities shall be conducted in accordance with ES/SOW-0102, Statement of Work.

5.1 **Schedule**

The contractor shall provide a detailed work schedule for the installation activities. This schedule shall reflect the complete implementation plan by identifying the nature of the work to be performed and the area affected.

5.2 **On-Site Inspections**

Design Authority or an appointed CSC representative shall perform ongoing inspections of the contractor's activities. These inspections shall verify compliance with the project requirements, the quality of work performed and assess the contractor's progress in relation to the approved schedule. Installation deficiencies requiring corrective action will be brought immediately to the contractor's attention in writing.

5.3 **On-Site Coordination**

Design Authority shall be responsible for the appointment of an on-site CSC representative. This representative will handle all site related matters and will periodically inspect the installation.

When electronic system installations are part of a construction program or a major redevelopment that involves Public Works & Government Services of Canada, the electronic system installation contractor shall coordinate all activities with the relevant site manager and shall comply with this SOW.

5.4 **Facility Criteria**

The contractor shall provide the facility criteria data in the proposal. Details as to the power, cooling, space and/or other requirements relating to electronic security system installation at the site must be provided. Final facility criteria information must be provided as part of the FDR.

5.5 **Installation Design**

The system installation design and planning shall make maximum use of existing ducts, conduits, and other cable routing facilities. Where this is not possible, the contractor shall design and install facilities in a manner acceptable to the Design Authority.

5.6 **Subcontractor Supervision**

The contractor shall provide an on-site supervision of all subcontractors. The subcontractors shall abide by the regulations of this Statement of Work and the conditions in the contract.

5.7 **System Checkout**

Before conducting the formal on-site testing for the CSC acceptance, the contractor shall conduct and document a system checkout to assure the system readiness for formal testing and on-line operations. The test sheets used for the system checkout shall be signed by a company representative and provided to the Design Authority at least seven (7) days prior to the scheduled date of the Acceptance testing. The Design Authority will verify readiness through review of the checkout report. The report may be used as reference during the formal witnessed testing for acceptance.

5.8 **As-Built Drawings**

Thirty (30) days after the system installation acceptance, the contractor shall deliver a complete set of equipment and installation as-built drawings for Design Authority's review and approval. Within thirty (30) days after CSC approval, two (2) complete sets of revised drawings shall be delivered to the Design Authority.

The contractor shall update these drawings throughout the warranty period by the design control procedures. Within thirty (30) days of completion of the warranty period, the contractor shall deliver one (1) set of final revised drawings reflecting all changes to the Design Authority. Upon final CSC approval, the contractor shall deliver two (2) sets of original prints of the final drawings.

6.0 **SYSTEM ACCEPTANCE**

System acceptance shall occur when the acceptance testing has been completed according to the ES/SOW-0102, Statement of Work and when all of the other requirements of the contract have been completed to the satisfaction of the Design Authority. A final acceptance certificate signed by the Design Authority shall certify the system acceptance.

On-site system acceptance testing shall not begin until all of the on-site installation activities have been completed.

6.1 **Acceptance Test Plans (ATPs)**

The contractor shall provide ATPs for all system, subsystem and equipment tests for Design Authority review and approval. The requirements for the ATP are detailed in the ES/SOW-0102, Statement of Work.

6.2 **System Testing**

The contractor shall conduct the approved ATP and record the results. The Design Authority or an appointed CSC representative shall witness the tests.

6.3 **Deficiency Lists (DL)**

The contractor shall prepare and submit a list of deficiencies divided into three categories:

- a. Visual/Mechanical,
- b. Operational, and
- c. Technical/Functional.

6.4 **Technical Acceptance**

Upon verifying that all of the deficiencies have been corrected, the Design Authority shall issue a letter of Technical Acceptance.

7.0 **QUALITY ASSURANCE (QA)**

The QA program shall include quality control and system tests/verification programs to verify that new design and off-the-shelf equipment requirements have been met. System tests/verification will be conducted by the contractor in-plant and on-site, and may be witnessed by the CSC representatives where appropriate. The system shall pass all tests before approval will be given to commence the operator and maintenance training programs and warranty period.

7.1 **Quality Control Program**

The contractor shall provide a description of their internal quality control programs for CSC review and approval. CSC reserves the right to audit and verify that all materials destined for use in CSC systems have been thoroughly inspected and that QA procedures are applied during production and testing.

7.2 **System Test Program**

The contractor shall prepare and provide the documents describing: number, type and details of equipment, subsystem and system tests for CSC review and approval. These documents must be approved before any formal testing and will consist of the following:

7.2.1 **System Test Plan.**

This plan shall contain the test philosophy, the tests to be conducted, the pass-fail criteria, the retest requirements, and the instructions for the validation and the sign-off of all final design baseline requirements.

Before witnessing these tests, the CSC representative will perform a visual and mechanical inspection to ensure that the system installation meets the requirements of ES/SOW-0102, Statement of Work.

7.2.2 **Test Procedures.** These procedures shall ensure that:

- a. all equipment supplied meets the performance specification;
- b. each subsystem meets the applicable performance requirements; and
- c. the overall system meets the performance requirements.
- d. test procedure contains the step sequence for each test to be conducted, and the expected results.

7.2.3 Contractor Testing.

All tests are conducted by the contractor and may be witnessed by an appointed CSC representative. Tests are conducted as stipulated in the approved plan and procedures. The contractor shall inform CSC at least five (5) working days before the test start date.

7.2.4 Test Reports.

The contractor shall submit final copies of the test results for CSC review and approval within ten (10) working days of the completion of the testing. Two copies of the report shall be submitted and shall include:

- a. a summary description of the tests;
- b. test results consisting of completed test procedures verified by a CSC representative;
- c. incident reports, including analysis and corrective action; and
- d. results of any retest.

8.0 TRAINING

The contractor shall develop, document and conduct training for both the operational and the technical staff. The training shall be conducted on-site at the institution in the period designated by the schedule.

8.1 Classroom Training

Classroom lectures and demonstrations will be conducted on-site to train operations staff in the use and technical personnel in the maintenance of the systems.

8.2 Training Documentation

The contractor shall develop and deliver a complete training plan to the Design Authority for comments and approval. This plan must be submitted to CSC at least thirty (30) days in advance of the training date to allow for CSC review. As a minimum, the training material shall contain:

- a. training plans for CSC operations trainers and technical personnel;
- b. manuals for each student to add notes;
- c. training aids; and
- d. student materials.

Training material shall be provided in the language that is dominant at the site (French in Quebec). Sufficient copies of all student materials shall be provided by the contractor at the beginning of the training course to assure one copy for each student. CSC shall stipulate the number of staffs who are to be trained. Upon approval by the Design Authority, two (2) copies of all material shall be delivered to CSC.

9.0 **MAINTENANCE and SPARES**

The contractor shall provide maintenance and spares support plans according to the ES/SOW-0102, Statement of Work for the Design Authority approval. These plans shall be submitted according to the schedule.

9.1 **Maintenance Plan**

The maintenance plan shall describe the philosophy, the Preventive Maintenance (PM) procedures and schedules, the Corrective Maintenance (CM) methods and response times, Mean-Time-To-Repair (MTTR) for all systems. The plan shall recommend tools, jigs and test equipment, and detail the recommended manning method for the system. Issue of the final maintenance support plan will be contingent on Design Authority approval.

9.2 **Spares Plan**

The spares plan shall list the required spares and recommended quantities. The quantity recommendations shall be supported by system availability and reliability analysis and available experience data. The bidder shall identify spare parts and components by their original manufacturer's code, cross-referenced to the equipment vendor's part number.

9.3 **Spares List**

The spares list shall identify the following:

- a. the spare parts and the subassemblies with the recommended quantities;
- b. the cross-reference listings between the vendors and the original manufacturer's codes;
- c. the unit and extended prices for stocking; and
- d. the expected life or the annual consumption of each part.

The contractor shall maintain the spares plan through to the end of the warranty period, and shall ensure that any changes because of approved design changes are incorporated in the spares list.

9.4 **Test Equipment**

The contractor shall provide a list of test equipment required for the on-site maintenance of the system within thirty (30) days from Design Authority's acceptance of the final design.

10.0 DOCUMENTATION

All final documentation in hard-copy format shall be in a 3-ring binder with all foldout pages having reinforced ring holes.

10.1 Manuals and Drawings

The following items make up the final documentation requirements:

- a. Operator Manual,
- b. Maintenance Manual,
- c. Installation As-built Drawings,
- d. Equipment As-built Drawings, and
- e. Equipment Operating Software.

The contractor shall prepare and submit all manuals and drawings to the Design Authority for review and approval. The manuals and drawings will be approved when all changes have been satisfactorily incorporated. All drawings must be produced with AUTOCAD (latest available version)

10.2 List of Equipment

The contractor shall provide a list of equipment itemizing the location, quantity, model number, serial number and revision level of all installed equipment.

10.3 Baseline Measurements

The contractor shall provide a copy of the final test results. These results will be used as a reference baseline measurement for monitoring system degradation over time.

10.4 Documentation Format

All manuals, documentation including as-built drawings, lists of equipment and baseline measurements shall be submitted as per the following schedule:

- One (1) hard-copy version of all documentation.
- One (1) electronic version of all documentation in a 'read-only' format on a 3½ inch diskette medium; suitable for duplication without any special requirements.

- One (1) electronic version of all documentation in a full 'read-write' format to serve as a master of the documents and drawings.
- all software requirements to access the electronic versions of the documentation.
- One (1) CD containing the equipment operating software.

10.5 Operator Manuals

The contractor shall provide CSC approved manuals to support the operation of the system in the format as outlined in section 10.4 of this specification. These manuals shall be prepared to the best commercial standards. Photo copies shall not be accepted. All hard-copy versions shall be on paper stock 8 ½" x 11" and shall be presented in a 3-ring binder. The manuals shall comply with the following format and content requirements:

- a. title page;
- b. revision notice page, lined, with columns for revision numbers, dates and initials;
- c. table of contents;
- d. warnings and cautions;
- e. introduction - general information including a description of equipment or system and summary of capabilities;
- f. theory of operation including an explanation of all major system components;
- g. detailed description and use of all user accessible computer screens; and
- h. block diagrams.

A hard copy draft version of the manual(s) shall be submitted for CSC approval on or before the date given in the schedule. Upon acceptance and approval by the Design Authority, a total of two copies shall be provided for use during the warranty period. The contractor shall update these manuals through the warranty period and provide revision bulletins to record manufacturers' recommended modifications, etc. during the life of the equipment.

Within thirty (30) days of the warranty expiry date the contractor shall submit one (1) set of final, updated manuals for CSC approval. Following the final CSC approval, the required number of sets of operator manuals shall be delivered to the Design Authority in the format as specified in section 10.4 of this Statement of Work.

10.6 Maintenance Manuals

The contractor shall provide CSC approved manuals to support the maintenance of the system in the format as outlined in section 10.4 of this specification. These manuals shall be prepared to the best commercial standards. Photo copies shall not be accepted. All hard-copy versions shall be on paper stock 8 ½" x 11" and shall be presented in a 3-ring binder. The manuals shall comply with the following format and content requirements:

- a. title page;
- b. warranty page - explaining the warranty period and expiry dates;
- c. revision notice page, lined, with columns for revision numbers, dates and initials;
- d. table of contents;
- e. introduction - general information including a full description of equipment or system, technical summary, specifications and detailed block diagrams;
- f. theory of operation including a detailed explanation of all circuits and parts;
- g. alignment and test procedures;
- h. repair procedures including step by step fault finding or fault localizing;
- i. block diagrams;
- j. circuit schematics (clear, easy to read, foldout type);
- k. complete parts list;
- l. mechanical drawings, chassis layout illustrations and wiring data lists; and
- m. drawings including as-built and as-installed drawings.

A hard copy draft version of the manual(s) shall be submitted for CSC approval on or before the date given in the schedule. Upon acceptance and approval by the Design Authority, a total of two copies shall be provided for use during the warranty period. The contractor shall update these manuals through the warranty period and provide revision bulletins to record manufacturers' recommended modifications, etc. during the life of the equipment.

Within thirty (30) days of the warranty expiry date the contractor shall submit one (1) set of final, updated manuals for CSC approval. Following the final CSC approval, the required number of sets of maintenance manuals shall be delivered to the Design Authority in the format as specified in section 10.4 of this Statement of Work.

11.0 PROJECT PROVISIONS

11.1 Monthly Progress Reports

The contractor shall submit monthly progress reports. These reports shall report the activities for the previous period. One (1) copy shall be delivered to the Design Authority and one (1) copy to the Contract Authority by the fifth (5th) day of each month. A review meeting may be required.

Monthly reports shall contain the following:

- a. summary of the month's activities;
- b. scheduled shortfalls and rescheduled dates;
- c. problem areas and proposed solutions;
- d. review of next month's activities;
- e. summary of meetings held during the month; and
- f. cash flow forecast.

11.2 Monthly Review Meetings

Review meetings shall be held at the contractor's premises, Design Authority's office, Contract Authority's office, or the site depending on the need. The contractor shall make the design staff members available upon request by the Design Authority.

11.3 Maintenance Support

During the training period, the contractor shall provide maintenance support. This support is expected to be not less than on-site coverage during the normal working day.

11.4 **Shipment and Delivery**

Contractor shall be responsible for the shipment and delivery of equipment and materials to the site. Packing, crating, and shipment of equipment shall be to good commercial practice, and any damage to, or loss of equipment shall be repaired or replaced to the satisfaction of CSC. The contractor must properly label all shipments to assure correct identification and disposition on arrival at the site, as specified in ES/SOW-0102, Statement of Work.

12.0 **SYSTEM AVAILABILITY**

All elements of customed and off-the-shelf equipment shall be designed to operate in a highly reliable fashion, consistent with available technology, with a minimum of system downtime due to scheduled and unscheduled maintenance. System availability will be achieved when each of the included subsystems availabilities have been proved as required.

12.1 **Common Facilities**

Where units or subsystems are integrated into common facilities no single failure of a component, assembly subassembly, or subsystem shall result in the failure of any other subsystem; nor result in reduced capacity or quality of performance of other subsystems or parts of it.

12.2 **Single Point of Failure**

The system shall be designed such that no failure of a single component, unit, subassembly or subsystem will result in failure of the next higher hierarchical elements of that subsystem or the system.

12.3 **Availability Model**

The bidder's technical proposal shall include a complete model and analysis of the availability of each subsystem and of the complete system being offered. This analysis shall include both MTBF and MTTR calculations and shall treat the Mean-Response-Time (MRT) as zero. This availability analysis may be based on either:

- a. summation of failure rates of the individual components; or
- b. the bidder's documented experience with the same equipment operating in a similar physical environment.

In either case, the source of all failure-rate shall be clearly shown.

The contractor shall maintain the availability model and analysis up-to-date throughout the contract period. A statement of impact of the proposed change would have on the availability model and analysis shall be submitted with all Type I DCRs.

12.4 **Availability**

Availability is the probability that the system, or subsystem will meet operational performance requirements at all time. Time includes the operating time, the active repair time and the administrative and logistic time. To calculate this availability, the contractor must include all of the pertinent factors such as:

12.4.1 Mean Time Between Failure (MTBF).

The total operating time of the equipment divided by the total number of failures of that equipment.

12.4.2 Mean Time To Repair (MTTR).

The repair time divided by the number of failures.

12.4.3 Mean Response Time (MRT).

The time to respond to a call for service divided by the number of calls.

12.5 Expected Life Duration

This is the time during which the equipment is expected to provide useful service, without an unusual amount of service and without becoming obsolete.

13.0 **INTERFERENCE**

13.1 **Interference to the System**

Performance of the system shall not be affected by the use of standard electronic equipment used at the institution. Distance limits of standard electronic equipment are as follows:

13.1.1 CB transceivers at 1 metre or more;

13.1.2 VHF and UHF transceivers at 1 metre or more;

13.1.3 Other radio frequency transmitting, receiving and re-distribution equipment at 5 metres or more;
and

13.1.4 Personal computer and/or computer work stations at 5 metres or more.

13.2 **Interference by the System**

The system shall not interfere with any standard electronic equipment used at the institution, any commercial TV or radio equipment at a minimum distance of 5 metres, or any other electronic security systems at a distance of 1 metre or more.

14.0 **LIGHTNING PROTECTION**

Surge suppression-type lightning arrestors shall be installed to protect all power, communications and antenna cables or wires entering or leaving a building.

These arrestors must be installed where the cable enters the building i.e. not in the CER or other equipment room.

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SOW-0102
Revision 6
1 May, 2008

ELECTRONICS ENGINEERING
STATEMENT OF WORK

QUALITY CONTROL FOR
PROCUREMENT AND INSTALLATIONS OF
ELECTRONIC SECURITY SYSTEMS

AUTHORITY

This Statement of Work is approved by Correctional Service Canada for the procurement and installation of all telecommunications and electronic security systems, subsystems, and equipment in Canadian penal institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:



Manager,
Electronics Systems Research

Approved by:



Director,
Engineering Services

18 Aug 08

RECORD OF REVISIONS

Revision	Paragraph	Comment
3	5.1 - Design Considerations	Tabletop or wall mount power supplies/transformers
4	3.1.1 - Wiring/Cabling Methods	Wiring/cable access
	3.2.1 - AC Wiring	Power outlet strip
		Separate circuit breakers connected to opposite phases of the AC feed
	3.2.2 - AC Power Connections	Power connections via flexible armoured cable
5	Abbreviations	Additions
	1.4 – Manufactured Equipment	Approval of custom equipment
	1.5 – Commonality of Equipment	Add security screws
	3.1.1 – Wiring and cabling	Single conductor wire only on IDC connectors
		Identification of conductors
	3.1.2 – Cable/Wiring Labelling	Acceptable labelling
	3.2.1 – AC Wiring	Mounting of power strips
	3.3.4 - Labelling	Acceptable labelling of racks, boxes, etc.
	5.1 – Design Considerations	DIN rail power supplies preferred
6	2.1 – Environmental Conditions	Expand airborne containments
	2.6 – Finish Application	Change finish material definition
	2.2.2 - Plastic	Remove last sentence
	3.1.1 – Wiring/Cabling Methods	Change “Hydro Codes” to “Electrical Authority”
	3.3.2 - Enclosures	Add requirement to meet IP64

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ABBREVIATIONS

The following abbreviations are used in this specification:

AC	Alternating Current
ATP	Acceptance Test Procedure
BER	Beyond economical repair (repair cost in excess of 60% of replacement cost)
CER	Common Equipment Room
COTS	Commercial -of-the-Shelf
CSC	Correctional Service Canada
CSA	Canadian Standards Association
DC	Direct Current
DA	Design Authority
DES	Director, Engineering Services
EIA	Electronic Industries Association
EMT	Electrical Metallic Tubing
IDC	Insulation Displacement Connector
ISO	International Standards Organization
PCB	Printed Circuit Board
PVC	Polyvinyl Chloride
QA	Quality Assurance
RFP	Request For Proposal
STR	Statement of Technical Requirements

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES), Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Service Canada (PW&GSC) and/or the Materiel Management Division of CSC is responsible for all contractual matters associated with the system design and implementation.
Project Manager	A CSC employee and/or a contracted person designated by DES to be responsible for the implementation of the project.
Project Officer	A CSC employee and/or a contracted person designated by DES to provide technical and/or engineering services in support of the project.
Contractor	The company selected as the successful bidder.
Off-the-shelf	Equipment which is commercially, complete with field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

APPLICABLE DOCUMENTS

The following documents of the issue in effect on the date of the Request For Proposal (RFP) shall form a part of the specification to the extent specified herein.

CSA STANDARD C22.1-1986 Canadian Electrical Code - Part 1 Safety Standard for Electrical Installations

EIA STANDARD EIA-310-D Racks, Panels and Associated Equipment

CSA STANDARD C22.2 Canadian Electrical Code - Part II

EIA RS-406/IPC-C--405A Connectors, Electric, Printed Wiring Boards

Any other applicable industrial safety and control standards governing specific aspects for equipment and/or installations.

1.0 **INTRODUCTION**

1.1 **General**

This document defines the quality control requirements for the design, installation, testing and acceptance of telecommunications and electronic security systems in all Correctional Service Canada (CSC) facilities.

1.2 **Scope**

This specification has been developed to ensure high standards for the installation of electronic systems. It defines workmanship standards which may not be fully covered in subsidiary specifications. All contractor's documentation and installation procedures shall meet this specification for equipment reliability, maintainability, longevity, appearance and operational use.

1.3 **Off-The-Shelf Equipment**

The contractor shall provide commercial off-the-shelf (COTS) equipment wherever possible. COTS equipment shall meet or exceed the manufacturing standards as listed in this specification.

1.4 **Manufactured Equipment**

Where COTS equipment is unavailable or unsuitable for a specific application, the contractor may manufacture or arrange for the manufacturing of a particular item to suit the requirements. Manufactured equipment shall meet or exceed the best commercial equipment manufacturing standards. Approval of the final design, appearance and ergonomics of all custom manufactured equipment shall rest with the DES, Project Manager or CSC delegate.

1.5 **Commonality of Equipment**

The contractor shall provide commonality of hardware components within the design parameters ie. switch locks, racks, panels, security screws, etc. All equipment, if appropriate shall be interchangeable.

2.0 MATERIAL AND EQUIPMENT REQUIREMENTS

2.1 Environmental Conditions

All materials and equipment which is used in CSC installations shall be equal to, or better than the standards established in the original equipment and shall be chosen with due consideration being given to the intended use, safety, retention of appearance, maintainability and durability under rugged operating conditions. These materials shall be suitable to perform over the following environmental ranges:

a. Indoor Equipment

Temperature: 0° C to 40° C; and
Humidity: 20% to 95% non-condensing.

b. Outdoor Equipment

Temperature: -40° C to +50° C; and
Humidity: 0 to 100%, condensing.

Outdoor equipment shall operate reliably and not be damaged by combinations of direct exposure to the sun, wind, rain, lightning, hail, snow and ice as may be expected to occur at each institution location.

Complete assemblies of indoor equipment shall be resistant to liquid spills, airborne contaminants (dust, pollen and water droplets), shock and vibration.

2.2 Materials

2.2.1 Metals

Metals used shall be either corrosion resistant or be suitably treated to resist corrosion in all potential atmospheric conditions, including tear gas, to which the installation may be subjected.

For the connection of copper to a cadmium or galvanized surface, effective "wiping" of the copper surface shall be considered satisfactory protection.

No cut galvanized fitting shall be used without protection equal to or greater than the original galvanized surface. All parts shall be free from burrs and sharp edges.

Metal which has been cut, scraped, or drilled shall be properly treated (primed and painted) to retain a uniform appearance.

2.2.2 **Plastic**

Plastic materials must be stable and shall retain their original shape and finish over the range of operating environmental conditions specified in 2.1

No material shall be used that softens or hardens within the storage environment in a way which is detrimental to its suitability as replacement parts for existing equipment.

Metal screws shall not be threaded into plastic materials.

2.2.3 **Natural Rubber**

The use of natural rubber is prohibited.

2.2.4 **Wood**

The use of wood or wood products is not acceptable.

2.3 **Toxic Materials**

Materials capable of producing harmful toxic effects under any operating condition, equipment malfunction, or accidental cause shall not be used.

2.4 **Flammable Materials**

Materials, used either for electrical insulation or mechanical purposes which are combustible or capable of causing an explosion, shall not be used.

2.5 **Fungus and Insect Supporting Materials**

Materials capable of providing a nutrient medium for fungus or insects shall not be used.

2.6 **Finish Application**

Finish shall be applied to all surfaces where consideration of appearance and protection against corrosion, toxicity, and other deterioration exists.

Application of finish shall not impair equipment performance, and will maintain uniformity in outward appearance.

Finish materials must be scratch resistant, not react to normal cleaning products and applied so as to last at least ten years.

3.0 **INSTALLATION REQUIREMENTS**

3.1 **Wiring and Cabling**

Prior to the installation, all wires and cables shall be tested in accordance with the manufacturer's instructions and shall meet all performance parameters.

Wire and cable harnesses shall be neatly formed and clamped in position. If brackets, forms or clamps are required, these shall be the responsibility of the contractor.

All wires and cables shall be stranded. Single conductor type wires are not acceptable except when such cables are specified to terminate on an IDC type connector. This does not apply to coaxial cables with single centre conductors.

Electrical tape, masking tape, or its equivalent shall not be used on wires, cables or any installed equipment.

3.1.1 **Wiring/Cabling Methods**

Three (3) or more individual wires or cables which are located in one(1) cable run shall be formed into a cable harness, properly dressed, supported and securely tied with flat lacing twine or equivalent.

Wires and cables which are installed by the contractor external to consoles, equipment racks, pull boxes and junction boxes shall be contained in securely mounted conduit or cable tray systems.

Plastic PVC conduits may be used in underground installations unless otherwise specified at time of bidder's conference.

A rigid steel conduit shall be used in indoor, security sensitive areas and outdoor above-ground applications.

Signal and 120 VAC power wiring shall not be run in the same conduit, cable tray, or raceway; and shall be separated in accordance with the local Electrical Authority.

Wire splicing in cable runs shall not be permitted. All cable runs shall be continuous. If continuous cable runs are not possible, terminal block configurations are acceptable provided they are approved by the Design Authority.

Cross-connects installed on BIX. or similar blocks, must not pass across the face of the block, but must be carried around the block, so as not to impede access to the connections.

BIX, or similar, blocks are to be used for solid wire only. Stranded wires are not to be directly terminated on BIX, or other IDC terminations.

Wires in multi-conductor cables which terminate on connectors, and which are not being used, must be twisted around the cable in a neat fashion. They are not to be cut off.

Wires in multi-conductor cables which terminate on BIX or similar IDC connector blocks, and which are not being used, must be punched down on the block. They are not to be cut off.

All conductors on IDC and any other type of terminal block will be identified with a cable marker and cross referenced in the as-built drawings.

Rectangular slots shall be cut in the computer floor, underneath any cabinets, racks, and consoles, for the running of cables. These slots must constitute at least 1/2 of the available floor area. Sharp edges on the computer floor shall be supplied with suitable protection to eliminate possible nicks, tears or wear in cable insulation sheaths. Individually drilled holes for the purpose of carrying cables from the under floor to the inside of the cabinet, rack or enclosure are not permitted.

3.1.2 Cable/Wiring Labelling

The contractor shall label all cables and cable runs. The labelling method shall be logical and conform to industry standards.

All cables shall be identified with commercially produced or machine printed alpha numeric labels protected by clear heat shrink tubing. Hand printed labels are not acceptable.

All wiring shall be identified at both ends of the wire. The coding shall enable a technician to identify the wire or cable without referring to manual tracing methods, test equipment or as-built drawings.

Cable identification labels shall be attached as follows:

- a. within 30 cm of the termination for both ends.
- b. in the middle of any access point, i.e. pull box, wall shaft opening, cable tray, etc.

All individual wires shall be labelled according to a cable numbering system or wire function plan, which is acceptable to the Design Authority.

All terminal strips shall be identified with its own unique terminal number and function.

3.1.3 Exterior Cabling

Where a cable enters or exits an exterior box, chassis, or conduit, the cable entrance shall be completely sealed to prevent an influx of water. A drip loop shall be formed in the cable to assist in maintaining this weather tight seal.

Conduit bushings shall be used on all conduit entrances/exits.

Sharp edges on metal boxes or chassis enclosures shall be supplied with suitable protection to eliminate possible nicks, tears or wear in cable insulation sheaths.

3.1.4 **Slack**

Wires and cables shall be as short as practical, with sufficient slack to:

- a. allow a minimum of three (3) reconnects due to wire breakage;
- b. prevent undue stress on cable forms, wires, terminals and connections;
- c. enable parts to be removed and replaced during servicing without disconnecting adjoining wires or circuits;
- d. facilitate movement of equipment for maintenance purposes; and
- e. provide drip loops in exterior cabling.

Slack shall be provided in junction boxes where space permits. Slack shall not exceed one single loop of cable forming the circumference of the junction box.

Slack shall be provided below equipment racks and shall be neatly coiled below the access flooring. The length of slack shall be equal to the height of the associated equipment rack. Units in drawers and slide out racks shall be provided with sufficient slack to permit removing the units without severing connections.

All cross connection wiring shall be neat and tidy, properly bundled, and tied. This procedure shall allow sufficient slack for tracing of individual wires via manual methods.

Parts mounted on a hinged door shall be wired by means of a single cable, and arranged to flex without being damaged by the opening and closing of a door. If physical separation between wires is essential so as to make a single cable impractical, more than one flexible cable may be utilized.

3.1.5 **Terminations**

All terminations relying on friction for electrical and mechanical connection shall be tested in accordance with the manufacturer's instructions and shall meet the performance requirements detailed therein.

Terminal fanning strips shall be used where a number of wires are contained in a harness, shall be used unless a multi-pin connector is provided.

Spade terminal lugs shall be used on all wiring, connections to screw-thread terminals, except where solder or other type of terminal is specified.

Where wires are connected to lugs, which are clamped under screw terminals in the form of a terminal connection strip, no more than one wire shall be attached to each lug, in order that each wire may be removed individually. This requirement will not apply in the case of common connections, daisy chain distribution circuits, or similar terminations where wires will not need to be disconnected for servicing.

No more than two (2) lugs shall be attached to each terminal.

Wire and cable insulation shall be stripped back to allow for proper connection to the lug. No bare wire shall be visible between the terminal lug and the insulator.

Terminal strips must be fastened to a hard surface using a screw, or nut and bolt. Adhesive supports to secure the terminal strip, or floating terminal strips are not acceptable.

3.1.6 **Splicing and Joining**

Splicing of wires on new installations is not permitted.

Where connectors are used on cable assemblies, they shall be a locking type which will not disengage under tension.

All joints or splices in underground cable runs shall be located inside accessible, secure, waterproof, and lockable steel enclosures. The enclosures shall be located at least one (1) metre above grade and be firmly secured to existing structures or to stub pole supports.

Splices in underground cable runs, if required to repair Crown caused damage, shall be subject to approval from the Design Authority.

Stranded conductor splices shall be held by wire binding terminals in order to prevent stray strands from causing either short circuits or grounds.

Joints and splices shall be soldered and encased in waterproof shrink tubing for protection against leaching, oxidization, moisture damage, etc.

Joints and splices shall be clearly and accurately identified on applicable as-built drawings.

3.1.7 **Shielding**

Shielding shall be secured on wires and cables to prevent accidental contacting or shorting exposed current-carrying parts, grounded metal objects, or structures.

Shielding shall terminate at sufficient distance from the exposed conductors of the cable to prevent shorting or arcing between the cable conductor and the shielding.

Ends of the shielding material shall be secured against fraying.

3.1.8 Protection

Wires and cables shall be strategically located and protected to avoid contact with rough, irregular surfaces or sharp edges.

Wires and cables shall be protected by suitable grommets or bushings when passing through openings in metal.

Guards or other suitable protection shall be provided on insulated high voltage cables.

3.1.9 Support

Wires and cables shall be properly supported with adequate strain relief to prevent excessive strain on the connections, devices, or joints of any electrical apparatus connected therein.

Adhesive supports with ty-wrap products shall not be used unless they are secured by a nut and bolt device.

3.1.10 Clearance

Physical clearance between wires/cables and associated heat emitting parts, i.e. amplifiers, shall be sufficient to prevent deterioration of the wires or cables. Refer to Table 19 of CSA Standard C22.1 Part 1.

3.1.11 Inductive and Capacitive Effects

Wires and cables, including harness wire and cables, shall be located such that inductive and capacitive effects do not adversely affect system operation. The amount of twists in paired wires shall be increased over the length of wire not covered by the cable sheath.

3.2 Power Wiring

The contractor shall not employ "Marette" (TM) type connectors regardless of CSA Standard C22.1 regulations. All wiring shall terminate on an insulated or protected barrier strip or terminal board, and be provided with spade terminal lugs where required.

Where control and signal wires which are run in conduit, cable-harness, or cable-trough systems, shall be run in separate wire ways. The separation shall be a physical barrier of suitable material and shall conform to applicable building codes and wiring methods.

All high voltage and/or high current terminations shall be provided with protective guard devices by the contractor. The device shall be mounted to allow for maintenance access to the terminals.

Terminal lugs shall be used on all power wiring, both VAC and VDC.

Warning labels must be installed in accordance with the CSA guidelines to warn maintenance personnel of any hazardous voltages and currents.

3.2.1 **AC Wiring**

AC wiring methods shall conform to all local and national wiring regulations.

Outlet boxes shall be installed such that all outlets are clear of any obstructions including wiring and cabling, and shall be easily accessible.

Power distribution within a cabinet or rack shall be via a power outlet strip, as provided by the original cabinet or rack manufacturer. A third party outlet strip is not acceptable. All power strips must be mounted into the equipment cabinet with rack mounting hardware.

All power cable installations shall be completed in a neat and sturdy fashion and shall meet all requirements of the specifications detailed herein.

Power cords within equipment cabinets and racks shall be maintained as short as practicable with due consideration for maintenance needs.

Systems which use redundant equipment, such as dual microprocessors, shall power each unit from two separate breakers connected to opposite phases of the AC feed.

3.2.2 **AC Power Connections**

All AC power connections from the cabinet or rack power outlet strip to the AC junction box shall be via flexible armoured cable. AC power connectors are not permitted.

3.3 **Conduits, Enclosures, Cable Troughs and Raceways**

3.3.1 **Conduits**

Conduits installed above ground, and accessible to the inmate population, shall be rigid steel.

Metal conduits installed in secure and inmate accessible areas shall be fitted with double the normal quantity of support hangars.

In locations subject to extreme temperature changes, and/or where conduit lengths are of non-standard size, the contractor shall make provisions for the inclusion of conduit expansion joints.

Rigid PVC conduits shall be used only in buried applications.

Rigid PVC conduits shall not be threaded, but may be used with approved adapters and couplings applied in a manner consistent with industry standards.

EMT conduit may be used in administrative areas, and locations which are not normally assessable to the inmate population.

Liquid-tight flexible metal conduits may be used where a flexible connection is required, i.e. cameras, microwave dishes, etc. In such applications, the length of "flex" conduit shall not exceed one (1) metre.

PVC conduits which cross roadways shall be encased in poured concrete.

The contractor shall provide a suitable means of protecting the buried conduit against damage caused by digging or excavating. The preferred method is installing a tape marker directly above the conduit path.

In addition to these requirements, the applicable industrial standards apply, including:

- a. CSA Standard C22.2 No. 45-M1981 - Rigid Metal Conduit
- b. CSA Standard C22.2 No. 56-1977 - Flexible Metal Conduit

3.3.2 Enclosures

All electrical connections, terminations, and cross connections shall be made within lockable, covered steel enclosures, using good quality locks. At least two keys must be supplied to CSC.

Outdoor enclosures shall be environmentally sealed and gasketed to provide a moisture/dust free and secure environment.

Enclosures which contain electrical equipment such as circuit breakers, relays, switches, and transformers, or cable networks, connections and terminations, shall be weatherproof and dust-tight and meet the provisions of IP64.

All enclosures such as junction boxes, racks and consoles shall be positioned for ease of maintenance, service, and connection/disconnection of cables and cable harnesses.

The contractor shall provide a proper drain hole in all enclosures which are grouted in concrete.

All floor mounted cabinets, racks, and consoles shall be secured to prevent overturning when associated drawers, shelves and movable parts are extended, or when heavy objects are placed on pull out shelves or writing tables.

In addition to the provisions stated herein, the applicable industrial standards shall apply, including:

- a. CSA Standard C22.2 No. 29-M1983 for Industrial Products.
- b. CSA Standard C22.2 No. 94-1976 for Special Purpose Enclosures.

3.3.3 Cable Troughs and Raceways

Cable troughs and raceways shall be continuous and shall be constructed of metal.

The contractor shall provide adequate mounting devices which will permit the use of fastening devices that will not damage conductor insulation.

Cable troughs, raceways, and fittings shall be free from burrs or other sharp edges which may cause damage to the cable or insulated conductors.

Cable troughs and raceways shall be installed as a complete system before the conductors or cables are installed.

Cable troughs may be either ventilated or solid and unless otherwise specified, shall be equipped with covers and steel guards to protect against damage.

In addition to these provisions, the appropriate standards shall apply, including:

- a. CSA Standard C22.2 No. 126-M1980 - Cable Troughs and Fittings.
- b. CSA Standard C22.2 No. 79-1978 - Raceways and Fittings.
- c. CSA Standard C22.2 No. 62-1972 - Surface Raceways and Fittings.

3.3.4 Labelling

The contractor shall label equipment racks, junction boxes etc. The labelling method shall be logical and conform to industry standards. All equipment racks and junction boxes shall be identified with commercially produced or machine printed alpha numeric labels. Hand printed labels are not acceptable.

Identification of chassis equipment shall be located in a suitable location within the rack and affixed to the rack, not the chassis.

Approved materials used for labels include lamicoyd strip, etched metal, stamped labels, or indelible ink.

3.4 **Soldering**

On solder connections, the insulation on individual wires shall not be stripped back more than 1.5 mm from the solder area.

Soldering shall be executed so that positive electrical and strong mechanical connections are assured.

Leads shall not be wrapped more than once around the terminal.

Soldered connections on the back of connector plugs, i.e. cannon plugs, switches, relay sockets or any other device employing solder lugs, shall be insulated by means of a short length of insulating tubing placed over each wire in the connector.

"Cold" solder joints, and excessive solder on connections shall not be acceptable.

Each soldered connection shall be tested for mechanical and electrical strength to ensure that a strong connection is achieved.

Use of acid based solder flux is not permitted.

Where insulation material is subject to heating during soldering, the material shall be undamaged and the fastened parts shall not be loosened.

3.5 **Welding**

All welds shall be free of harmful defects such as cracks, porosity, undercuts, voids and gaps.

There shall be no burn through.

Weld fillets shall be uniform, smooth, and shall cover a sufficient area of the welded surface to ensure that a solid bond is achieved.

Surfaces to be welded shall be free of extraneous particles which may affect the mechanical elements of the welded area.

3.6 Crimping

Crimp connections shall be made in accordance with the manufacturer's instructions. Industry standards shall be observed at all times.

Solid conductors may be used with crimp connections where the use of solid conductor wiring cannot be avoided. In all other cases only stranded wiring shall be used on crimp connections.

Solid conductors which are connected to terminals by crimping shall be soldered as well. This provision only applies to terminal lugs. It does not apply where wires may be spliced by crimping except in the case of some LED's and indicator lights which employ pigtail leads which should be soldered or connected by screw terminals.

3.7 Cleaning

Upon completion of the installation, the equipment shall be cleaned of smudges, loose or excess solder, weld beads, metal chips, burrs, mold release agents, or any other foreign material which might detract from the intended operation, function, or appearance of the equipment.

All corrosive materials shall be removed.

The cleaning processes employed shall leave no harmful residues and shall not have a negative effect on the equipment or its parts.

4.0 **GROUNDING REQUIREMENTS**

4.1 **General**

Grounding source and distribution points shall be provided by the Crown unless otherwise specified at the bidder's conference, in the Statement of Technical Requirement (STR), or any applicable documents.

The grounding shall be such that the signal ground, equipment ground, and electrical power ground shall be connected at one point and shall follow the shortest possible path. Where necessary, ground isolation techniques shall be employed.

The path from the tie point to any ground shall be permanent, continuous, have sufficiently low impedance to limit the potential above ground, and facilitate the operation of the 'over current' devices in the circuits.

Ground conductors shall be made of copper, sized for a minimum of 200 circular mils for each 300 mm length of conductor.

Inactive wires installed in long cable or conduit runs shall be grounded to prevent stray or static electrical discharges, with proper consideration given to prevent ground loops or other grounding problems.

Installation must be such that ground loops are prevented.

4.2 **Signal Ground**

Signal grounds shall be used to provide a ground potential reference which is independent of the frame ground and the power equipment ground.

An insulated grounding conductor shall be connected from the equipment signal ground terminal to the main ground connection point for single units such as equipment racks.

An insulated ground plate shall be used with insulated grounding conductors for multiple units, such as common equipment room (CER) equipment, from each equipment signal ground terminal connected to the plate. The plate shall be connected to the main ground connection point by means of a single insulated grounding conductor.

4.3 **Frame Ground**

The ground connection of the receptacle may be used for the frame ground as long as that ground connection is isolated and insulated from the power equipment ground system. Such receptacles shall be clearly identified so that they will not be used to supply equipment that does not require frame grounds.

The receptacle ground connection conductor shall be insulated and isolated from the power equipment grounding system, and shall be connected from the receptacle ground connection to an isolated ground plate.

The isolated ground plate may be an insulated buss bar for low power applications,.

Size of grounding conductors shall be in accordance with the requirements of CSA Standard C22.1 Section 10 and Table 17.

4.4 **Combined Signal and Frame Ground**

Connection between the signal ground terminal and the frame ground terminal shall be part of the equipment wiring. The connection to the main ground connection point shall be similar to that for a frame ground.

4.5 **Main Ground Connection Point**

Main ground connection point shall be installed in accordance with CSA Standard C22.1 Section 10, and C22.2 No. 41.

4.6 **Ground to Chassis**

Ground connections to an electrically conductive chassis or frame shall be made by:

- a. soldering to a spot-welded terminal lug.
- b. soldering to a portion of the chassis or frame that has been formed into a soldering lug.
- c. using a terminal on the ground wire and securing the terminal by a screw, nut and lockwasher.

When using a terminal on a ground wire which is secured by a screw, nut and lockwasher, the screw shall fit in a tapped hole in the chassis or frame, or it shall be held in a through hole by a nut.

When the chassis or frame is painted, the metal around the screw hole shall be scraped clean and plated (or tinned) to provide a corrosion resistant connection.

4.7 Shielding

Shielding on wire and cable shall be grounded to the chassis or frame, in the manner specified in Section 2.5.5

4.8 Lightning Protection

All equipment with external cabling including radiating cables or other forms of antennas which may be susceptible during lightning strikes or other static discharges shall be protected fully in accordance with the relevant safety rules and regulations.

The ground rod used for lightning protection shall be copper or copper-plated steel, and shall be a minimum of 2.5 metres in length. Where the ground conditions preclude installation of a single ground rod, multiple rods of a shorter length may be used in parallel to provide the lightning protection.

The copper ground conductor shall be fastened to the ground rod using a thermic welding technique. Clamps are not acceptable.

5.0 ELECTRICAL/MECHANICAL DESIGN REQUIREMENTS

5.1 Design Considerations

All equipment shall be manufactured and finished with a degree of uniformity and grade of workmanship which shall comply with applicable industry standards, and the generally accepted principles of safe practice.

Exposed and moving parts that might constitute a safety hazard shall be provided with protective guards and warning labels.

All elements of the equipment shall be designed to operate in a highly reliable fashion, consistent with available technology, with a minimum of system downtime due to scheduled and unscheduled maintenance.

Where units or subsystems are integrated into common facilities, no single failure of a component, sub-assembly, assembly, or sub-system shall result in the failure of any other sub-system or reduced capacity or performance of other sub-systems or parts thereof.

The system shall be designed such that no failure of a single component, unit, subassembly, or subsystem will result in failure of the system or the next higher hierarchical elements.

All equipment shall be designed and installed to provide useful service, with minimal maintenance for a period of no less than 10 years, unless otherwise specified.

Tabletop or wall-mount power supplies or transformers shall not be used to power equipment installed within equipment racks and cabinets. Power supplies or transformers used within racks and cabinets shall be securely fastened to the rack equipment rails or side of the cabinet. DIN rail mounted power supplies are preferred.

5.2 Assemblies

The contractor (or manufacturing agent) shall apply special considerations in the execution of assembling system component parts.

Rack mounted equipment chassis; whose depth from the front face panel to the rear of the chassis exceeds 25 cm shall be equipped with rack slides.

Each assembly shall have a permanently fixed label showing the model number, serial number, and power requirements.

Materials used in assemblies shall be chosen with due consideration being given to the intended use, safety, durability, retention of appearance, and ability to resist corrosion from a variety of causes including tear gas.

In addition to applicable CSC/DES specifications, the appropriate industrial standards shall apply, including:

- a. EIA-310-D Racks, Panels, and Associated Equipment.
- b. CSA C22.2 No. 94-1976 Special Purpose Enclosures.
- c. CSA C22.2 No. 29-M1983 Panel boards and Enclosures.

5.3 Printed Circuit Board (PCB)

PCBs shall be constructed of non-flammable material, preferably a glass epoxy base.

The contractor shall provide extractor devices at the front of each card assembly.
All cards shall have keyed edges to prevent accidental replacement by another type of card.

Each device shall be identified and properly labelled, showing card type, and revision number.

All PCBs shall be etched. Wire wrap connections are not acceptable.

In addition to the requirements set forth herein the appropriate industrial standards shall apply, including:

- a. CSA C22.2 No.154-M1983 Data Processing Equipment.
- b. CSA C22.2 No.0.7-M1985 Equipment Electrically Connected to a Telecommunications Network.
- c. EIA RS-406/IPC-C-405A General Document for Connectors, Electric, Printed Wiring Boards.

5.4 Components

All electrical equipment, i.e. power supplies, amplifiers, etc. attached to the equipment structure shall be fastened securely and rigidly not using nuts and lockwashers.

Electrical components used in manufacturing in-house products shall be of commercial quality and shall comply with the standards of the Canadian Electrical Code, Part II.

Electronic circuit components, such as resistors, capacitors, inductors, or semiconductor devices which have no applicable standards in the Canadian Electrical Code, Part II shall comply with the test parameters as set forth in CSA C22.2 No. 154-M1983 Part 6.

6.0 QUALITY ASSURANCE REQUIREMENTS

The contractor shall provide objective evidence that the system and any major component therein have been designed, manufactured, inspected and tested under the umbrella of a quality assurance program capable of meeting the requirements of the applicable ISO Standard 9002 Series. More stringent requirements will be identified on a case by case basis, as needed.

In addition, the contractor shall develop a site-acceptance test/inspection procedure to demonstrate that all parameters of the system are fully operational and conform to the Statement of Technical Requirements.

6.1 In-plant Inspection

The equipment shall meet all functional, electrical, and visual/mechanical test parameters and shall have been fully tested and inspected by the contractor. Results shall be documented and reported to the Design Authority. Periodic inspections may be done by the Design Authority or his designated representative to verify that the equipment meets all requirements.

Particular attention shall be given to the following:

- a. Inventory of received equipment.
- b. Physical condition of equipment i.e.: scratches, dents, paint chips, etc . . .
- c. Construction techniques, board and components accessibility.
- d. Neatness, clamping and tying of wiring, cabling and harnesses.
- e. Strain relief of cables and wire connections.
- f. Legibility of nameplates, identification plates, and markings.
- g. Safety and protective covers, warning labels and grounding.
- h. Tightness of connectors, screw type fasteners, etc.
- i. Soldered and weld joints.
- j. Completeness.
- k. Operation of drawers, adjustable and sliding parts, controls etc.

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- l. Shielding.
 - m. Cable and wire connections, ground clamps and terminal strips.
 - n. Type and quality of paint finish.
 - o. Quality of printed circuitry, etching, the electronic components and other associated parts.
 - p. Quality of locks, cabinets and other materials.

It must be noted that the in-plant tests are performed as a requirement of the financial arrangements and serve to guarantee that the design parameters of the FDR are followed and will meet the requirements of the applicable system specification. Sign-off of in-plant tests will not denote any form of final acceptance of the equipment and design.

6.2 **Test Equipment**

All test equipment shall be supplied by the contractor.
All instruments and test equipment shall be checked periodically by the QA Inspector in order to ensure accuracy of measurement. Records showing when the test equipment was last calibrated are to be provided as proof of accuracy.

6.3 **Calibration**

All test equipment used by the contractor shall bear a calibration seal showing the date calibrated and the due date for the next calibration.

The contractor shall ensure that the test equipment's calibration due date does not occur during the test period.

All equipment performance measurements shall be made with instruments whose accuracy and calibration guarantee that the results comply with the terms of the contract.

CSC reserves the right to furnish and/or require the use of any applicable instruments and standards in order to ascertain the accuracy of any measurements.

Test equipment suspected of being damaged or out of calibration shall be rejected by the Design Authority.

6.4 **Safety Design Aspects**

Particular attention is to be given to the safety design aspects of CSC installations, so as to minimize any hazards while in gaining access to, operating and servicing equipment. Such design aspects shall include the proper grounding of equipment, the installation of protective covers and warning labels over high voltage areas, the installation of warning labels on x-ray equipment, etc.

Radio and TV camera towers must receive careful attention in regards to make them accessible for servicing, especially during inclement weather.

7.0 ON-SITE INSTALLATION

7.1 Inspections

Inspections will be performed by the Design Authority or their designated representative. A thorough visual and mechanical inspection of the installation shall be performed to ensure that all applicable requirements and safety precautions have been met.

7.2 Damage to Government Property

Damage to Government property, including buildings, equipment, etc. during the course of the installation shall be made good by the contractor.

The contractor shall replace all equipment which has suffered major damage, i.e. damage which renders the equipment BER, unserviceable, or subject to deterioration.

If stocks of the applicable equipment are at such a level that replacement of the damaged items cannot be made, and the contractor cannot readily obtain new equipment in order to allow the installation to proceed without delay, the contractor shall:

- a. repair the damage immediately with available materials.
- b. return to the site and replace the equipment as soon as new equipment is procured. Minor damage shall be repaired in a manner which leaves the government property in a condition equivalent to its original state and performing the original function, with no deterioration in appearance, performance, and/or reliability.

Any equipment where the paint finish becomes scratched or marred during the installation shall be completely refinished and repainted consistent with the appearance of new equipment.

Equipment shall neither be exposed to rain, nor be left out-of-doors during inclement weather. This stipulation does not apply to construction materials.

7.3 Protection of Surfaces

The contractor shall obtain approval from the appropriate Institution authority before moving heavy loads or equipment on floors, roofs and other surfaces.

The contractor shall adequately protect floors, finished surfaces and roofs from damage during the installation and shall implement special measures when moving heavy loads or equipment on them.

The contractor shall keep the floors free of oils, grease, or other materials likely to damage or discolour them.

The contractor shall provide dust protection for the equipment during the installation period, as related construction activities may occur simultaneously.

7.4 Cutting, Patching and Digging

The contractor shall perform all cutting, patching or digging necessary for the installation of the system.

The contractor shall be responsible for changes or damage to any existing work, cables or equipment by cutting, welding, drilling, or digging without prior consent from the Design Authority.

The contractor shall promptly repair any damage for which he is responsible in order to restore the facilities to their original condition.

7.5 Visual-Mechanical Inspection

Inspection shall be performed by the Design Authority or his designated representative.

Prior to the commencement of performance and operational testing, the installation shall be inspected to ensure that all applicable requirements and standards have been met.

Particular attention shall be given to the following:

- a. Physical condition and positioning of equipment.
- b. Neatness, clamping and tying of wire and cable harnesses.
- c. Cable and wire connections, ground clamps, and terminal strips.
- d. Soldered and welded joints.
- e. Strain relief of cables, wire connections, and cable harnesses.
- f. Cleanliness of equipment boxes under computer flooring.
- g. Nameplates, identification methodology and markings.
- h. Operation of drawers, adjustable and sliding parts and controls.

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- i. Equipment fit, fastening devices and accessibility of parts.
 - j. Construction and finishes.
 - k. Legibility of labels and tags.
 - l. Safety aspects, including secure provisions for climbing and working on towers.
 - m. Shielding.
 - n. Grounding.
 - o. Equipment Cooling Provisions.
 - p. Washers and lock-washers.
 - q. Tightness of screw type fasteners & connectors.
 - r. Screws, nuts and bolts shall show no evidence of cross-threading or mutilation.
 - s. Bottom of equipment racks etc. shall be free of debris and loose parts.

7.6 **Final System Acceptance**

The system shall be accepted when all of the following items have been completed to the satisfaction of the Design Authority and with the written certification of the project manager:

- a. performance and operational tests.
- b. all documentation.
- c. all training.
- d. all other terms and conditions.

The system warranty shall be deemed to begin at the completion of the Final System Acceptance or when the system is taken into service with accepted deficiencies, whichever comes first.

7.7 On-Site Maintenance

Building and site maintenance shall be interpreted to include all the areas in which the contractor is carrying out installation activities.

All sites and buildings shall be maintained by the contractor in a clean and tidy condition.

Upon completion of each day's work, all areas such as hallways, stairways, elevators and storage rooms used by the contractor in delivering or storing equipment shall be left in a clean and tidy condition.

The contractor shall store all electronic components not yet installed in a lockable storage room/trailer at the end of each workday. This procedure will reduce the probability of damaged and/or stolen equipment prior to system acceptance. Prior to the commencement of performance and operational testing, the installation shall be inspected to ensure that all applicable requirements and standards have been met.

8.0 DELIVERY

8.1 Packaging

All equipment shall be packaged to ensure that the equipment will not be damaged during shipment and/or delivery to the institution, as well as any associated handling on site.

Fragile components must be clearly identified and labelled.

All circuit cards, equipment modules, etc. shall be protected by the original packaging material until the equipment is placed into service.

8.2 Addressing

Address labelling shall be clearly marked in a minimum of two (2) locations on each package. The following format shall be observed:

- a. Complete name of the institutional site.
- b. Complete shipping address.
- c. Clear description of contents.
- d. Complete name of the Institutional representative.

All of the above addressing items will be provided at the Bidder's Conference.

- END OF TEXT -

**CORRECTIONAL SERVICES CANADA
TECHNICAL SERVICES BRANCH
ELECTRONIC SECURITY SYSTEMS**

ES/STD-0110
Revision 0
2013 October 07

**ELECTRONICS ENGINEERING
STATEMENT OF WORK

STRUCTURED CABLE SYSTEMS
FOR
ELECTRONIC SECURITY INSTALLATIONS**

AUTHORITY

This Specification is approved by the Correctional Service Canada for the procurement and installation of a Security Patrol System in Canadian federal correctional institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems
Correctional Service of Canada
340 Laurier Avenue West,
Ottawa, Ontario
K1A 0P9

Prepared by:

Manager
Electronics Security Systems

Approved by:

Director,
Engineering Services

TABLE OF REVISIONS

Revision	Paragraph	Comment
0	N/A	Original
1	Cable	Cable upgraded to meet OM3 standards
2	Multiple	Copper cable upgraded to CAT 6

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
CSC	Correctional Service Canada
ATP	Acceptance Test Plan
CM	Corrective maintenance
COTS	Commercial-off-the-shelf
CSC	Correctional Service Canada
DA	Design Authority
DCR	Design Change Request
DES	Director Engineering Services
DL	Deficiency List
FDR	Final Design Report
MRT	Mean Response Time
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
PDR	Preliminary Design
PM	Preventative Maintenance
PW&GSC	Public Works & Government Service Canada
QA	Quality Assurance
RFP	Request for Proposal
SOW	Statement of Work
STR	Statement of Technical Requirement

TABLE OF DEFINITIONS

Abbreviation	Expansion
CSC	Correctional Service Canada
Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Manager	A CSC employee or a contracted person designated by DES to be responsible for the test and evaluation or feasibility study project.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

APPLICABLE DOCUMENTS REFERENCES

- .1 The following documents of the issue in effect on the date of the Request For Proposal (RFP) shall form a part of the specification to the extent specified herein.
 - .1 EIA/TIA Standard EIA/TIA-568 Commercial Building Telecommunications Wiring Standard
 - .2 EIA/TIA Technical Systems Bulletin TSB-36 Additional Cable Specifications for Unshielded Twisted Pair Cables
 - .3 EIA/TIA Technical Systems Bulletin TSB-40 Additional Transmission Specifications for Unshielded Twisted Pair Connecting Hardware.
 - .4 International standard ISO/IEC 11801-2nd Edition: Information technology — Generic cabling for customer premises.
- .2 Any other applicable industrial safety and control standards governing specific aspects for equipment and/or installations.

1 INTRODUCTION

1.1 General

- .1 This document defines the quality control requirements for the design, installation, testing and acceptance of structured cable systems for use in security systems installed in all Correctional Service Canada (CSC) facilities.

1.2 Scope

- .1 This specification has been developed to ensure high standards for the installation of electronic systems. It defines workmanship standards which may not be fully covered in subsidiary specifications. All contractor's documentation and installation procedures shall meet this specification for equipment reliability, maintainability, longevity, appearance and operational use.

1.3 Off-the-Shelf Equipment

- .1 The contractor shall provide commercial off-the-shelf (COTS) equipment wherever possible. COTS equipment shall meet or exceed the manufacturing standards as listed in this specification.

1.4 Manufactured Equipment

- .1 Where COTS equipment is unavailable or unsuitable for a specific application, the contractor may manufacture or arrange for the manufacturing of a particular item to suit the requirements. Manufactured equipment shall meet or exceed the best commercial equipment manufacturing standards.

1.5 Commonality of Equipment

- .1 The contractor shall provide commonality of hardware components within the design parameters ie. switch locks, racks, panels etc. All equipment, if appropriate shall be interchangeable.

2 MATERIAL AND EQUIPMENT REQUIREMENTS

2.1 Environmental conditions

- .1 All materials and equipment which is used in CSC installations shall be equal to, or better than the standards established in the original equipment and shall be chosen with due consideration being given to the intended use, safety, retention of appearance, maintainability and durability under rugged operating conditions. These materials shall be suitable to perform over the following environmental ranges:
 - .1 Indoor Equipment
 - Temperature: 0° C to 40° C; and
 - Humidity: 20% to 95% non-condensing.
 - .2 Outdoor Equipment
 - Temperature: -40° C to +50° C; and
 - Humidity: 0 to 100%, condensing.
- .2 Outdoor equipment shall operate reliably and not be damaged by combinations of direct exposure to the sun, wind, rain, lightning, hail, snow and ice as may be expected to occur at each institution location.
- .3 Complete assemblies of indoor equipment shall be resistant to liquid spills, airborne contaminants, shock and vibration.

3 TELECOMMUNICATIONS OVERVIEW

3.1 Structured Cabling System

- .1 The design objective is a flexible network that is easy to re-configure, easy to manage and capable of incremental growth. The network is based on a structured cabling system conforming to Electric Industry Association/Telecommunications Industry Association Specification 568 (EIA/TIA-568) and Canadian Standards Association 529 (CSA 529) and using a star wired topology for the horizontal distribution with Category 6 Unshielded Twisted Pair (UTP) and 50/125 Micron Laser Optimized Fibre. The design will support Ethernet, Fast Ethernet, and network management.

4 DESCRIPTION OF WORK

4.1 General System Requirements

- .1 Outline
- .1 This section defines the minimum requirements for a structured cabling system to be provided on an engineered, furnished, installed, tested, and commissioned basis. Products and installation practices shall conform with the EIA/TIA documents identified in the **APPLICABLE DOCUMENTS** section of this Statement of Work.
- .2 The structured cabling system includes the following basic elements arranged into backbone feeders and horizontal distribution subsystems that are cross connected or patched together in Telecom Closets or Common Equipment Rooms on Intermediate Distribution Frames (IDFs).
 - .1 Unshielded Twisted Pair (Horizontal)
 - .2 8-pin modular Telecom outlets
 - .3 Insulation displacement connector type terminal blocks
 - .4 LOF optic cable (Backbone)
 - .5 Fibre optic (duplex) Interconnect patch panels
 - .6 Patch cords for patch panels
 - .7 Line cords for workstation data equipment (Office Cables)
- .3 Notes:
 - .1 3 metre length in standard for Office Cables
 - .2 All cables provided for a project shall have a GREEN jacket

4.2 Horizontal Data Cable

- .1 Cable
 - .1 Each cable shall consist of 8 each of 24 AWG thermoplastic insulated solid copper conductors formed into four individually twisted pairs and enclosed by a jacket with the appropriate protection rating determined by Provincial codes.
 - .2 The cable shall fully conform with EIA/TIA-568 design requirements for 100 ohm UTP cable and fully conform with EIA/TIA-568 TSB-36 transmission requirements for Category 6 cable.
 - .3 Cables shall bear evidence of verified Level 6 or Category 6 and also bear evidence of certification by a recognized standard or testing body. (eg: Bearing NORDX Brand name and have length clearly marked on cable sheath)
 - .4 The cable bundles will be fed to locations in either a supplied cable tray or conduit system. Outlet cables will then be fed to the user locations via either race poles or fished down hard wall offices. A pull string will remain in the conduit/cable tray for future installations.
 - .5 The cable run length from the IDC to the workstation location shall NOT exceed 90 metres. The combined length for patch cords for data network horizontal distribution connections shall not exceed 10 metres for an overall length from data network hub equipment to workstation equipment not exceeding 100 metres
- .2 User Termination
 - .1 Termination at the user end will be made onto a certified Category 6 RJ45 module for data. These modules will then be housed in a certified faceplate. The faceplate to house the modules will have the capability to equip up to six each 8 pin modular jacks. Other configurations to be used will vary with locations: A duplex flush mount

- faceplate for drywall applications, a duplex surface mount kit for PAC pole applications and duplex single gang outlets mounted into custom furniture with adapter plates. Surface mount kits will not exceed a 6.5 cm. protrusion from the wall. For custom furniture it is assumed that the cable runs will be fed to the outlet via raceways in the legs of furniture. For security reasons, jacks are NOT be installed in exterior walls or walls not totally part of CSC space. All cables must either terminate on a patch panel or on a faceplate, loose or unterminated cables are not acceptable.
- .2 The 8 pin modular jack connectors shall comply for termination of 4 wire pairs with 24 AAWG solid copper conductors: minimum contact force of 100g and conductors separated by jack comb.
 - .3 Each modular outlet will be wired per EIA/TIA-568 polarization sequence, designation T568A (reference CAN/CSA T529 Clause 11.2 Figure 11-1 and Table 10-1).

- .4 This illustration is a front view of the connector

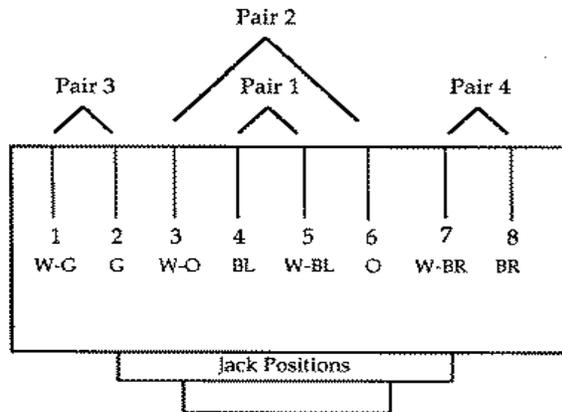


Figure 11-1
Eight-Position Jack Pin/Pair Assignments
(T568A Type)

- .1 Figure 11-1 and Table 10-1 outlines the sequencing required to construct line, office, and patch cables.
- .2
- .3 Each modular outlet will conform with EIA/TIA TSB 40 transmission requirements for Category 6 and will also be compatible with existing standard electrical outlet boxes.
- .4 Table 10-2 outlines the correct punch down positioning when using Northern Telecom T568A BIX DVOs', T568A ISDN QCBIX36DI and T568A ISDN QCBIX46DI Modular Jack Connectors, and T568A QPBIX Modular Patch Panels.
- .5 Table 10-1
- .1 Colour Codes for patch, line, and office cables

<u>Colour Identification</u>	<u>Colour Code</u>	<u>Abbreviation</u>
Pair 1	White-Blue Blue	(W-BL) (BL)
Pair 2	White-Orange Orange	(W-O) (O)
Pair 3	White-Green Green	(W-G) (G)
Pair 4	White-Brown Brown	(W-BR) (BR)

.6 Table 10-2

.1 Colour Codes for punch down and modular outlets

<u>Position</u>	<u>Colour Code</u>	<u>Abbreviation</u>
1	White-Blue	(W-BL)
2	Blue	(BL)
3	White-Orange	(W-O)
4	Orange	(O)
5	White-Green	(W-G)
6	Green	(G)
7	White-Brown	(W-BR)
8	Brown	(BR)

.7 Closet Termination

- .1 Supply and installation of RJ45 Category 6 hardware for system connection in communications closet using 24 NT certified patch panels rack mounted with cable organizer panels installed for each patch panel.
- .2 Active components will be connected to equipment by 8 conductor patch cords manufactured to CAT 6 compliance. Patch cords shall be stranded conductor and have a "no-snag" boot over the RJ45 connector.
- .3 Multi-Level building installations will require individual patch panels be installed for each level of the building. Patch panel(s) for each level of a multi-level building must have at least 15% unused ports. The same holds true for single story, multi ICC buildings.

.8 Cable Protection

- .1 All ceiling distribution cabling shall be enclosed and protected by 3/4" and 1" rigid conduit from communications closet(s) room(s) and cabinets to all user outlets located in inmate accessible areas. In areas that CSC designated as non inmate accessible, EMT zone conduit will be allowed. Conduits must have end bushings installed to protect the cable from sharp edges.
- .2 Conduit containing Copper backbone cable must be designated "CAUTION SECURITY SYSTEM CABLE"
- .3 Conduit containing Fibre Optic backbone cable must be designated "CAUTION FIBRE OPTIC SECURITY SYSTEM CABLE"

.9 Line cord

- .1 The cabling company will supply RJ45, 8 pin modular line cords to connect owner provided data equipment to the horizontal distribution outlets at the workstation. They must be consistent with CAT 6 specification and provide end-to-end CAT 6 connectivity. Line cords shall be stranded conductor and have a "no-snag" boot over the RJ45 connector.

.10 Testing

- .1 All cables/pairs will be scanned with a MicroTest Penta cable scanner or equivalent at 100 Mbs to determine DC loop resistance, near end cross talk and attenuation to meet or exceed the performance stated in EIA/TIA TSB-36 and TSB-40, noise, pair mapping and ranking. These tests must be conducted as originating from both the punch down location and modular outlet location of each cable segment.

.11 Labeling

- .1 All jacks must be identified by means of labels with unique numbers. These markings will be made with printed labels. The Correctional Service of Canada expects that all drops at the user end will be sequential and not out of order.
- .2 The closet terminations must be identified with these same numbers marked on BIX labels adhered to BIX 20A designation strips and patch panels. The CAN/CSA 568 colour code will apply.
- .3 Labels will also be placed on the horizontal wire, 6-9" from termination points. This would include closets, main cabinet, and jacks.

.12 Documentation

- .1 Customer to supply CAD or Visio Version 5 floor plans when available. If CAD documents are not available, contractor will be responsible to scan hard copy of plans.
- .2 Contractor to supply site plans, individual runs, risers, wire #'s, jack #'s, patch panel #'s in both hard and soft copy.
- .3 All test results shall be machine printed, hand written test result sheets are NOT acceptable.

4.3 Fibre Optic Backbone Cable

.1 Cable

- .1 The cable to be supplied and installed for backbone purposes shall consist of 12 strands (6 pairs) of Laser Optimized Fibre with nominal 50/125 um core/cladding diameter formed into a single cable.
- .2 Optical cable shall physically conform with ANSI/ICEA S-83-596 mechanical and environmental specifications for outdoor fibre optic cable.
- .3 Fibre optic cable shall conform with the requirements of OM3 as per the ISO 11801-2nd Edition standards

.2 Terminations

- .1 Fibre optic cables shall be terminated to SC Physical contact Connectors shall be able to sustain a minimum of 200 mating cycles per EIA/TIA-455-21 without violating specifications. These connectors will terminate within interconnect sleeves to facilitate patching in patch panels. The maximum optical attenuation per pair of mated connectors shall not exceed 0.75 db.
- .2 All fibre strands, whether used in the project or not, shall be terminated with SC type connectors and installed into a fibre patch panel: generally one duplex patch per cable (i.e. 12 connectors per panel for 12 strand fibre cable). Please note that these cables shall be SC to ST unless otherwise noted.
- .3 The patch panel proposed shall provide strain relief for each fibre as an integral part of the panel design. This standard type and size of panel should be uniformly used throughout the project.
- .4 Installed fibre panels shall be completed with all guides, brackets and other accessories to facilitate cable cross connect to active components for administration and management, including provisions for labeling that are consistent with EIA/TIA-568.

.3 Testing

- .1 All terminated fibre media and related connecting hardware shall be tested with a power meter and certified at the conclusion of the initial installation with an OTDR, in both directions. Testing will include end-to-end attenuation testing that shall measure each fibre in one direction and compare with the calculated loss based on the manufacturers specifications and known length of cable using 850 nanometres and 1300 nanometres wavelengths. The difference in value between any two mated fibre shall not exceed 0.5 db.
- .2 The power levels of the terminated fibres shall be documented to allow the equipment vendor to select the correct strapping options for their equipment. This will prevent the receivers from being overloaded.
- .3 If the attenuation measurements are not within the required specifications, an Optical Time Domain Reflectometer shall be used to find the cause and location of the power loss. Any failure will be rectified.
- .4 All test results to be machine printed, and documented in duplicate and delivered complete with As-Built drawings to Corrections Canada Regional Office.
- .5 The fibre optic cable testing will also include a basic light test:
- .6 - on each of the fibres before installation to ensure that no damage had occurred during shipping;
- .7 - on each of the fibres before termination to ensure that no damage had occurred during installation.

.4 Labeling

- .1 All fibre optic cables will be identified by means of Warning Labels located on all related conduit, pullboxes and backboards.
- .2 Both ends of all fibre cables will be labeled indicating destination and number of strands.
- .3 All ports on each Fibre optic patch panel will be labeled to identify the backbone destinations. Both ends will be labeled with this same numbering scheme.

4.4 Cross Connect

.1 Data Cross-Connect

- .1 Cross connection of the UTP horizontal cables to the tie field will be completed after testing of installed cables has taken place.
- .2 Jumper wire shall be provided, if requested, and will conform with EIA/TIA TSB-40 transmission requirements for Category 6.

**CORRECTIONAL SERVICES CANADA
TECHNICAL SERVICES BRANCH
ELECTRONIC SECURITY SYSTEMS**

ES/STD-0502
Revision 0
2013 October 08

**ELECTRONICS ENGINEERING
STATEMENT OF WORK**

**ELECTRONIC SYSTEMS/EQUIPMENT
TEST & EVALUATION GUIDELINES**

AUTHORITY

This Specification is approved by the Correctional Service Canada for the procurement and installation of a Security Patrol System in Canadian federal correctional institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems
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Prepared by:

Approved by:

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Director,
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Revision	Paragraph	Comment
0	N/A	Original

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
CSC	Correctional Service Canada
ATP	Acceptance Test Plan
CM	Corrective maintenance
COTS	Commercial-off-the-shelf
CSC	Correctional Service Canada
DA	Design Authority
DCR	Design Change Request
DES	Director Engineering Services
DL	Deficiency List
FDR	Final Design Report
MRT	Mean Response Time
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
PDR	Preliminary Design
PM	Preventative Maintenance
PW&GSC	Public Works & Government Service Canada
QA	Quality Assurance
RFP	Request for Proposal
SOW	Statement of Work
STR	Statement of Technical Requirement

TABLE OF DEFINITIONS

Abbreviation	Expansion
CSC	Correctional Service Canada
Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Manager	A CSC employee or a contracted person designated by DES to be responsible for the test and evaluation or feasibility study project.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

1 INTRODUCTION

1.1 Scope

- .1 The purpose of this Statement of Work (SOW) is to provide guidelines for the effective conduct and management of successful tests and evaluations or feasibility studies of technologies proposed for use in Correctional Services Canada (CSC).
- .2 Any commercially available equipment or new technologies which are proposed for use in CSC require type-approval by the Technical Authority prior to being procured and installed into a CSC facility. The type-approval process may involve an extensive formal testing and evaluation or feasibility study to ensure adherence to CSC equipment standards, specifications and/or suitability to the CSC operational environment.
- .3 Tests and evaluations or feasibility studies will provide the Technical Authority with:
 - .1 The assurance that new technologies or new systems/equipment meets the stated performance requirements:
 - .2 The verification of system/equipment conformance to CSC system specifications and standards requirements; and
 - .3 The acceptability of the systems to function in the CSC operational and environmental requirements.

1.2 CSC Operational Environment

- .1 The correctional institution environment has a crucial bearing on the ability of any system/equipment to function and perform its intended role. The construction and the building materials used to ensure a high physical secure facility greatly affect the normal propagation patterns of radiated signals in wireless systems. High reliability and high state of readiness 24 hours per day seven days per week are essential for the safety and protected of both operational staff and the inmates. Equipment ruggedness, ability to handle shock and vibrations are essential for systems being transported by vehicle or worn by operational staff.
- .2 The extreme and variation of weather conditions greatly affect the ability of any outdoor system to survive and function on a continuous basis. Although the requirements may vary from system to system, in general any system being considered for a CSC application must be able to maintain operation in the following conditions typically:
 - .1 Temperature: -40° C to 55° C (outdoor equipment), 0° C to 50° C (indoor equipment);
 - .2 Humidity: 0 to 100% non-condensing (outdoor equipment), 0 to 95% non-condensing (indoor equipment);
 - .3 Exposure to direct sunlight; Wind velocity up to 100 km/hour; Rainfall up to 25 mm/hour; Hail stones up to 2 cm in diameter; Temperature changes causing expansion and/or contraction of the metal material; Snowfall up to 30 cm/hour; Snow accumulation up to 50 cm; Ice build up on equipment up to 2 cm; Lightning strikes outside a radius of 1 km and any site specific phenomena as may be expected and/or published in other documents.

1.3 Technical Authority

- .1 The Technical Authority is the Director, Engineering Services (DES). Any on-site test and evaluation and/or feasibility study which is provided on behalf or by engineering services shall be subject to the acceptance and approval of the DES.
- .2 The Technical Authority will:
 - .1 determine and approve the electronic systems/equipment to be tested and evaluated or feasibility studied;

- .2 define the test and evaluation or feasibility study requirements, including the pass/fail criteria;
 - .3 review and approve the test and evaluation procedures to be used on the equipment;
 - .4 define, advise upon, provide and arrange for the use of the correctional site for the conduct of the test and evaluation;
 - .5 coordinate, supervise or monitor the test and evaluation or feasibility study being conducted by the company; and
 - .6 ensure that there is no operational impact during the test and evaluation period.
- .3 Electronic security system on-site evaluation and/or feasibility study projects are normally the responsibility of the Manager, Electronic Systems Research (MESR). The MESR is normally the designated CSC PM for contracted services on these projects. The DES may designate other CSC staff members to be responsible for specific evaluation and study projects.

1.4 Company Contractor

- .1 The company/contractor conducting the system/equipment evaluation shall be responsible for
 - .1 Assuring that all the Technical Authority test and evaluation requirements are met;
 - .2 Developing the test plan; test schedule and test procedures for the Technical Authority approval; and
 - .3 Conducting the test procedures and preparing the test report.

2 APPLICABLE DOCUMENTS

- .1 The following Statement of Works (SOWs) of the issue in effect shall form part of this SOW:
 - .1 ES/SOW-0103 Design Criteria for Electronic Systems;
 - .2 ES/SOW-0104 Design Criteria for Maintainability and Safety of Electronic Systems;
 - .3 Specifications Applicable CSC system specifications; and
 - .4 Standards Applicable CSC equipment standards.

3 REQUIREMENTS

3.1 Special Requirements

- .1 All system components are to be tested or evaluated in accordance with CSC system specifications and equipment standards specified in Section 2.0 of this document. Any requirements that cannot be tested or require clarification shall be brought to the attention of the Technical Authority prior to the commencement of the evaluation.

3.2 Test Plan

- .1 A test plan shall be developed for the Technical Authority by the company/contractor proposing the system/equipment for evaluation. The test plan shall provide:
 - .1 A description of the organization and management of the test team;
 - .2 Scheduling information and timing for the system/equipment under the test;
 - .3 Summaries of the individual test events and each test objective;
 - .4 Identify items to be tested along with the test conditions and environment;
 - .5 A set of pass/failure criteria; and
 - .6 Identify data collection, analysis techniques and reporting requirements.

3.3 Test Scheduling

- .1 A test schedule shall be developed for the Technical Authority by the company/contractor proposing the system/equipment for evaluation. The test schedule shall provide timings of particular tests or project milestones.

3.4 Test Procedures

- .1 Test procedures shall be developed for the Technical Authority by the company/contractor proposing the system/equipment for evaluation. The test procedures shall provide to following as a minimum:
 - .1 Detailed information necessary for the conduct of the tests.
 - .2 The characteristics to be measured, including tolerances.
 - .3 Outline of the statistical data analysis methods and procedures when necessary
 - .4 identify input values, load values and outputs.
 - .5 Lists of test equipment, recording equipment and software used to run the test apparatus.
 - .6 Test apparatus set up information and pretest checkout requirements.
 - .7 Data recording instructions, actions to be taken in the event of test interruptions, acceptance/rejection criteria; and
 - .8 Appropriate safety precautions for personnel and test equipment.

3.5 Test Reports

- .1 Test reports shall be prepared by the company/contractor proposing the system/equipment for evaluation. Test reports shall be composed from a number of data sources such as test logs, recorded data and observations. The test report shall provide:
 - .1 The recorded test results of each test;
 - .2 information on test discrepancies and variations of test procedures. Where discrepancies and variations occur, the underlying assumption and rationale must be reported.
- .2 Test report formats shall be provided by the contractor and approved by the Technical Authority.

4 TEST AND EVALUATION

- .1 Test and evaluation of commercially available products or newly developed technologies will normally be conducted at a CSC facility which is both technically and operationally suitable for the technology. The Technical Authority will coordinate the test and evaluation requirements with the appropriate CSC regional and institutional staff prior to the commencement of any test and evaluation project.
- .2 The test and evaluation requirements shall be in accordance with Section 3.0 of this document.

4.1 Research, Feasibility and Engineering Studies

- .1 Research, feasibility and engineering studies shall be conducted to demonstrate that the new product and/or technology is suitable to satisfy an existing or new CSC operational requirement. The study may be conducted at the contractor's facility. Any requirement to visit a CSC facility during the study will be coordinated by the Technical Authority.
- .2 The study will normally involve:
 - .1 Performing a market search of the available, applicable regulatory type-approved, or CSA approved equipment/systems to determine potential products suitable for CSC security operational applications.
 - .2 Performing a cost analysis for each of the potential products and/or technologies. The analysis shall include the following items:
 - .1 technological features,
 - .2 performance and/or operational limitations,
 - .3 installed costs, and
 - .4 operational costs.
 - .3 Visiting and consulting with the appropriate CSC staff as directed by the Technical Authority to review the operational requirements and limitations.
 - .4 Considering:
 - .1 equipment technical limitations,
 - .2 compatibility with other CSC electrical and electronic systems,
 - .3 any licensing requirements (communications systems),
 - .5 Providing a cost/benefit analysis.

4.2 Qualification Testing

- .1 Qualification testing shall be conducted to demonstrate that the equipment/system has the ability to meet its stated performance under specific environmental and operational conditions. If new products or new technologies have been qualified to the same environmental operational conditions and/or meet applicable Military Standards and a certificate of qualification is available, qualification testing may be considered completed.
- .2 If the new equipment/system has not been subjected to the specific environmental and operational conditions, the Technical Authority will insist that qualification testing be conducted before the system will be considered for a CSC application.

4.3 Human engineering and Safety Test

- .1 Human engineering and safety testing shall be conducted to demonstrate that the equipment/system has no harmful impact on human performance under specific environmental and operational conditions. If new products or new technologies have been proven in the same environmental and operational conditions and/or meet applicable Military Standards, human engineering and safety testing may be considered completed.
- .2 If the new equipment/system has not been subjected to human engineering and safety tests under the specific environmental and operational conditions, the Technical Authority will insist that these tests be conducted before the system will be considered for a CSC application.

4.4 Reliability Tests

- .1 Reliability testing shall be conducted to demonstrate that the equipment/system can achieve a specific reliability requirement under specific environmental and operational conditions. If new products or new technologies have been proven a high reliability in the same environmental and operational conditions and/or the manufacturer can provide the required Mean-Time-Between-Failure (MTBF) rates, the equipment/system may be considered acceptable.
- .2 If the new equipment/system has not been subjected to reliability testing under the specific environmental and operational conditions, the Technical Authority will insist that these tests be conducted before the system will be considered for a CSC application.

4.5 Maintainability Tests

- .1 Maintainability testing shall be conducted to demonstrate the maintainability parameters. The usual test parameters are Mean-Time -To-Repair (MTTR) and the Maximum-Repair-Time (MRT) by technicians with a specific level of skill on the maintenance of the system. If new products or new technologies have demonstrated good maintainability parameters and/or the manufacturer can provide the required MTTR and MRT rates, the equipment/system may be considered acceptable.

4.6 Proof of Compliance

- .1 Proof of compliance testing demonstrates that the system meets the minimum operational performance as set forth in the applicable CSC specifications. Proof of system compliance or noncompliance to CSC operational requirements will normally be the results of a successful test and evaluation program.
- .2 Only new products or new technologies which have demonstrated proof of compliance will be considered acceptable and suitable for a CSC application.

- .3 If the new equipment/system has not been subjected to maintainability testing by specific level of skilled technicians, the Technical Authority will insist that these tests be conducted before the system will be considered for a CSC application.

4.7 On-Site Acceptance Testing

- .1 All electronic security systems/equipment installed into a CSC facility is subject to acceptance testing. This testing will ensure that the installed overall system meets a predetermined technical and operational standard and that it has been installed according to the applicable CSC Specifications, Standards and Statements of Work. Acceptance testing is conducted by the contractor and witnessed by the Technical Authority. The successful completion of acceptance testing is the last phase of system installation and marks the start of the warranty period and the handover of the new system to operations.

5 TEST AND EVALUATION METHODOLOGY

- .1 It is important that the contract/company fully understands the CSC interpretation of the test and evaluation verification methods. The verification methods used by the CSC Technical Authority are defined as follows:

5.1 Inspections

- .1 Inspections are used to determine the system's/equipment's characteristics by examination of and the comparison with engineering design drawings to verify compliance with specified technical and operational requirements. Inspections are generally nondestructive and mainly consist of visual examinations or simple measurements.

5.2 Tests

- .1 Tests are used to verify conformance of the system's/equipment's functional characteristics with technical and operational requirements by subjecting the system/equipment to precise measurement equipment and procedures. Evaluation analysis or technical review is performed on the recorded data derived from the testing.

5.3 Analysis

- .1 Analysis is a method of verifying of system's/equipment's characteristics with the specified requirements without exercising the actual hardware. This method of verification is used where quantitative performance cannot be demonstrated cost-effectively. Examples of this analysis include computer simulations or the calculation of system/equipment parameters from subsystem data.

5.4 Demonstrations

- .1 Demonstrations are normally used to verify conformance of system's/equipment's functional characteristics with specified requirements by some pass/fail criteria without the use of elaborate measurement equipment.