



**CORRECTIONAL SERVICE CANADA**

**ADDING INTERIOR FENCES**

**CIVIL SPECIFICATIONS**

**PROJECT NO 131-19914-00**

**FOR BID SOUMISSION**

WSP Canada Inc.  
1425 boulevard St-Joseph, local E-4  
Drummondville (Québec) J2C 2E5  
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Jean Beauchesne, eng.

Drummondville, February 11th 2015



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Projet No.: 345-3210  
2014-09-10

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PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Check the detail of the bid and any other contractual document.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the adding of chain link fences and power doors in the Drummond Institution located at 2025, Jean-de-Brébeuf boulevard, Drummondville (Québec) J2B 7Z6 and further identified as Correctional service Canada.

1.3 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance.
- .2 Co-ordinate use of premises under direction of Consultant.
- .3 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .4 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by [Consultant].
- .5 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operations and normal use of premises. Arrange with Consultant to facilitate execution of work.
- .2 Use only existing access in building for moving workers and material.
- .1 Accept liability for damage, safety of equipment and overloading of existing equipment.

1.5 EXISTING SERVICES

- .1 Notify, Consultant and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services,

give Consultant 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to tenant operations.

- .3 Provide alternative routes for personnel and pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.
- .5 Submit schedule to and obtain approval from Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services when directed by Consultant to maintain critical building and tenant systems.
- .7 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 DOCUMENTS  
REQUIRED

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.



SERVICE CORRECTIONNEL CANADA  
AJOUT DE CLÔTURES INTÉRIEURES

DEVIS CIVIL & DEVIS D'ÉLECTRICITÉ

DEVIS POUR SOUMISSION

131-19914-00

*CES DOCUMENTS NE DOIVENT PAS ÊTRE UTILISÉS À DES  
FINS DE CONSTRUCTION*

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et

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Drummondville, le 16 décembre 2014





1.1 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative [, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS  
AND PRODUCT DATA

- .1 Refer to CCDC 2 GC 3.11.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .3 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Canada.
- .4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and

other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .5 Allow 5 days for Departmental Representative's review of each submission.
- .6 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .7 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .8 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .9 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .10 After Departmental Representative's review, distribute copies.
- .11 Submit 1 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental

- Representative may reasonably request.
- .12 Submit 1 electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Submit 1 electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been within [3] years of date of contract award for project.
- .14 Submit 1 electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
- .2 Certificates must be dated after award of project contract complete with project name.
- .15 Submit 1 electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit 1 electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .18 Submit 1 electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .19 Delete information not applicable to project.
- .20 Supplement standard information to provide details applicable to project.
- .21 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same

procedure indicated above, must be performed before fabrication and installation of Work may proceed.

- .22 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.

- .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### 1.3 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

- .2 Deliver samples prepaid to Departmental Representative's.

- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

- .4 Where colour, pattern or texture is criterion, submit full range of samples.

- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

### 1.4 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

### 1.5 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit [Workers' Compensation Board status].

- .2 Submit transcription of insurance immediately after award of Contract.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.



- 1 Purpose .1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.
- 2 Definitions .1 "Contraband" means:
- a) an intoxicant, including alcoholic beverages, drugs and narcotics, energy beverages,
  - (b) a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,
  - (c) an explosive or a bomb or a component thereof,
  - (d) currency over any applicable prescribed limit 25.00\$, and
  - (e) any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization
- .2 "Unauthorized Smoking Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing or snuffing tobacco, cigarette making machines, matches and lighters.
- .3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.
- .4 "CSC" means Correctional Service Canada.
- .5 "Director" means Director or Warden of the Institution as applicable or their representative.
- .6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.
- .7 "Departmental Representative" means the Public Works and Government Services Canada (PWGSC) or the Correctional Service Canada (CSC) project manager depending on project.
- .8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.
- .9 "Construction zone" means the area as shown on the contract drawings where the contractor will be allowed to work. This area may or may not be isolated from the security area of the institution. In this project the construction area will be delimited by CSC security fences and by contractor's job site fences. Only

one breach will be used as entrance and exit for the construction zone.

- |   |                         |    |  |
|---|-------------------------|----|--|
| 3 | Preliminary Proceedings | .1 | <p>Prior to the commencement of work, the contractor shall meet with the Director to:</p> <ul style="list-style-type: none"> <li>.1 Discuss the nature and extent of all activities involved in the Project.</li> <li>.2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.</li> </ul> <p>.2 The contractor will:</p> <ul style="list-style-type: none"> <li>.a Ensure that all construction employees are aware of the CSC security requirements.</li> <li>.b Ensure that a copy of the CSC security requirements is always prominently on display at the job site.</li> <li>.c Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.</li> </ul>   |
| 4 | Construction Employees  | .1 | <p>Submit to the Director a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.</p> <p>.2 Allow two (2) weeks for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at the institution where the project is taking place.</p> <p>.3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all time while employees are at the institution.</p> <p>.4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.</p> <p>.5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:</p> <ul style="list-style-type: none"> <li>.1 appear to be under the influence of alcohol, drugs or narcotics.</li> <li>.2 behave in an unusual or disorderly manner.</li> </ul> |



- .3 are in possession of contraband.
- 5 Vehicles
- .1 All unattended vehicles on CSC property shall have windows closed; doors and trunks shall be locked and keys removed. The keys shall be securely in the possession of the owner or an employee of the company that owns the vehicle.
- .2. The director may limit at any time the number and type of vehicles allowed within the Institution.
- .3. Drivers of delivery vehicles for material required by the project shall not require security clearances but must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or Commissionaires while in the Institution.
- .4. If the Director permits trailers to be left inside the secure perimeter of the Institution, these trailer doors will be locked at all times. All windows will be securely locked when left unoccupied. All trailer windows shall be covered with expanded metal mesh. All storage trailers inside and outside the perimeter must be locked when not in use.
- 6 Parking
- .1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.
- 7 Shipments
- .1 All shipments of project material, equipment and tools shall be addressed in the Contractor's name to avoid confusion with the institution's own shipments. The contractor must have his own employees on site to receive any deliveries or shipments. CSC staff will **NOT** accept receipt of deliveries or shipments of any material equipment or tools for the contractor.
- 8 Telephones
- .1 There will be no installation of telephones, Facsimile machines and computers with Internet connections permitted within the perimeter of the institution unless prior approval of the Director is received.
- .2 The Director will ensure that approved telephones, Facsimile machine and computers with Internet connections are located where they are not accessible to inmates. All computers will have an approved password protection that will stop an Internet connection to unauthorized personnel.
- .3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, BlackBerries, telephone used as 2-way radios, are not permitted within the

- perimeter of the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.
- .4. The Director may approve but limit the use of two way radios.
- 9 Work Hours
- .1 Work hours within the Institution are: Monday to Friday 07:00 hrs to 16:30 hrs
- .2 Work will not be permitted during weekends and statutory holidays without the permission of the Director. A minimum of seven days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waived by the Director.
- 10 Overtime Work
- .1 No overtime work will be allowed without permission of the Director. Give a minimum forty-eight (48) hours advance notice when overtime work on the construction project is necessary and approved. If overtime work is required because of an emergency such the completion of a concrete pour or work to make the construction safe and secure, the contractor shall advise the Director as soon as this condition is known and follow the directions given by the Director. Costs to Canada for such events may be attributed to the contractor.
- .3 When overtime work, weekend statutory holiday work is required and approved by the Director, extra staff members may be posted by the Director or his designate, to maintain the security surveillance. The actual cost of this extra staff may be attributed to the contractor.
- 11 Tools and Equipment
- .1 Maintain on site a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required.
- .2 Throughout the construction project maintain an up-to-date list of tools and equipment specified above.
- .3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.
- .4 Store all tools and equipment in approved secure locations.
- .5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor.
- .6 Scaffolding shall be secured and locked when not erected and when erected, shall be secured in a manner agreed upon with the director.

- .7 All missing or lost tools or equipment shall be reported immediately to the Director.
- .8 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:
  - .1 At the beginning and conclusion of every construction project.
  - .2 Weekly, when the construction project extends longer than a one week period.
- .9 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. The contractor will be given at the beginning of the day, a quantity that will permit one day's work. Used blades/cartridges will be returned to the Ministerial Director's representative at the end of each day.
- .10 If propane or natural gas is used for heating the construction, the institution will require that an employee of the contractor supervise the construction site during non-working hours.

## 12 Keys

### 1. Security Hardware Keys

- .1 The Contractor shall arrange with the security hardware supplier/installer to have the keys for the security hardware to be delivered directly to Institution, specifically the Security Maintenance Officer (SMO).
- .2 The SMO will provide a receipt to the Contractor for security hardware keys.
- .3 The contractor will provide a copy of the above-mentioned receipt to the Departmental Representative.

### 2. Other Keys

- .1 The contractor will use standard construction cylinders for locks for his use during the construction period.
- .2 The contractor will issue instructions to his employees and sub-trades, as necessary, to ensure safe custody of the construction set of keys.
- .3 Upon completion of each phase of the construction, the CSC representative will, in conjunction with the lock manufacturer:
  - .a Prepare an operational keying schedule;
  - .b accept the operational keys and cylinders directly from the lock manufacturer;
  - .c Arrange for removal and return of the construction cores and install the operational core in all locks.
- .4 Upon putting operational security keys into use, the CSC construction escort shall obtain these keys as they are required from the SMO and open doors as required by the Contractor. The Contractor shall issue instructions to his employees advising them that all security keys shall always remain with the CSC construction escort.

- 13 Security Hardware .1 Turn over all removed security hardware to the Director of the Institution for disposal or for safekeeping until required for re-installation.
- 14 Prescription Drugs .1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.
- 15 Smoking Restrictions .1 Contractors and construction employees are not permitted to smoke inside correctional facilities or outdoors within the perimeter of a correctional facility and must not possess unauthorized smoking items within the perimeter of a correctional facility.
- .2 Contractors and construction employees who are in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist, will be directed to leave the institution.
3. Smoking is only permitted outside the perimeter of a correctional facility in an area to be designated by the Director.
- 16 Contraband .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.
- .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
- .3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.
- .4. Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.
- 17 Searches .1 All vehicles and persons entering institutional property may be subject to search.
- .2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband or unauthorized items, he may order that person to be searched.
- .3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.
- 18 Access to and Removal from .1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

## Institutional Property

- 19 Movement of Vehicles .1 Escorted commercial vehicles will be allowed to enter or leave the institution through the vehicle access gate during the following hours:
- .1 08:30 a.m. to 11:00 a.m.
  - .2 13:00 p.m. to 15:30 p.m.
- Construction vehicles shall not leave the Institution until an inmate count is completed.
- .2. The contractor shall advise the Director Forty eight (48) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.
  - .3. Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or Commissionaires working under the authority of the Director.
  - .4. Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.
  - .5. Vehicles shall be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the institution.
  - .6. Private vehicles of construction employees will not be allowed within the security perimeter of medium or maximum security institutions without the authorization of the Director.
  - .7. With prior approval of the Director, a vehicle may be used in the morning and evening to transport a group of employees to the work site. This vehicle will not remain within the Institution the remainder of the day.
  - .8. With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another fixed object.
- 20 Movement of construction employees on Institutional Property .1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.
- .2. However, notwithstanding paragraph above, the Director may:
    - .1 Prohibit or restrict access to any part of the institution.
    - .2 Require that in certain areas of the institution, either during the entire construction project or at certain intervals, construction

employees only be allowed access when escorted by a member of the CSC security staff or a commissionaire.

- |    |                                    |     |  |
|----|------------------------------------|-----|--|
|    |                                    | .3  | During the lunch and coffee/health breaks, construction employees will be allowed to leave the construction site. The specific time of those breaks will be set by the contractor with the approval of the warden. The Construction employees are not permitted to eat in the officer's lounge or the dining room of the institution.  |
| 21 | Surveillance and Inspection        | .1  | Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.  |
|    |                                    | .2  | CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.   |
| 22 | Stoppage of Work                   | .1. | The director may order at any time that the contractor, his employees, sub-contractors and their employees to not enter or to leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor shall note the name of the CSC staff member giving this instruction, the time of the request and obey the order as quickly as possible. |
|    |                                    |     | The contractor shall advise the Departmental Representative of this interruption of the work within 24 hours.  |
| 23 | Contact with Inmates               | .1. | Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any construction employee doing any of the above will be removed from the site and his security clearance revoked. If some inmates try to contact you, another worker will inform the Director at once.                                  |
|    |                                    | .2  | It is to be noted that cameras are not allowed on CSC property.  |
|    |                                    | .3  | Notwithstanding the above paragraph, if the director approves of the usage of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.  |
| 24 | Completion of Construction Project | .1  | Upon completion of the construction project or, when applicable, the takeover of a facility, the Contractor shall remove all remaining construction material, tools and equipment that are not specified to remain in the Institution as part of the construction contract.  |

PART 1 - GENERAL1.1 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .3 Submit 1 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 47 15 - Sustainable Requirements: Construction and Section 02 81 01 - Hazardous Materials.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 3 days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

1.2 FILING OF  
NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

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<u>1.3 SAFETY ASSESSMENT</u>	.1	Perform site specific safety hazard assessment related to project.
<u>1.4 MEETINGS</u>	.1	Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
<u>1.5 REGULATORY REQUIREMENTS</u>	.1	Do Work in accordance with Section 01 41 00 - Regulatory Requirements.
<u>1.6 GENERAL REQUIREMENTS</u>	.1	Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
	.2	Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
<u>1.7 RESPONSIBILITY</u>	.1	Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
	.2	Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
<u>1.8 UNFORSEEN HAZARDS</u>	.1	When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
<u>1.9 POSTING OF DOCUMENTS</u>	.1	Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.
<u>1.10 CORRECTION OF NON-COMPLIANCE</u>	.1	Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental



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Representative.

- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.11 POWDER  
ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.12 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not used.



## PART 1 - GENERAL

### 1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
  - .1 CSA C22.10-10, Canadian Electrical Code, Part 1 (20th Edition), Safety Standard for Electrical Installations.
  - .2 CSA C22.2
  - .3 CAN/CSA-C22.3 No. 1-01(Update March 2005), Overhead Systems.
  - .4 CAN3-C235-83(R2000), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.
- .2 Electrical and Electronic Manufacturer's Association of Canada (EEMAC)
  - .1 EEMAC 2Y-1-1958, Light Gray Colour for Indoor Switch Gear.
- .3 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)
  - .1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

### 1.2 DEFINITIONS

- .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

### 1.3 DESIGN REQUIREMENTS

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
  - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification nameplates and labels for control items in English and French.
- .4 Use one nameplate or label for each language.

#### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: submit WHMIS MSDS in accordance with Section 02 81 01 - Hazardous Materials.
- .3 Shop drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec.
  - .2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.
  - .3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.
  - .4 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.
  - .5 Submit one copy of 600 x 600 mm minimum size drawings and product data to inspection authorities.
  - .6 If changes are required, notify Consultant of these changes before they are made.
  - .7 List of submit drawing:
    - .1 Breaker
    - .2 Cable

#### 1.5 QUALITY ASSURANCE

- .1 Qualifications: electrical Work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction as per the conditions of Provincial Act respecting manpower vocational training and qualification.
  - .1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.
  - .2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.

PART 2 - PRODUCTS2.1 MATERIALS AND EQUIPMENT

- .1 Provide material and equipment in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Material and equipment to be CSA certified or other authority having jurisdiction by RBQ. Where CSA certified material and equipment are not available, obtain special approval inspection authorities before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.
- .3 Factory assemble control panels and component assemblies.

2.2 WARNING SIGNS

- .1 Warning Signs: in accordance with requirements of Consultant.
- .2 Porcelain enamel signs, minimum size 175 x 250 mm.

2.3 WIRING TERMINATIONS

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.4 EQUIPMENT IDENTIFICATION

- .1 Identify electrical equipment with nameplates as follows:
  - .1 Nameplates: lamicoid 3 mm thick plastic engraving sheet black face, white core, lettering accurately aligned and engraved into core, mechanically attached with self tapping screws].
  - .2 Sizes as follows:

NAMEPLATE SIZES

Size 1	10 x 90 mm	1 line	3 mm high letters
Size 2	40 x 90 mm	3 lines	5 mm high letters
Size 3	75 x 175 mm	2 or 3 lines	12 mm high Letters
Size 4	25 x 65 mm	1 line	5 mm high letters
Size 5	10 x 65 mm	1 line	5 mm high letters

- .2 Wording on nameplates to be approved by Consultant prior to manufacture.
- .3 Allow for minimum of twenty-five (25) letters per nameplate.
- .4 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.
- .5 Disconnects, starters and contactors: indicate equipment being controlled and voltage.
- .6 Terminal cabinets and pull boxes: indicate system and voltage.

2.5 WIRING IDENTIFICATION

- .1 Identify wiring with permanent indelible identifying markings, coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.
- .2 Maintain phase sequence and colour coding throughout.
- .3 Colour coding: to CSA C22.10.
- .4 In each panel and junction box, each conductor will be identified by circuit number or function.

2.6 CONDUIT AND CABLE IDENTIFICATION

- .1 Colour code conduits, boxes and metallic sheathed cables.
- .2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.
- .3 Colours: 50 mm wide prime colour and 30 mm wide auxiliary colour.

	Prime	Auxiliary
up to 600 V	Yellow	
Ground	Green	White
Communication Systems	Blue	

2.7 FINISHES

- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.
  - .1 Paint outdoor electrical equipment "equipment green" finish.

PART 3 - EXECUTION3.1 INSTALLATION

- .1 Do complete installation in accordance with CSA C22.10 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

3.2 NAMEPLATES AND LABELS

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.3 CO-ORDINATION OF PROTECTIVE DEVICES

- .1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

3.4 FIELD QUALITY CONTROL

- .1 Load Balance:
  - .1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
  - .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.
- .2 Conduct following tests in accordance with Section 01 45 00 - Quality Control.
  - .1 Power generation and distribution system including phasing, voltage, grounding and load balancing.
  - .2 Circuits originating from branch distribution panels.
  - .3 Lighting and its control.
  - .4 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
  - .5 Insulation resistance testing:
    - .1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.
    - .2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.
    - .3 Check resistance to ground before energizing.
- .3 Carry out tests in presence of Consultant.
- .4 Provide instruments, meters, equipment and personnel required to

conduct tests during and at conclusion of project.

- . 5 Manufacturer's Field Services:
  - . 1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - . 2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - . 3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

### 3.5 CLEANING

- . 1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- . 2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

END OF SECTION



PART 1 - GENERAL

1.1 RELATED REQUIREMENTS .1 Section 26 05 00 Common work result for electrical.

1.2 PRODUCT DATA .1 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.

PART 2 - PRODUCTS

2.1 BUILDING WIRES .1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.  
.2 Copper conductors: size as indicated, with 600 V insulation of cross-linked thermosetting polyethylene material rated RW90 XLPE.

2.2 CONTROL CABLES .1 Type: LVT: 2 soft annealed copper conductors, sized as indicated:  
.1 Insulation: thermoplastic.  
.2 Sheath : thermoplastic jacket.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.  
.2 Perform tests using method appropriate to site conditions and to approval of Consultant and local authority having jurisdiction over installation.

- .3 Perform tests before energizing electrical system.

3.2 INSTALLATION OF BUILDING WIRES

- .1 Install wiring as follows:
  - .1 In conduit systems in accordance with Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

3.3 INSTALLATION OF CONTROL CABLES

- .1 Install control cables in conduit.
- .2 Ground control cable shield.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED  
REQUIREMENTS

- . 1 Section 26 05 00 – Common work results for electrical.

1.2 REFERENCES

- . 1 Canadian Standards Association (CSA International)
  - . 1 CAN/CSA C22.2 No. 18-[98(R2003), Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, A National Standard of Canada.
  - . 2 CSA C22.2 No. 45-M1981(R2003), Rigid Metal Conduit.
  - . 3 CSA C22.2 No. 56-04, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
  - . 4 CSA C22.2 No. 83-M1985(R2003), Electrical Metallic Tubing.
  - . 5 CSA C22.2 No. 211.2-M1984(R2003), Rigid PVC (Unplasticized) Conduit.
  - . 6 CAN/CSA C22.2 No. 227.3-05, Nonmetallic Mechanical Protection Tubing (NMPT), A National Standard of Canada (February 2006).

1.3 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- . 1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- . 2 Product data: submit manufacturer's printed product literature, specifications and datasheets.
  - . 1 Submit cable manufacturing data.
- . 3 Quality assurance submittals:
  - . 1 Test reports: submit certified test reports.
  - . 2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - . 3 Instructions: submit manufacturer's installation instructions.

## PART 2 - PRODUCTS

### 2.1 CONDUITS

- . 1 Rigid metal conduit: to CSA C22.2 No. 45, hot dipped galvanized steel threaded.
- . 2 Rigid metallic conduit: in compliance with CSA C22.2 no 45 stainless steel threaded.
- . 3 Epoxy coated conduit: to CSA C22.2 No 45, with zinc coating and corrosion resistant epoxy finish inside and outside.
- . 4 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings and with expanded ends threaded.
- . 5 Rigid pvc conduit: to CSA C22.2 No. 211.2.

### 2.2 CONDUIT FASTENINGS

- . 1 One hole malleable iron straps to secure surface conduits 50 mm and smaller.
  - . 1 Two hole steel straps for conduits larger than 50 mm.
- . 2 Beam clamps to secure conduits to exposed steel work.
- . 3 Channel type supports for two or more conduits at 1.5 m on centre.
- . 4 Threaded rods, 6 mm diameter, to support suspended channels.

### 2.3 CONDUIT FITTINGS

- . 1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.
- . 2 Ensure factory "ells" where 90 degrees bends for NPS 1, 25 mm and larger conduits.
- . 3 Watertight connectors and couplings for EMT.
  - . 1 Set-screws are not acceptable.

2.4 EXPANSION  
FITTINGS FOR RIGID  
CONDUIT

- .1 Weatherproof expansion fittings with internal bonding assembly suitable for 100 or 200 mm linear expansion.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection and ensure continue ground.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

2.5 FISH CORD

- .1 Polypropylene.

PART 3 - EXECUTION

3.1 MANUFACTURER'S  
INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

- .1 All work in sections 26 are in conduit and respect follows.
- .2 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
- .3 Conceal conduits except in mechanical and electrical service rooms.
- .4 Use rigid hot dipped galvanized steel threaded conduit in the non-secure area and outside of building, over the ground.
- .5 Use stainless steel conduit for outdoor installation.
- .6 Use electrical metallic tubing (EMT) anywhere in the secure area, except in cast concrete.
- .7 Use rigid PVC conduit in exterior area underground.
- .8 Use flexible metal conduit for connection to motors in dry areas.

- . 9 Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations.
- . 10 Minimum conduit size for lighting and power circuits: 19 mm.
- . 11 Bend conduit cold:
  - . 1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.
- . 12 Mechanically bend steel conduit over [19 mm] diameter.
- . 13 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
- . 14 Install fish cord in empty conduits.
- . 15 Remove and replace blocked conduit sections.
  - . 1 Do not use liquids to clean out conduits.
- . 16 Dry conduits out before installing wire.

### 3.3 SURFACE CONDUITS

- . 1 Run parallel or perpendicular to building lines.
- . 2 Locate conduits behind infrared or gas fired heaters with 1.5 m clearance.
- . 3 Run conduits in flanged portion of structural steel.
- . 4 Group conduits wherever possible on [suspended] [surface] channels.
- . 5 Do not pass conduits through structural members except as indicated.
- . 6 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

### 3.4 CLEANING

- . 1 Proceed in accordance with Section 01 74 11 - Cleaning.
- . 2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section \_n/a\_\_\_\_\_.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)  
.1 CAN/CGSB-138.1-96, Fabric for Chain Link Fence.  
.2 CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence.  
.3 CAN/CGSB-138.3-96, Installation of Chain Link Fence.  
.4 CAN/CGSB-138.4-96, Gates for Chain Link Fence.  
.5 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .2 CSA International  
.1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.  
.2 CAN/CSA-A3000-08, Cementitious Materials Compendium.
- .3 Master Painters Institute (MPI)  
.1 Architectural Painting Specification Manual - [current edition].
- .4 U.S. Environmental Protection Agency (EPA) / Office of Water  
.1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:  
.1 Submit manufacturer's instructions, printed product literature and data sheets for [concrete mixes, fences, posts and gates] and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
- .1 Store materials in accordance with manufacturer's recommendations.
- .2 Store and protect [fence and gate materials] from [damage].
- .3 Replace defective or damaged materials with new.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Concrete mixes and materials: in accordance with CSA A23.1.
- .1 Nominal coarse aggregate size: 20-5.
- .2 Compressive strength: 20 MPa minimum at 28 days.
- .3 Additives: fly ash to CSA A3000.
  
- .2 Chain-link fence fabric: to CAN/CGSB-138.1.
- .1 Type 1, Class A, heavy style, Grade 1.
- .2 Height of fabric: 3.65 m.
  
- .3 Posts, braces and rails: to CAN/CGSB-138.2, galvanized steel pipe. Dimensions as indicated.
  
- .4 Top and bottom tension wire: to CAN/CGSB-138.2, single strand, galvanized steel wire.
  
- .5 Tie wire fasteners: steel wire.
  
- .6 Tension bar: to ASTM A 653/A 653M, 5 x 20 mm minimum galvanized steel.
  
- .7 Gate frames: to ASTM A 53/A 53M, galvanized steel pipe, standard weight 45 mm outside diameter pipe for outside frame, 35 mm outside diameter pipe for interior bracing.
- .1 Fabricate gates as indicated with electrically welded joints, and hot-dip galvanized after welding.
- .2 Fasten fence fabric to gate with twisted selvage at top.
- .3 Furnish gates with galvanized malleable iron hinges, latch and latch catch with provision for padlock which can be attached and operated from either side of installed gate.
- .4 Furnish double gates with chain hook to hold gates open [and centre rest with drop bolt for closed position].
  
- .8 Fittings and hardware: to CAN/CGSB-138.2, [alvanized steel].
- .1 Tension bar bands: 3 x 20 mm minimum galvanized steel or 5 x 20 mm minimum aluminum.
- .2 Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail.
- .3 Overhang tops to provide waterproof fit, to hold top rails and an inward projection to hold barbed wire overhang.
- .4 Include projection with clips or recesses to hold 3 strands of barbed wire spaced 100 mm apart.



- .5 Projection of approximately 300 mm long to project from fence at 45 degrees above horizontal.
- .6 Turnbuckles to be drop forged.
- .9 Organic zinc rich coating: to CAN/CGSB-1.181 MPI #18.
- .10 Barbed wire : to ASTM A 121 2.5 mm diameter galvanized steel wire 4 point barbs 125 mm spacing.
- .11 Grounding rod: 16 mm diameter copperwell rod, 3 m long to Section 26 05 27 - Grounding - Primary.

## 2.2 FINISHES

- .1 Galvanizing:
  - .1 For chain link fabric: to [AN/CGSB-138.1]Grade [2].
  - .2 For pipe: 550 g/m<sup>2</sup> minimum to ASTM A 90.
  - .3 For barbed wire: to ASTM A 121, Class 2 CAN/CGSB-138.2.
  - .4 For other fittings: to ASTM A 123/A 123M.
- .2 Aluminum coating:
  - .1 For barbed wire: to ASTM A 121, Class 2.
- .3 Vinyl coating: to ASTM F 1664.
  - .1 0.045 mm dry film thickness minimum.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for fence and gate installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### 3.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
  - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to [requirements of authorities having jurisdiction.

- .2 Grading:
- .1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts.
  - .1 Provide clearance between bottom of fence and ground surface of 30 mm to 50 mm.

### 3.3 ERECTION OF FENCE

- .1 Erect fence along lines as indicated by Departmental Representative and to CAN/CGSB-138.3.
- .2 Excavate post holes 2200 mm depth x 300 mm diameter as directed by Departmental Representative.
- .3 Space line posts 2.4 m apart, measured parallel to ground surface.
- .4 Space straining posts at equal intervals not to exceed [150] m if distance between end or corner posts on straight continuous lengths of fence over reasonably smooth grade, is greater than 150 m.
- .5 Install additional straining posts at sharp changes in grade and where directed by Departmental Representative.
- .6 Install corner post where change in alignment exceeds 10 degrees.
- .7 Install end posts at end of fence and at buildings.
  - .1 Install gate posts on both sides of gate openings.
- .8 Place concrete in post holes then embed posts into concrete to minimum 2200 mm depth.
  - .1 Extend concrete 50 mm above ground level and slope to drain away from posts.
  - .2 Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .9 Install fence fabric after concrete has cured, minimum of 5 days.
- .10 Install brace between end and gate posts and nearest line post, placed in centre of panel and parallel to ground surface.
  - .1 Install braces on both sides of corner and straining posts in similar manner.
- .11 Install overhang tops and caps.
- .12 Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
- .13 Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
- .14 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with

tension bar secured to post with tension bar bands spaced at 300 mm intervals.

- .1 Knuckled selvedge at bottom.
- .2 Twisted selvedge at top.

.15 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450 mm intervals.

- .1 Give tie wires minimum two twists.

.16 Install barbed wire strands and clip securely to lugs of each projection.

.17 Install grounding rods as indicated.

### 3.4 INSTALLATION OF GATES

.1 Install gates in locations as indicated by Departmental Representative.

.2 Level ground between gate posts and set gate bottom approximately 40 mm above ground surface.

.3 Determine position of centre gate rest for double gate.

.1 Cast gate rest in concrete as directed.

.2 Dome concrete above ground level to shed water.

.4 Install gate stops where indicated.

### 3.5 TOUCH UP

.1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas in accordance with Section 09 91 13 - Exterior Painting.

.1 Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.

### 3.6 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

