



ARCHITECTURAL SPECIFICATIONS
FOR TENDER
SEPTEMBER 13th, 2019

CORRECTIONAL SERVICE OF CANADA
DONNACONA INSTITUTION
1537 Route 138, Donnacona, Quebec

Project: 321-3907
Donnacona SIU, I Block
Separation of the Q-R yard

Lemay
734 Saint-Joseph St. E, 4th Floor
Québec, QC G1K 3C3

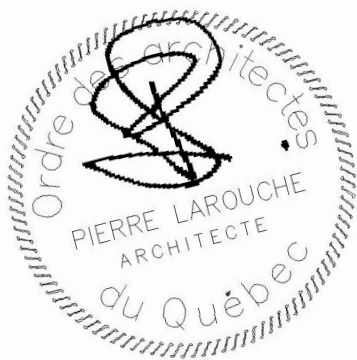


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1. GENERAL

1.1. General

- 1.1.1. As soon as possible and in a predetermined order so as not to delay work, submit the required documents and samples to the professionals for approval. Delay in this regard is not a sufficient reason to obtain an extension and no such request will be granted.
- 1.1.2. Do not perform work that requires documents and samples to be filed until all submitted documents have been fully verified.
- 1.1.3. The measurements indicated on shop drawings, technical data sheets and samples must be expressed in metric units.
- 1.1.4. If elements are not produced or manufactured in metric units or the measurements are not given in SI units, converted values may be accepted.
- 1.1.5. Review documents and samples before submitting them to the professionals. Through this due diligence, the Contractor confirms that the requirements applicable to the work have been or will be determined and verified, and that each of the documents and samples submitted have been reviewed and found to meet the requirements of the work and contract documents. Documents and samples that are not stamped, signed, dated and identified as being related to the specific project will be returned without being examined and considered rejected.
- 1.1.6. Notify the professionals in writing when documents and samples, as well as any deviations from the contract documents and the reasons for those deviations, are filed.
- 1.1.7. Ensure the accuracy of on-site measurements in relation to adjacent structures affected by the work.
- 1.1.8. The fact that the documents and samples submitted are examined by the professionals does not release the Contractor from its responsibility to submit complete and accurate documents.
- 1.1.9. The fact that the documents and samples submitted are examined by the professionals does not release the Contractor from its responsibility to provide documents that meet the requirements of the contract documents.
- 1.1.10. Keep a verified copy of each submitted document on site.
- 1.1.11. The Contractor is responsible for the dimensions, which must be confirmed and correlated at the site; for information about manufacturing processes or construction and installation techniques; and for coordinating the work of all subcontractors.
- 1.1.12. Each document must be accompanied by a letter of transmittal with all basic information:
 - a) Project name, address and location

- b) File number
- c) Name and signature of the contractor involved
- d) Location of the work, referring to the sample or drawing submitted;
- e) Specification section
- f) Date

1.2. Technical data sheets and test reports

- 1.2.1. Provide the technical data sheets of all products/materials requested by the documents, or alternative products/materials, for validation by the Architect.
- 1.2.2. The sheets must mention the relevant section of the specifications and item number referring to it.
- 1.2.3. The following must also appear on the data sheets to be submitted: the date of submission, the revision number if applicable, the name of the specialized contractor or supplier, the name of the contact person and their contact information (address and telephone number).
- 1.2.4. Provide the test reports required by the documents for validation by the Architect.

1.3. Shop drawings

- 1.3.1. Submit the shop drawings prepared by the Contractor, subcontractor, supplier or distributor that illustrate the part of the work involved, manufacturing details, layout and installation or assembly details prescribed in the related sections in PDF format by email to the professionals;
- 1.3.2. Consolidate technical sheets and shop drawings into a single folder no larger than 10 megabytes (MB)
- 1.3.3. Send files no larger than 10 megabytes (MB) by email Separate the files if necessary.

1.4. Presentation of shop drawings

- 1.4.1. Shop drawings must comply with the following requirements:
 - a) Contain only information that is relevant to the project;
 - b) Be clear, legible, printed at a reasonable font size, written in French and in metric units;
 - c) Contain all basic information, supplemented by additional project-specific information;
 - d) Indicate the dimensions and clearances required;
 - e) Identify the name of the manufacturer and the date of issue;

- f) Write "SHOP DRAWING" on the sheets and indicate page numbers;
- g) Provide the Contractor's name, address and telephone number and the project's name, address and number.

1.5. Samples of materials and structures

- 1.5.1. According to the contract documents and at the request of the Architect or the representative designated by the organization, the Contractor or its subcontractors or suppliers will submit samples of the specified products for approval.
- 1.5.2. Submit the required number of samples with measurements and dimensions.
- 1.5.3. If colour, pattern or texture are to be used as criteria, submit under the related samples.
- 1.5.4. Each sample and mock-up must be presented in full, i.e. it must include the work of all trades.
- 1.5.5. Once approved, the samples become the quality standard for materials and workmanship and will be used to verify the work on site.

1.6. Required quality

- 1.6.1. Means that the item indicated on the specification or plan and identified by a catalogue number fully meets the performance, material quality and execution requirements and is accepted by the Architect or their representative.
- 1.6.2. The proposed equipment must meet all manufacturing and operating characteristics of this product, and it is the responsibility of the supplier and Contractor to submit, for verification purposes, enough technical information for the Architect or their representative to judge all components of the product.
- 1.6.3. The components of a system can be equivalent without the system itself being equivalent. In this case, the Contractor will assume all additional costs necessary to achieve performance equivalent to the specified system to the satisfaction of the Architect or their representative.

1.7. Verification of submitted documents

- 1.7.1. The Contractor will verify shop drawings, product measurements and samples before submitting them to the Architect or the representative appointed by the organization.
- 1.7.2. The Contractor will check:
 - a) Measures taken on site;
 - b) Execution criteria; and
 - c) Catalogue numbers and other related data.

- 1.7.3. Match the submitted documentation with the work requirements and contract documents.
- 1.7.4. The Contractor is not released from liability for errors and omissions in the submitted documentation once the Architect or their representative has verified the documentation.

1.8. Distribution of revised documentation

- 1.8.1. Submit a copy of the shop drawings and specified materials bearing the professional's seal:
 - a) In the file kept on site; and
 - b) In the permanent file.
- 1.8.2. Provide a copy of these documents to:
 - a) Each of the primary contractors;
 - b) Each subcontractor;
 - c) The supplier; and
 - d) The manufacturer.

1.9. Samples, tests and mixes

- 1.9.1. The Contractor shall submit for the approval of the construction manager any standardized samples that they may reasonably require in accordance with the contract documents. These samples must have a label indicating their origin and intended use.
- 1.9.2. The Contractor must provide the construction manager with any test results and mix designs that they may request according to the requirements of the contract documents.
- 1.9.3. The costs of tests and mix designs not provided for in the contractual documents shall be borne by the owner.

1.10. Document and submitted sample tracking table

- 1.10.1. The Contractor must keep a table of all documents and materials submitted to the professionals for validation.
- 1.10.2. The Contractor will submit the table to the professionals no later than two weeks after the start-up meeting that indicates all documents and materials to be submitted.
- 1.10.3. The table should indicate the original submission date, revision dates, item submitted and the relevant section of the specifications.
- 1.10.4. The final table should be included in the project manual.

2. PRODUCTS (N/A)

3. EXECUTION (N/A)

4. END OF SECTION

1. GENERAL

1.1. Fires

- 1.1.1. Fires and waste burning on site are not permitted.

1.2. Waste disposal

- 1.2.1. It is prohibited to bury waste and waste materials on site.
- 1.2.2. It is prohibited to dispose of waste or volatile materials such as mineral spirits and oil or paint thinners into streams, storm or sewer drains, roof drains or gutters.
- 1.2.3. Provide a waste container and place all demolition waste in it every day. Ensure that no packaging, debris or other material ends up on adjacent properties. Avoid any undue accumulation of waste in the container and dispose of it as soon as it is no longer required.

1.3. Drainage

- 1.3.1. It is prohibited to pump water containing suspended particulate material into watercourses, sewer systems or drainage systems.
- 1.3.2. Dispose of water containing suspended particulate material or any other harmful substances in accordance with the requirements of local authorities.

1.4. Pollution prevention

- 1.4.1. Maintain any temporary facilities for preventing erosion and pollution that are installed under this contract.
- 1.4.2. Control gases released by equipment and installations in accordance with the requirements of local authorities.
- 1.4.3. Construct temporary shelters to prevent sandblasting materials and other foreign matter from contaminating the air beyond the application area.
- 1.4.4. Water dry materials and cover waste to prevent wind from spreading dust or debris. Suppress dust on temporary roads.

1.5. Plant protection

- 1.5.1. Ensure that existing trees, shrubs and grasses are protected.
- 1.5.2. Repair any damage to trees, shrubs or grasses on surrounding properties caused by the work.

2. PRODUCTS (N/A)

3. EXECUTION (N/A)

4. END OF SECTION

1. GENERAL INFORMATION

1.1. Section content

- 1.1.1. Inspections and tests: administrative and operational requirements
- 1.1.2. Tests and mix designs
- 1.1.3. Mock-ups
- 1.1.4. Shop tests
- 1.1.5. Adjustment and calibration of devices and systems.

1.2. Related sections

- 1.2.1. Section 01 33 00 – Documents and samples to submit
- 1.2.2. Section 01 78 00 – Documents to submit upon completion of work

1.3. Inspection

- 1.3.1. The Architect must have access to the work. If any part of the work is performed off-site, access to that area must also be provided throughout the duration of the work.
- 1.3.2. If the work requires special inspections, approvals or tests ordered by the Architect or required by local regulations affecting the work site, make a request within a reasonable time frame.
- 1.3.3. If the Contractor has covered or permitted the coverage of work before it has undergone the required special inspections, approvals or tests, it shall uncover the work in question, ensure that inspections or tests are carried out to the satisfaction of the relevant authorities, and then restore the work to its original condition.
- 1.3.4. The Architect may order an inspection of any part of the work for which compliance with the contract documents is in question. If, after examination, the work in question is found not to comply with the contract documents, the Contractor shall take the necessary steps to bring the work into compliance with the specified requirements, and shall bear the costs of inspection and repair. If the work in question is found to comply with the requirements of the contract documents, the owner will pay for the inspection and restoration costs.

1.4. Independent testing and inspection bodies

- 1.4.1. The owner will retain the services of independent testing and inspection organizations. The cost of these services will be borne by Her Majesty, except in the following cases:
 - a) Inspection and testing required by laws, ordinances, rules, regulations or instructions of public order.
 - b) Inspection and testing performed exclusively for the convenience of the Contractor.

- c) Tests prescribed to be performed by the Contractor under the supervision of the Architect.
- d) Additional tests prescribed in paragraph 1.4.4.
- 1.4.2. Provide the equipment required by the designated bodies to perform tests and inspections.
- 1.4.3. The use of testing and inspection organizations does not relieve the Contractor of its responsibility to perform the work in accordance with the requirements of the contract documents.
- 1.4.4. If issues are identified during testing and/or inspections, the designated body will require further inspection and/or additional testing to accurately define the nature and extent of these issues. The Contractor shall correct issues and imperfections as directed by the Architect at no additional cost to Her Majesty, and shall bear the cost of tests and inspections to be performed following such corrections.

1.5. Access to the site

- 1.5.1. Grant testing and inspection organizations access to the site and to manufacturing and processing facilities located outside the site.
- 1.5.2. Cooperate with these organizations and take all reasonable measures to ensure that they can access the site.

1.6. Procedure

- 1.6.1. Notify the appropriate agency and the Architect in advance when testing is required so that all parties involved can be present.
- 1.6.2. Submit samples and/or equipment and materials for testing as specified in the specifications, within a reasonable timeframe and in a predetermined order so as not to delay the work.
- 1.6.3. Provide the manpower and facilities needed to collect and handle samples and materials on site. Additionally, provide the space needed to store and cure samples.

1.7. Rejected works

- 1.7.1. Remove defective elements that have been deemed non-compliant with the contractual documents and rejected by the Architect, either because of poor workmanship or because the elements have been made with defective materials or products, even if they have already been incorporated into the work. Replace or redo the elements in question so that they are compliance with the contractual documents.
- 1.7.2. Repair the work of other contractors that is damaged during the aforementioned repair or replacement work without delay.
- 1.7.3. If, in the opinion of the Architect, repairing defective or non-compliant works is not advisable, the Employer may deduct from the contract price the difference in value between the work performed and that specified in the contract documents, the amount of such difference being determined by the Architect.

1.8. Reports

- 1.8.1. Provide 4 copies of the test and inspection reports to the Architect.
- 1.8.2. Provide copies of these reports to the subcontractors responsible for the inspected or tested structures and to the manufacturer or fabricator of the inspected or tested equipment/materials.

1.9. Tests and mix designs

- 1.9.1. Provide 4 copies of the test results and required mix designs.
- 1.9.2. The cost of tests and mix designs that have not been specifically required under the contract documents or local site regulations will be subject to the owner's approval and may subsequently be reimbursed.

1.10. Mock-ups

- 1.10.1. Prepare any mock-ups that are specifically required in the specifications. The requirements of this article apply to all sections of the specifications in which mock-ups are requested.
- 1.10.2. Construct mock-ups in the locations approved by the Architect.
- 1.10.3. Prepare mock-ups for approval by the Architect within a reasonable timeframe and in a predetermined order, so as not to delay work.
- 1.10.4. Delay in the preparation of mock-ups is not a sufficient reason to obtain an extension and no such request will be accepted.
- 1.10.5. If necessary, the Architect will help the Contractor establish a schedule for the preparation of mock-ups.
- 1.10.6. Remove mock-ups once the work is completed or at a time determined by the Architect.
- 1.10.7. Mock-ups may be part of the finished work.
- 1.10.8. Each section of the specification that refers to mock-ups specifies whether or not they can be part of the finished work and when they should be removed, if applicable.

1.11. Factory tests

- 1.11.1. Submit certificates for the factory tests specified in the specifications.

1.12. Equipment, devices and systems

- 1.12.1. Submit adjustment and balancing reports for mechanical, electrical and other building systems.

2. PRODUCTS

2.1. Not applicable

- 2.1.1. Not applicable.
- 2.1.2.

3. EXECUTION

3.1. Not applicable

3.1.1. Not applicable.

END OF SECTION

1. GENERAL

1.1. Reference standards

1.1.1. References to the standards of the organizations listed below can be found in the text of the specification.

CRCA	- Canadian Roofing Contractors Association
ACI	- American Concrete Institute
CLA	- Canadian Lumbermen's Association
CSA	- Canadian Standards Association
TTMAC	- Terrazzo, Tile and Marble Association of Canada
AISC	- American Institute of Steel Construction
ANSI	- American National Standards Institute
ASTM	- American Society for Testing and Materials
QCC	- Quebec Construction Code
NBC	- National Building Code
CPCA	- Canadian Painting Contractor's Association
CISC	- Canadian Institute of Steel Construction
NAAMM	- National Association of Architectural Metal Manufacturers
CGSB	- Canadian General Standards Board
ULC	- Underwriters Laboratories of Canada

Comply with the standards listed above, in whole or in part, as specified in the specification.

1.1.2. The standards refer to the latest edition.

1.1.3. In the event that the compliance of certain products or systems with the applicable standards remains in question, the Architect or Engineers reserve the right to verify those products or systems by ordering tests.

1.1.4. If the products or systems are found to comply with the contract documents, the costs of these tests will be borne by the Owner. Otherwise the costs will be borne by the Contractor.

1.1.5. Comply with the most recent standard as of the quotation date, unless a specific date or older standard is given.

2. PRODUCTS AND MATERIALS

2.1. Quality:

2.1.1. The products, materials, equipment and parts (collectively called "products" in the specifications) used for the work must be new, in pristine state and the best quality (under the terms of the specifications) for their intended purposes. As needed, provide evidence of the nature, origin and quality of the products provided.

- 2.1.2. Products that are found to be defective before the work ends will be rejected, regardless of the conclusions of previous inspections. The purpose of inspections is not to relieve the Contractor of its responsibilities, but simply to reduce the risk of omission or error. The Contractor shall be responsible for the removal and replacement of defective products at its own expense and shall be liable for any resulting delays and costs.
- 2.1.3. In the event of a conflict regarding the quality or suitability of the products, only the Architect or Engineers may make a decision on the matter, which must be based on the requirements of the contractual documents.
- 2.1.4. Unless otherwise specified in the specifications, favour consistency by ensuring that materials or components of the same type are from the same manufacturer.
- 2.1.5. Permanent labels, trademarks and nameplates prominently displayed on the products are not acceptable unless they indicate a method of operation or are on equipment installed in mechanical or electrical rooms.

2.2. Availability:

- 2.2.1. Immediately after signing the contract, review the requirements for product delivery and anticipate any delays. If delays in product delivery can be anticipated, notify the Architect or Engineers so that measures can be taken to substitute them with replacement products or make the necessary corrections. Do so sufficiently in advance to avoid delaying work.
- 2.2.2. If the Architect or Engineers are not notified of foreseeable delays in delivery at the beginning of the work and it appears likely that the work will be delayed, the Architect or Engineers reserve the right to substitute other comparable products that can be delivered more quickly, without increasing the contract price.

2.3. Substitution:

- 2.3.1. To be considered, any product presented as equivalent must be submitted at **least fifteen (15) working days** before it is to be used. All technical characteristics of the product must be submitted with this request.
- 2.3.2. Substitution proposals must not be made before the contract is awarded. Requests must be accompanied by a statement of the respective costs of the items specified in the call for tenders and those proposed as substitutes.
- 2.3.3. The supervisor will only consider these requests if:
 - a) The products selected by the bidder from among those prescribed in the call for tenders are not available, or if:
 - b) the products offered as substitutes are considered by the supervisor as equivalent to the prescribed products and if their use results in a decrease in the market price, or if;
 - c) the delivery date of the products chosen from those prescribed in the call for tenders unduly delays the work.

- d) if the proposed substitution is accepted in whole or in part, the Contractor assumes full responsibility and the costs for any other work that may result from the substitution. They must also pay the cost of changes to drawings as a result of this substitution.
- e) All money saved as a result of approved substitutions will be credited using the amount approved by the supervisor, and the contract price will be reduced accordingly. No substitutions will be permitted without prior written approval from the supervisor.

2.4. Storage, handling and protection of products:

- 2.4.1. Move and store products in a manner that does not damage, alter or dirty them and that follows the manufacturer's instructions where applicable.
- 2.4.2. Store products in their original packaging, taking care to leave the manufacturer's label and seal intact. Do not unpack or separate the products before it is time to incorporate them into the structure.
- 2.4.3. Products at risk of being damaged in bad weather must be stored in a weatherproof enclosure.
- 2.4.4. Hydraulic binders should not be placed directly on the ground or concrete floor or in contact with walls.
- 2.4.5. Sand intended for incorporation into mortars and grouts must be kept dry and clean. Store it on wooden supports and cover it with waterproof tarpaulins in bad weather.
- 2.4.6. Place sheet materials, lumber, etc. on rigid and flat supports so that they are not resting directly on the ground. Create a slight slope to facilitate the flow of condensation water.
- 2.4.7. Store and mix paints in a heated and well-ventilated room. Remove oily cloths and other flammable waste from the site every day. Take all measures to avoid the risk of spontaneous combustion.
- 2.4.8. Replace damaged products at no additional cost and to the satisfaction of the Architect or Engineers.

2.5. Transportation:

- 2.5.1. Pay the cost of transporting the products required to perform the work.
- 2.5.2. The costs of transporting the products supplied by the Employer shall be borne by the Employer. The Contractor is responsible for unloading, handling and storing them.

2.6. Manufacturer's instructions

- 2.6.1. Unless otherwise specified in the specifications, install or place products according to the manufacturer's instructions. Do not rely on the information on the labels and containers provided with the products. Ask the manufacturer directly for a written copy of their instructions.
- 2.6.2. Notify the Architect or Engineers in writing of any discrepancy between the

requirements of the specifications and the manufacturer's instructions so that they can take appropriate action.

- 2.6.3.** Failure to give the notice required above may result in the Architect or Engineers requiring the removal and reinstallation of products that have been improperly installed or placed, without increasing the contract price.

3. EXECUTION

3.1. General:

- 3.1.1. The work must be of the highest possible quality and be carried out by skilled tradespeople who are qualified in their respective disciplines. Notify the Architect or Engineers without delay if the nature of the work to be performed means that the expected results cannot be practically achieved.
- 3.1.2. Do not hire unqualified persons or persons who do not have the necessary qualifications to perform the work assigned to them. The Architect or Engineers reserve the right to require the removal of any person deemed incompetent, negligent or insubordinate or whose presence on the site cannot be tolerated.
- 3.1.3. Only the Architect or Engineers may settle disputes concerning the quality of the work and the skills of the tradespeople, and their decision is final.

3.2. Coordination:

- 3.2.1. Ensure that workers cooperate with each other. Carefully and constantly monitor workers' work.
- 3.2.2. Oversee the coordination and installation of rails, sleeves and accessories.

3.3. Concealment of conduits:

- 3.3.1. Unless otherwise specified, conceal pipes, ducts and electrical wires in floors, walls and ceilings in finished areas.
- 3.3.2. Before concealing the conduits, inform the Architect or Engineers of any abnormal situations. Install conduits according to the Architect's or Engineer's instructions.

3.4. Cutting and levelling:

- 3.4.1. Cut and level in a way that ensures that all parts of the structure form a coherent whole. Coordinate work to ensure that this requirement is met.
- 3.4.2. In the event that work performed outside the contract requires cutting or levelling, the costs incurred by this work will be valued by the Architect or Engineers according to market prices.
- 3.4.3. Cutting and levelling work must be performed by specialists who are familiar with the materials they must work with. Avoid causing or risking damage to any part of the structure.

3.5. Location of devices:

- 3.5.1. The location indicated for electrical or mechanical appliances, sockets and other installations should be considered approximate.
- 3.5.2. Inform the Architect or Engineers of any problems that may arise from the location of an appliance and install it according to their instructions.

3.6. Fasteners:

- 3.6.1. Unless otherwise specified, provide metal accessories and fasteners with the same texture, colour and finish as the material to which they are attached.
- 3.6.2. Avoid exposing different metals to electrolytic action.
- 3.6.3. Unless the specification specifies fasteners made of stainless steel or other corrosion-resistant material, use hot-dip galvanized steel fasteners and anchors to secure outdoor structures.
- 3.6.4. The spacing of the anchors must account for load limits and shear strength to ensure permanent positive anchoring. Pegs made of wood or any other organic material will not be accepted.
- 3.6.5. Use as few visible fasteners as possible; space them evenly and place them carefully.
- 3.6.6. Fasteners that would cause the material to which they are anchored to crack or crumble will be rejected.

3.7. Protection of works in progress:

- 3.7.1. Ensure that works that are under construction or that have been completed are adequately protected. Structures that are damaged or altered due to non-compliance with the specified protective measures must be replaced or repaired free of charge, as indicated by the Architect or Engineers.
- 3.7.2. Do not overload any part of the building. Unless otherwise specified, obtain written authorization from the Architect or Engineers before cutting, drilling or sleeving a structural element.

3.8. Existing networks:

- 3.8.1. When connecting to existing networks, perform the work at the times established by the responsible authorities, with as little disruption as possible to normal use of the premises.
- 3.8.2. Protect, relocate or maintain existing pipelines. If abandoned pipes are discovered during construction, seal them in a manner approved by the responsible authorities and mark them or keep a record of their location.

4. END OF SECTION

1. GENERAL

1.1. General

- 1.1.1. Clean up and dispose of waste in accordance with local ordinances and pollution laws.
- 1.1.2. Do not dispose of volatile waste such as mineral spirits, oil or paint and varnish solvents in a storm or sewer drain.
- 1.1.3. Place volatile waste in covered metal containers and remove it from the site daily.
- 1.1.4. Prevent the accumulation of high-risk waste.
- 1.1.5. Ensure good ventilation when volatile or toxic substances are being used.

2. PRODUCTS

2.1. Products

- 2.1.1. Use only cleaning products recommended by the manufacturer of the surface to be cleaned and use them according to the instructions of the cleaning product manufacturer.

3. EXECUTION

3.1. Cleaning during construction

- 3.1.1. Keep the site clean and public property free of debris and waste at all times.
- 3.1.2. Supply the site with containers for debris and waste and remove them from the site.
- 3.1.3. Clean up immediately after tasks and no later than the end of each day, so as not to interfere with the proper operation of the building.
- 3.1.4. As soon as waste containers are no longer required, they must be disposed of immediately.

3.2. Final cleaning

- 3.2.1. Before the work ends, carry out a final inspection of indoor and outdoor surfaces, whether they are hidden or visible.
- 3.2.2. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign matter from exposed finished surfaces such as glazing and other polished surfaces.
- 3.2.3. Sweep "hard" surfaces and rake the rest of the ground. Pay particular attention to the final cleaning of lawns. No nails, sheet metal or wood should be left on lawns during the final inspection.

END OF SECTION

1. GENERAL INFORMATION

1.1 Section content

- 1.1.1 Project file, samples and specifications
- 1.1.2 Equipment and devices
- 1.1.3 Data sheets, materials, equipment and finishing products and related information
- 1.1.4 Operation and maintenance sheets and manuals
- 1.1.5 Replacement materials/equipment, special tools and spare parts
- 1.1.6 Warranties and bonds
- 1.1.7 Plans and specifications as built

1.2 Maintenance guide

- 1.1.8 Before final acceptance of the work, submit three (3) copies of the operating and maintenance guide (in French and in English) for the materials and equipment installed to the owner, prepared as follows:
 - a) Record the data on loose-leaf 215 x 280 mm paper, bound in a three (3)-ring, hardcover vinyl binder.
 - b) On the title page, write: "Operating and Maintenance Guide," the name of the facility, the date and the table of contents.
 - c) Divide the content into appropriate sections, matching the subdivisions of the corresponding specification. Mark each section with a labelled plastic-covered tab that is attached to the rigid paper divider.
- 1.1.9 Send a complete digital certified copy to the Architect in PDF format. If the digital manual contains multiple files, they must be named using alphanumeric criteria so that they appear in a folder in the same order they appear in the printed document.
- 1.1.10 Include the following information:
 - a) Maintenance guidelines for surfaces, finished materials, equipment and building systems. Documents, catalogues, descriptive sheets, manufacturer's instructions, maintenance sheets, and so on, as requested in the plans and specifications.
 - b) Name, address and telephone number of subcontractors and suppliers A copy of the *hardware and paint* inventory.
 - c) All warranties required of contractors, subcontractors or suppliers under the provisions of the specifications.
 - Name and address of the work
 - Effective date of the warranty (date of the final certificate of completion)

- Duration of the warranty
 - Purpose of the warranty and corrective measure provided by the warranty
 - Signature and seal of the Contractor.
- f) Additional equipment used to complete the work and mentioned in the sections, as well as the name of the manufacturer and the source. Make the list by identifying the relevant item and section of the specification.
- g) The certificate of site closure issued by the CSST.
- 1.1.11 Type lists and notes clearly. Ensure that manufacturers' drawings, diagrams or publications are clear.
- 1.1.12 Add a full set of shop drawings that have received final approval and include corrections and changes made during fabrication and installation.

1.2 Materials and finishing products

- 1.2.1 Building materials, finishing products and other products to be applied: provide data sheets and indicate the catalogue number, dimensions, composition and colour and texture designations of the products and materials. Provide the necessary information to order special products.
- 1.2.2 Provide instructions regarding cleaning agents and methods, recommended cleaning and maintenance schedules, and precautions against harmful methods and products.
- 1.2.3 Water-repellent products and products exposed to bad weather: Provide the manufacturer's instructions regarding cleaning agents and methods, recommended cleaning and maintenance schedules and precautions against harmful methods and products.
- 1.2.4 Additional requirements: as specified in the technical sections of the specification.

1.3 Plans and specifications as built

- 1.3.1 Record the information on a set of opaque black-line drawings and in a copy of the project file provided by the Architect.
- 1.3.2 Record information using felt-tip markers, using a different colour for each major system.
- 1.3.3 Record information as the work progresses. Do not conceal works until the required information has been recorded.
- 1.3.4 Contract and shop drawings: indicate all data legibly, so as to show the works as they are, including the following:
- h) The measured depth of the foundation elements in relation to the level of the first finished floor.

- i) The location, measured horizontally and vertically, of utility pipelines and underground accessories in relation to permanent surface installations.
 - j) The location of utility lines and interior accessories, measured in relation to visible and accessible building components.
 - k) On-site modifications to the dimensions and details of the structures.
 - l) Changes made as a result of change orders.
 - m) Details that are not included in the original contract documents.
 - n) References to shop drawings and related modifications.
- 1.3.5 Specifications: Legibly write information and describe the works as they are. Include the following:
- 1.3.6 The manufacturer's name, trademark and catalogue number of each product actually installed, including optional and replacement components.
- 1.3.7 Changes that are the subject of addenda or change orders.
- 1.3.8 Other documents: keep the manufacturer's certificates, inspection certificates and records of on-site tests specified in each technical section of the specifications.

1.4 Replacement materials/equipment

- 1.4.1 Provide replacement equipment and materials in the quantities indicated in the technical sections of the specifications.
- 1.4.2 Replacement equipment and materials must be from the same manufacturer and of the same quality as the equipment and materials incorporated into the work.
- 1.4.3 Deliver and store replacement equipment/materials at the site.
- 1.4.4 Receive and inventory replacement equipment and materials, then submit the inventory list to the Engineer. Insert the approved list in the maintenance manual.
- 1.4.5 Keep a receipt for all parts delivered and submit it before final payment.

1.5 Warranties and bonds

- 1.5.1 Separate each warranty or bond using a tab separator marked according to the list given in the table of contents.
- 1.5.2 List subcontractors, suppliers and manufacturers, with the name, address and telephone number of each company or individual's designated representative.
- 1.5.3 Obtain warranties and bonds, signed in duplicate by subcontractors, suppliers and manufacturers, within ten days of completion of the work concerned.

- 1.5.4 Except for items put into use with the Employer's authorization, do not change the effective date of the warranty until the date of substantial completion of the work has been determined.
- 1.5.5 Ensure that the documents are in proper form, that they contain all the necessary information and that they are notarized.
- 1.5.6 Countersign the documents to be submitted when necessary.
- 1.5.7 Hold warranties and bonds until the prescribed time to deliver them.

2. PRODUCTS (N/A)

3. EXECUTION (N/A)

END OF SECTION

1. GENERAL

1.1. Scope of this section

- 1.1.1. Provide a chain-link fencing system as indicated.
- 1.1.2. Provide chain-link gates as indicated.
- 1.1.3. Provide hinged chain-link doors and their framing.
- 1.1.4. Provide hardware for hinged chain-link doors.
- 1.1.5. Provide the door control system and connection to the Owner's control system.

1.2. REFERENCES

- 1.2.1. American Society for Testing and Materials International, (ASTM)
 - a) ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - b) ASTM A325M-09 Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric)
 - c) ASTM A194/A194M – 08b Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
 - d) ASTM F436M-09 Standard Specification for Hardened Steel Washers (Metric)
 - e) ASTM A666 – 03 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
 - f) ASTM A167 – 99(2004) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
- 1.2.2. Canadian General Standards Board (CGSB)
 - a) CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer
 - b) CAN/CGSB-1.181-92, Ready-Mixed Organic Zinc-Rich Coating
 - c) CAN/CGSB-138.1-96, Fabric for Chain Link Fence
 - d) CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence
 - e) CAN/CGSB-138.3-96, Installation of Chain Link Fence
 - f) CAN/CGSB-138.4-96, Gates for Chain Link Fence
- 1.2.3. Canadian Standards Association (CSA International)
 - a) CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel
 - b) CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

- c) CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding
(standard developed in collaboration with the Canadian Welding Bureau)
- d) CSA W59-1989(R2001), Welded Steel Construction (Arc Welding)
(Imperial Version)

1.2.4. Use only the hardware listed as ULC or ULI.

1.3. Manufacturer's shop drawings

- 1.3.1. Submit shop drawings and data sheets in accordance with the specifications of section 01 33 00.
- 1.3.2. The drawings must indicate the dimensions, materials and all elements needed for assembly and manufacture.
- 1.3.3. Clearly indicate each type of chain link door, gate and frame, equipment, reinforcing element, anchor location, visible fastening, finish and hardware configuration.

1.4. Technical data sheets

- 1.4.1. Submit the printed version of the manufacturer's literature, technical specifications and product data sheets under section 01 33 00 – Documents and samples to submit.
- 1.4.2. List of hardware items:
 - a) Submit a list of door hardware items in the form of a bill of material.
 - b) List the specified hardware items, making sure to indicate the make, model, material, function and finish, as well as any other relevant information.
- 1.4.3. Electrical diagrams:
 - a) Submit the final electrical diagrams for approval. These must be compatible with security and fire alarm systems.
 - b) Include the location of control boxes and provide access doors in walls and ceilings as required.
- 1.4.4. Test reports:
 - a) Submit laboratory test reports in accordance with section 01 45 00 – Quality Control.
 - b) Submit test reports certifying that products, materials and equipment meet the requirements for physical characteristics and performance criteria.
- 1.4.5. Manufacturer's instructions:
 - a) Submit the installation instructions provided by the manufacturer.
- 1.4.6. Documents/elements to be submitted upon completion of the work:

- 1.4.7. Provide the forms needed for the use and maintenance of locks and hardware accessories and incorporate them into the manual prescribed in section 01 78 00 – Documents/elements to submit upon completion of work.

1.5. Engineer's structural drawings

- 1.5.1. The Contractor must obtain signed and sealed structural drawings from a structural engineer who is a member of the Ordre des ingénieurs du Québec, indicating the specifications for the construction of foundations, posts and rails, required assemblies, load calculations and any structural information required to execute the works described in these documents.
- 1.5.2. Submitted shop drawings must bear the seal of a competent engineer recognized in the province of Quebec. This seal certifies that the design of the chain link fence and gate system meets the requirements of the contract documents, the current building code, regulations and applicable standards.
- 1.5.3. At the end of the work, the Contractor shall issue a certificate of conformity signed and sealed by the engineer who designed it. The visits and services required to issue such a certificate must be included in the Contractor's bid.

1.6. Hardware for chain link fence

- 1.6.1. Provide labour, materials and equipment to supply and install detention centre hardware that can support its operation within the parameters defined herein. Be responsible for fully supplying and installing all components, including commercial hardware as specified in this section.
- 1.6.2. Include the supply, installation and termination of wiring and pneumatic tubing in the frames and from door devices to junction boxes to form a complete and functional pneumatic system for the devices specified in this section.
- 1.6.3. Include the supply and installation of pneumatic head-end equipment and pneumatic line terminations for main and secondary manifolds, pneumatic head-end equipment, pneumatic control valves and manual remote controlled emergency unlocking system (MRCEUS).
- 1.6.4. Coordinate control wiring, low-voltage wires and pneumatic tubes in conduits, pipes and cable conduits.

1.7. Door control

- 1.7.1. The electric hardware control system is included in this section and must be provided and installed by Honeywell. Contact Mr. Claude Poliquin, the company's representative. Include the company's services in the bid.
- 1.7.2. Supply and install all control wiring for the new chain link door connected to the existing PLC with the addition of a new expansion module.
- 1.7.3. All conduits will be provided and installed by an electrician.

- 1.7.4. All programming will be integrated into Honeywell's EBI system to control the new door. Coordinate the movement of the existing door.
- 1.7.5. Complete validation and tests will be performed with the customer's representative before delivery.

1.8. Warranty

- 1.8.1. Provide a written and signed document, issued on behalf of the Owner, guaranteeing, unless otherwise specified, all hardware items against defects in material and installation for a period of 2 years from the date of issuance of the interim certificate of completion.
- 1.8.2. Warranty period for electric locks: 5 years from the date of issuance of the interim certificate of completion.

1.9. Waste management and disposal:

- 1.9.1. Remove all waste from the site at the end of each workday.
- 1.9.2. Steel waste will be transported in the Correctional Service of Canada's container for recycling.
- 1.9.3. Soil and aggregate waste will be distributed at a location designated by the Correctional Service of Canada.
- 1.9.4. Other waste will be recovered by the Contractor.

2. PRODUCTS

2.1. MATERIALS

- 2.1.1. Steel sheet: commercial-quality, cold rolled, compliant with ASTM A366-72(1979) with Class 1 finish.
- 2.1.2. Sheet metal, molded metal, steel bars: compliant with CAN3-G40.21-M81, type 230G or 260W.
- 2.1.3. Steel sheet to be bent or cold bent: ASTM A283, Class C.
- 2.1.4. Hot-formed, butt welded or seamless steel tubes: ASTM A501. Cold-finished steel bars: ASTM A108, class selected by the manufacturer.
- 2.1.5. Cold-rolled carbon steel sheet: ASTM A336.
- 2.1.6. Steel tube: ASTM A283, Class A.
- 2.1.7. Poles, struts and rails:
 - a) Per CAN/CGSB-138.2, galvanized steel pipes.
 - b) Posts, terminal posts and line posts: external diameter 168 mm, schedule 40, galvanized, continuous welding, minimum weight 21.0 kg/m.
 - c) Top and bottom rails, according to indications: external diameter 73 mm or 42.2 mm, schedule 40, galvanized, continuous welding, minimum weight 8.6 kg/m.

- d) Middle rails are prohibited.
 - e) Provide galvanized steel post caps.
- 2.1.8. Chain link for fence:
- a) Compliant with CAN/CGSB-138.1-96, Fabric for Chain Link Fence
 - b) Type 1 category A, 50.8 mm heavy diamond wire mesh, 4.8 mm (6 gauge) diameter interlaced wires, with twisted head and bottom end.
- 2.1.9. Barbed wire, concertina type:
- a) Compliant with CAN/CGSB-138.2, galvanized barbed wire, per CSC standards and approved by the Departmental Representative. 20x0.5 mm, crimped around a spring made of galvanized steel wire 2.5 mm in diameter, forming a concertina spiral with a nominal diameter of 710 mm. The coil, once installed, must have a diameter of at least 635 mm. The concertina barbed wire spiral shall have a barbed type blade, 20 mm in length, measured from one point of the blade to the other, and the barb clusters shall be spaced approximately 45 mm apart on the centre. Concertina barbed wire will be formed by crimping the adjacent loops of a single helical coil together, at a minimum of three points on the circumference. The crimps will be galvanized. The resulting coil, once stretched, should form a cylindrical pattern. The spacing between the loops must not exceed 230 mm.
 - b) To support the concertina spiral at the top of the fence, two stretched barbed wires attached to the pole support arms will be provided. The barbed wire shall consist of two (2) strands of 12 gauge wire with 4 barb points set at 130 mm intervals. All must be galvanized.
- 2.1.10. Lower tensioning wire: according to CAN/CGSB-138.1 Table 2 (galvanized steel wire, 5 mm diameter).
- 2.1.11. Attachment wire: according to CAN/CGSB-138.1 Table 2 (galvanized steel wire), single strand. Attach and weld each attachment wire on the side opposite the prisoners' side.
- 2.1.12. Tension bars: according to ASTM A653/A653M, galvanized steel, at least 5x20 mm, complete with 3x20 mm flanges and 6 mm diameter zinc-coated nuts and bolts. Nuts must be welded to the bolts, or else the bolt wires will be damaged after installation. To prevent loss of nuts, retouch with zinc touch-up paint. The fastening flanges must attach the chain link to the lower and upper rails at 300 c/c.
- 2.1.13. Support arm: Galvanized steel with an integrated post cap must be provided on all posts where concertina barbed wire will be installed, as detailed in and in accordance with CSC standards. These overhanging connections will provide waterproofing. They must be welded to the posts and retouched with zinc touch-up paint.
- 2.1.14. Steel fence panels: galvanized steel, 3 mm thick, pre-drilled for attachments. Attached by 2 mm steel flanges pre-formed in the factory and pre-drilled every 300 mm centre to centre, vertically on the posts and horizontally on the rails. Secure the nuts by spot welding with the bolt.

2.1.15. Shop primer paint: in accordance with CAN/CGSB-1.40-M87.

2.1.16. Fasteners:

- a) Provide locking screws, locking nuts, rivets, locking nut head screws or other equivalent locking devices that have been approved to secure various components.
- b) Use rivets, locking screws or locking nuts only in areas where maximum protection against removal is required.
- c) Use nut head screws only where protection against removal is not as important and where items may need to be removed and repaired occasionally.
- d) Locking nuts and screws must have an additional head that breaks by twisting when the screw or nut is securely attached so that the main head has no hole or slot to insert a tool for removal.
- e) Locking nut head screws must have six internal lobes and a protrusion that requires the use of a special wrench for removal.
- f) Round head screws are not acceptable except in approved locations where the materials are not thick enough to allow conical drilling.
- g) Standard screws are not acceptable.

2.2. Finishes

2.2.1. Shop primer paint: according to CAN/CGSB-1.40:

- a) Apply a primer coat to steel and ferrous metal, except stainless steel and galvanized metal.
- b) Clean and prepare surfaces, and apply primer according to the manufacturer's instructions.

2.2.2. Galvanizing:

- a) Chain link mesh: according to CAN/CGSB-138.1, Category 2, zinc plating of at least 610 g/m².
- b) Pipes: zinc plating of at least 550 g/m² according to ASTM A90.
- c) Other assembly parts: according to CAN/CSA-G164.

2.3. Painting in the workshop

2.3.1. Apply a primer to metal elements, except galvanized or concrete-coated elements, in the workshop.

2.3.2. Use an undiluted primer prepared by the manufacturer. Paint surfaces that are dry and free of rust, scale and grease. Do not paint when the temperature is below 7 degrees Celsius.

2.3.3. Clean the surfaces to be welded on site. Do not paint them.

2.4. Concrete mixing:

2.4.1. Indications for the purpose of submission, the Contractor must follow the Engineer's instructions:

- a) Nominal size of coarse aggregate: 20-5
- b) Compressive strength: at least 20 MPa at 28 days.
- c) 20 MPa. 50 to 80 mm subsidence, 6% entrained air.

2.5. Insulating coating

2.5.1. Insulate the aluminum from the following components with bituminous paint:

- a) Conceal metals except stainless steel, zinc or white bronze in restricted areas.
- b) Concrete, mortar and masonry.
- c) Wood.

2.6. Chain link fences

2.6.1. Chain link fences 201603_160919

2.6.2. made of galvanized steel according to CAN/CGSB-138.4-96, Gates for Chain Link Fence.

2.6.3. Individual fence sections must not exceed 1,830 mm in width. Where the chain link fence must be wider, weld two or more sections together. The welds must be 50 mm long, have a 200 mm centre distance and be polished.

2.6.4. Where it is indicated that steel frames or elements are to be sunk into the walls, secure the fences by welding or bolting. The weld, if used, must be high-penetration arc welding and each weld must be 50 mm long and 200 mm apart. The bolts, if used, must have a diameter of 10 mm and a locking countersunk head and must be installed at 200 mm centre distance.

2.6.5. Where it is indicated that steel frames or elements are not sunk into the walls, secure the fences by bolting them with 10 mm diameter bolts with locking countersunk heads at 200 mm centre distance. Each bolt must be fixed so that its expansion sleeve is anchored to the wall.

2.6.6. Install 76x76x10 mm floor mounting angles at the bottom of each vertical perimeter or frame bar. Attach the mounting angles to the floor using 10 mm diameter locking countersunk head bolts with the expansion shell anchored in the floor.

- 2.6.7. For each sliding door, provide a continuous, full vertical U-shaped profile against which the door will be closed. Profile made of folded sheet metal at least 2.5 mm thick. Supply two adjustable rubber bumpers for each sliding door (unless the bumpers are provided in the locking device kit).

2.7. Hardware for hinged fences

- | | | |
|--------|---|-----------|
| 2.7.1. | 3 Hinge(s) 605-127 mm FULL SURFACE P | AirTeq |
| 2.7.2. | 1 Lock 9724-GR1-K2S-KCE-SR-KEEPER GALV | AirTeq |
| 2.7.3. | 3 Mogul keying key for typical BRZ code | AirTeq |
| 2.7.4. | 1 Magnetic contact(s) DPS 6200 | AirTeq |
| 2.7.5. | 1 060100C1-OR11B-120VAC-300W heating element | Watlow |
| 2.7.6. | 1 Intercom station ICM-240 (4-1/2"x4-1/2", stainless steel) | MicroComm |

2.8. Keying

- 2.8.1. Consult the CSC Representative to prepare the keying table. The keying system must include similar keying for existing and similar groups, as well as different keying. Submit the table for approval before ordering the hardware.
- 2.8.2. Master keys are not allowed.
- 2.8.3. Workers' master keys are only allowed for construction. They must be replaced by permanent keys and adjusted in accordance with the requirements of the establishment's key code.
- 2.8.4. Provide three keys for each key code.
- 2.8.5. Stamp the codes on the institution's keys, lock housing and lock cylinders. Stamp the year of production on the prison keys.
- 2.8.6. Have the keys delivered by bonded couriers or by registered mail to the person and place indicated by the Departmental Representative.
- 2.8.7. Ensure that the lock manufacturer keeps a record of all key codes issued for this project so that replacement keys can only be ordered using the code, and that future lock codes cannot accidentally be the same as existing codes.
- 2.8.8. Assign key codes to identify the facility in addition to the specific key code within it.
- 2.8.9. Key code numbers established directly from the physical cut of the keys are not allowed.

2.9. WIRES AND CABLES

- 2.9.1. Cables must be supplied, installed and equipped with connectors at the ends from the door devices. All wiring must be PVC, insulated and multi-conductor according to the instructions. All wiring must be installed in ducts

or cable conduits. Provide and install a conduit from the lock housing through a junction box in the door frame to the door opening signal switch.

- 2.9.2. The lock electrical circuit cables must be 14 AWG. Door opening signal contactors and closing indicators must be 18 AWG.
- 2.9.3. The choice of cable type is at the discretion of the system installer, but the completed system must operate to the full satisfaction of the Departmental Representative and must not exhibit crosstalk, static or other interference.
- 2.9.4. All usable devices such as locks and door opening signal switches must be equipped with AMP or MOLEX connectors provided by the hardware supplier.

2.10. HOT-DIP GALVANIZATION REPAIR

- 2.10.1. Protect damaged and uncoated areas of hot-dip galvanized steel cladding from corrosion. Protect welded areas and other areas where hot-dip galvanization is altered.
- 2.10.2. Apply a zinc-based primer such as Galvicon to the surfaces to be protected, following the paint manufacturer's recommendations.
- 2.10.3. Apply a urethane-enriched ferrous metal finishing paint in metallic silver, following the paint manufacturer's recommendations.

3. EXECUTION

3.1. PLACEMENT

- 3.1.1. Welding should be performed in accordance with CSA W59 unless otherwise specified.
- 3.1.2. Install the locks at right angles, vertically, in a straight line and vertical, and precisely adjusted, with watertight edges and intersections.
- 3.1.3. Securely attach the anchors and connections to the adjacent build.
- 3.1.4. Firmly brace the frames during installation. Install temporary horizontal and vertical wooden spacers, if necessary, to maintain the geometry of the frame. Remove temporary steel and wooden spacers once the frames are embedded.
- 3.1.5. Visible securing devices must have the same finish as the material through which they pass and be compatible with that material.
- 3.1.6. Provide parts for construction by other trades, in accordance with shop drawings and the table.
- 3.1.7. Provide qualified tradespeople with items to be embedded in concrete or masonry, as well as embedding templates.
- 3.1.8. After installation, touch up primers on rivets, on-site welds, bolts and burnt or scratched surfaces.
- 3.1.9. Touch up galvanized surfaces that have been burned during on-site welding with a zinc-rich primer.

3.2. Installation of chain link fencing

- 3.2.1. Erect the fence along the indicated route and in accordance with CAN/CGSB-138.3.
- 3.2.2. Install the line, reinforcement, barrier, corner and concrete footing posts as follows:
 - a) Line, reinforcement, corner and terminal posts: Depth: 1800 mm, larger diameter: 400 mm, ensure that the top of the concrete pile is concave with a slope towards the outside of the pile.
 - b) Ensure that the top edge of the concrete pile is at least 50 mm above an adjacent asphalt surface.
- 3.2.3. Prepare the ground and make the holes for the posts according to the Engineer's instructions. Adapt the preparatory work to local conditions.
- 3.2.4. Pour concrete into the holes and drive the posts to the depth indicated by the Engineer's indications. Bring the concrete to 50 mm above ground level and finish the surface as a slope to divert water from the posts. Support the posts to keep them straight, in alignment and at the specified level, until the concrete sets. Make sure that the posts are centered in the holes.
- 3.2.5. Install the line posts at intervals of no more than 2.5 m, measured parallel to the ground.
- 3.2.6. Install additional reinforcement posts at significant elevations and at locations designated by the Departmental Representative.
- 3.2.7. Install a corner post when the fence changes direction by more than ten degrees.
- 3.2.8. Install terminal posts at the end of the fence and near buildings. Install gate posts on either side of openings to accommodate gates.
- 3.2.9. Allow the concrete to mature at least five (5) days before installing the chain link.
- 3.2.10. Install spacers between the terminal and gate posts and the nearest line post, and place them in the middle of the panel. Parallel to the ground. Install the spacers identically on each side of the corner and reinforcement posts.
- 3.2.11. Install the galvanized steel barb arms combined with the integrated post caps. Weld in place and touch up with galvanized paint.
- 3.2.12. Install the top and bottom rails between the posts. Attach the top rail to the posts using the top holes and the bottom rail to the sleeves. Ensure the upper and lower rails can expand and contract.
- 3.2.13. Deploy the chain link, tension it tightly to the manufacturer's recommended tension and attach it to the terminal, corner, gate and reinforcement posts, with a tension bar attached to each post by flanges set 300 mm apart. Ensure that the distance between the tension bar and the posts does not exceed 13 mm. Tighten the twisted edge at the top and bottom.

- 3.2.14. Attach the chain link to the line posts with wires at a maximum of 300 mm c/c. Twist and weld the tie wires on the side of the fence opposite the prisoners.
- 3.2.15. Attach the chain link to the top rails, line posts and bottom rails with tension bars and flanges set 300 mm apart. Ensure that the distance between the tension bars and the posts does not exceed 13 mm.
- 3.2.16. Install the concertina barbed wire as shown on the plans.

3.3. Installation of gates

- 3.3.1. Level the ground between the gate posts and install the bottom of the gate about 40 mm from the ground.
- 3.3.2. Install chain link doors and gates, as well as hardware, according to the manufacturer's templates and instructions.
- 3.3.3. Adjust moving parts to ensure that they are working properly.
- 3.3.4. Install gate bumpers where indicated.
- 3.3.5. Collaborate with the hardware supplier's technical supervisor to ensure that the hardware is installed, adjusted and working properly.
- 3.3.6. It is the Contractor's responsibility to install and adjust all locking doors, including the mechanical installation of the following locking device components:
 - a) Full housing of each door mechanism.
 - b) Full vertical lock columns.
 - c) Full bottom door guides.
 - d) Manual emergency unlocking system box.
 - e) Rubber bumpers in the sliding door U-profiles.

3.4. Electrical hardware

- 3.4.1. This Contractor shall coordinate the work with suppliers of electrical components, doors, hardware, gates and racks for correctional centres and others whose devices are included in the system. Installation of the systems and the connection of the devices on site will be the subject of a contract until the Owner signs the commissioning.

3.5. Cleaning

- 3.5.1. Once construction is complete, clean the premises to remove construction dirt and debris that has accumulated on the premises.
- 3.5.2. Once construction is complete, remove excess materials, waste and tools.

END OF SECTION