

Tender No. []

1.0 GENERAL

1.1 DETAIL DRAWINGS

- .1 The following detail drawings are appended hereto and form part of this section.

Number	Title
02822.1	Typical Chain Link Fence
[02822.2]	Gate Set-Back Detail
[02822.3]	Typical Chain Link Pedestrian Gate
[02822.4]	Typical Chain Link Vehicle Gate

1.2 REFERENCES

- .1 Provide chain link fencing in accordance with the following standards (latest revision) except where specified otherwise.
- .2 American Society for Testing and Materials (ASTM)
- .1 ASTM A53/A54M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- .2 ASTM A121 Standard Specifications for Metallic Coated Carbon Barbed Wire.
- .3 ASTM A392 Standard Specification for Zinc-Coated Chain Link Fence Fabric.
- .4 ASTM F626 Standard Specification for Fence Fittings.
- .3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB - 1.181 Ready-Mixed Organic Zinc-Rich Coating.
- .2 CAN/CGSB - 138.2 Steel Framework for Chain Link Fence.
- .3 CAN/CGSB - 138.4 Gates for Chain Link Fence
- .4 Canadian Standards Association (CSA)
- .1 CAN/CSA-G164 Hot-Dip Galvanizing of Irregularly Shaped Articles.

1.3 SUBMITTALS

- .1 Manufacturer's written instructions for installing anchors and repair of galvanized damaged coating prior to performing the work.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Inspect each shipment of material and timely replace any damaged materials.
- .2 Store materials off the ground to protect against oxidation caused by ground contact.

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2.0 PRODUCTS

2.1 MATERIALS

- .1 Provide materials in accordance with the following.
- .2 Pipe for posts, rails and braces:
 - .1 Seamless steel pipe fabricated in accordance with ASTM A53/A53M and CAN/CGSB-138.2, butt welded, hot-dipped zinc coated with not less than 610 g/m² of total surface area.
 - .2 Line posts, 60.3 mm O.D. pipes with 3.91 mm wall thickness, that supports the fencing at points where the fabric is continuous.
 - .3 Terminal posts, 88.9 mm O.D. pipes with 5.49 mm wall thickness, that are end posts, corner posts, straining posts, and gateposts, and positioned where fencing or fabric is discontinuous.
 - .4 Top rails, 42.2 mm O.D. pipes with 3.56 mm wall thickness, that are continuous at the line posts and pass through holes in the line post tops, and are joined with couplings.
 - .5 Braces, 42.2 mm O.D. pipes with 3.56 mm wall thickness, that extend from the terminal posts to the nearest line post along fabric attached to the terminal post.
 - .6 Galvanized steel or aluminum post tops that permit the passage of the top rail, with one cap for each post except where a combination post top cap and barbed wire supporting arm is required.
- .3 Chain link fence fabric:
 - .1 Zinc-coated steel wire fabric in accordance with ASTM A392, 3.55 mm diameter, woven into a 50 mm by 50 mm diamond mesh.
 - .2 Galvanized steel clamps, bands, clips, tension bars, [barbed wire arms] and bolts in accordance with ASTM F626, and of sufficient strength to maintain the integrity of the fence. Zinc coating to be 610 g/m in accordance with CAN/CSA-G164.
 - .3 Tension bars 5 mm by 20 mm, with lengths equal to the height of the fabric.
 - .4 Tension bands 20 mm in width and 3 mm in thickness.
 - .5 Tension wire at least 5 mm in diameter, single strand, galvanized steel wire in accordance with CAN/CGSB-138.2 with a zinc coating of 610 g/m².
- .4 Barbed wire: Steel barbed wire, galvanized in accordance with ASTM A121, 4-point pattern with 3 strands of 2.5 mm wire, and 25 mm barbs spaced no more than 150 mm apart.
- .5 Chain link fence gates:

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- .1 Gates fabricated from galvanized steel pipe in accordance with CAN/CGSB-138.4, consisting of 42.2 mm O.D. pipes with 4.85 mm wall thickness for the , frames and 33.4 mm O.D. pipes with 9.09 mm wall thickness for the interior bracing.
- .2 Welded joints, complete with galvanized malleable iron hinges, latch, and latch catch with provision for a padlock that can be attached and operated from either side of the installed gate. Suitable hinges to permit a 90° swing both in and out. [Equip double gates with a drop bar locking device and a hasp for locking with a padlock.]
- .6 Fill Concrete: Minimum compressive strength of 20 MPa at 28 days using Type HS or HSb Sulphate Resistant Cement, with an air content between 4% and 7%, and a maximum slump of 100 mm.
- .7 Adhesive anchors: HY-150 System as manufactured by Hilti Ltd., Polyall Epoxy System as manufactured by Ucan Fastening Products Ltd., or Epcon Acrylic 7 System as manufactured by ITW Ramset/Red Head Ltd. Provide hot-dipped galvanized threaded rods, nuts, and washers. [Refer to Section 03151 – Concrete Accessories.]

2.2 SHOP FABRICATION

- .1 Shop fabricate posts with base plates prior to galvanizing.

3.0 EXECUTION

3.1 INSTALLATION

- .1 Install fencing [and gates] at the locations specified in the Contract Documents.
- .2 Space line posts no greater than 3000 mm apart, measured parallel to the [ground] [concrete surface].
- .3 Space straining posts at equal intervals not exceeding 150 m if the distance between the end posts or corner posts on straight continuous lengths is greater than 150 m.
- .4 Install additional straining posts at sharp changes in grade and where directed by the Minister.
- .5 Install a corner post where a change in alignment exceeds 10°.
- .6 Install end posts at each end of the fence. Install gateposts on both sides of gate openings.
- .7 Install a brace between the end posts and gateposts and nearest line post, placed in the centre of the panel, and parallel to the ground surface. Install braces on both sides of the corner posts and straining posts in a similar manner.
- .8 Install overhang tops and caps.
- .9 Install the top rail between posts and fasten securely to the posts and secure the waterproof caps and overhang tops.

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- .10 Install the bottom tension wire, stretch tightly and fasten securely to the end posts, corner posts, gateposts, and straining posts with turnbuckles and tension bar bands. Provide 50 mm clearance between the bottom of the fence and the [ground] [concrete structure].
- .11 Lay out the fence fabric. Stretch tightly to the tension recommended by the manufacturer and fasten to the end posts, corner posts, gateposts, and straining posts with the tension bar secured to the post with tension bar bands spaced at 300 mm intervals. Place the knuckled selvedge at the bottom, with the twisted selvedge at the top.
- .12 Secure the fabric to top rails, line posts, and bottom tension wire with tie wires at 450 mm intervals. Give tie wires a minimum of 2 twists.
- .13 Install the barbed wire strands and clip securely to the lugs of each projection.
- .14 Install electrical grounding as specified in Section [].

3.2 INSTALLATION IN THE GROUND

- .1 Remove debris and grade the ground surface along the fence line to obtain a uniform gradient between posts.
- .2 Drill holes for setting posts as specified in the Contract Documents.
- .3 Place concrete in the postholes then embed the posts into the concrete to the specified depths. Extend concrete 50 mm above the ground level and slope to drain away from the posts. Brace to hold the posts in a plumb position and true to alignment and elevation until the concrete has set.
- .4 Allow the concrete to cure a minimum of 7 days at ambient temperatures above 10°C prior to installing the chain link fence fabric.

3.3 INSTALLATION ON CONCRETE STRUCTURES

- .1 Install the adhesive anchors in accordance with the manufacturer's written instructions. Drill holes to the required diameter and embedment depth and clean out with a wire brush or compressed air free of oil. Cure the adhesive as specified by the manufacturer.

3.4 INSTALLATION OF DOUBLE GATES

- .1 For double gates, determine the position of the centre gate rest, and install the gate stop as specified in the Contract Documents.

3.5 REPAIR OF DAMAGED GALVANIZED COATING

- .1 Repair damaged galvanized surfaces using a zinc-rich paint that is in accordance with CAN/CGSB-1.181.
- .2 Power tool clean surfaces to be repaired to a bright metal surface. Apply multiple coats of zinc-rich paint in accordance with the manufacturer's written instructions to obtain a minimum dry film thickness of 50 microns or greater as required by the paint manufacturer.

END OF SECTION