

1.0 GENERAL

1.1 Scope

- 1.1.1 The work shall consist of supply and installing chain link fence, including braces and gates, as shown on the plans and specifications at the locations designated by the Engineer.
- 1.1.2 If applicable, all fence construction shall take place from the road right-of-way side of the property line. The Contractor may enter private property only after obtaining written permission from the property owner.

1.2 Related Sections

- 1.2.1 Section 02500 – Supply of Portland Cement Concrete

2.0 PRODUCTS

2.1 Quality

- 2.1.1 All fencing materials including concrete shall be new and supplied by the Contractor.
- 2.1.2 Supply and construct materials to the most recent editions of the National Standard of Canada (CAN) and Canadian General Standards Board (CGSB). Where any contradictions occur, this specification shall take precedence over the CAN/CGSB specifications.

2.2 Fence Fabric

- 2.2.1 The fence fabric shall conform to CAN/CGSB 138.1 Type I steel fabric, Class B, medium style, Grade 2 at a minimum 490 g/m², with a 50mm mesh size.
- 2.2.2 Fabric height to be 1.2m, 1.8m, 2.4m as specified on the plans.
- 2.2.3 Fence fabric top selvage twisted and bottom selvage knuckled.

2.3 Terminal Posts (End, Gate, Corner and Straining Posts)

- 2.3.1 Terminal posts shall conform to CAN/CGSB-138.2 Type 1, Schedule 40, zinc coated with a minimum coating of 550 g/m² with dimensions in accordance with the following Table:

Fabric Height (mm)	Terminal Post Diameter (Outside) (mm) *	Terminal Post Length (mm)
1200	73.0	2300
1800	88.9	2900
2400	88.9	3500

*Gate posts diameter may vary depending on gate style and opening width. See Clause 2.8.

2.4 Line Posts

2.4.1 Line posts shall conform to CAN/CGSB-138.2 Type 1, Schedule 40, zinc coated with a minimum coating of 550 g/m² with dimensions in accordance with the following Table:

Fabric Height (mm)	Line Post Diameter (Outside) (mm)	Line Post Length (mm)
1200	48.3	2000
1800	60.3	2600
2400	60.3	3200

2.5 Top Rails

2.5.1 Top rails, where specified, shall conform to CAN/CGSB-138.2 Type 1, Schedule 40, zinc coated with a minimum coating of 550 g/m², Style A with a minimum outside diameter of 42.2mm.

2.5.2 Top rails are not to be used in traffic areas.

2.6 Top and Bottom Tension Wire

2.6.1 Top and bottom tension wire, where specified, shall be 5.0 mm single strand. Wire shall be matching in coating class and colour to fence fabric.

2.7 Braces

2.7.1 Braces shall conform to CAN/CGSB-138.2 Type 1, Schedule 40, zinc coated with a minimum coating of 550 g/m², Style A with a minimum outside diameter of 42.2mm.

2.8 Truss Rod

2.8.1 Truss rods shall be a 9.53mm diameter steel rod with a pressed steel tightener, zinc coated with a minimum coating of 366 g/m².

2.9 Gate and Gate Frames

2.9.1 Gates shall conform to CAN/CGSB-138.4.

2.9.2 Gate posts shall conform to CAN/CGSB-138.2 Type 1, Schedule 40 pipe, Schedule 40, zinc coated with a minimum coating of 550 g/m². Gate posts shall have domed caps. Gate posts shall have dimensions in accordance with the following Table:

Gate Opening	Gate Post Diameter (Outside) mm
Single to 3.0 m / Double to 6.0m	88.9
Single from 3.0 to 4.2m / Double to 8.5m	114.3
Single from 4.3m to 7.6m / Double from 8.5m to 12m	168.3

- 2.9.3 Gate rails and bracing shall conform to CAN/CGSB-138.2 Type 1, Schedule 40, zinc coated with a minimum coating of 550 g/m², Style A with a minimum outside diameter of 42.2mm.
 - 2.9.4 Gate height shall match the height of the fence unless otherwise specified.
 - 2.9.5 Gate fabric shall be the same as fence fabric.
 - 2.9.6 Gates shall be provided with zinc coated malleable iron hinges, lockable latch and latch catch. Hinges are to permit gate to swing back 180 degrees against fence. Fittings shall be in accordance with CAN/CGSB-138.2.
 - 2.9.7 Double gates are to have centre rest with drop bolt for closed position and chain hold open for open position. Gate latches are to be suitable for padlock which can be attached and operated from either side of the gate.
- 2.10 Fittings and Accessories
- 2.10.1 Fittings shall conform to CAN/CGSB-138.2. All steel and iron fittings shall be hot dip galvanized in accordance with CSA G164 unless otherwise specified.
 - 2.10.2 Tension bars shall be 5x19mm galvanized steel and no less than 50mm shorter than the height of the fabric with which they are to be used. The cut ends shall be ground smooth to remove all sharp edges and burrs.
 - 2.10.3 Tension bands shall be 3x19mm galvanized flat steel complete with (C/W) 8x32mm galvanized carriage bolts and nuts.
 - 2.10.4 Brace bands shall be 3x19mm galvanized flat steel C/W 8x32mm galvanized carriage bolts and nuts to fasten top rail receptacles to terminal posts.
 - 2.10.5 Fabric clips shall be 3.5mm aluminum alloy wire.
 - 2.10.6 Tops/caps, receptacles and fittings shall be weatherproof, be of adequate strength and may be of aluminum alloy, malleable steel or pressed steel.
- 2.11 Concrete
- 2.11.1 Where concrete piles are specified for post installation, the concrete shall conform to Section 2500, have a compressive strength of 20 MPa at 28 days and be sulphate resistant Type HS cement.

2.12 Fabric Finishing

2.12.1 Where Vinyl Coating is specified, it must be polymer coated steel fabric to ASTM F668, colour as noted in the drawing, and in compliance with ASTM F934.

3.0 EXECUTION

3.1 Site Preparation

3.1.1 Remove debris and grade between posts to provide 50mm ground clearance.

3.2 Fence Installation

3.2.1 Post holes shall be to the following minimum diameters and depths:

Fabric Height (mm)	Line Post Hole Diameter (mm)	Line Post Hole Depth (mm)	Terminal Post Hole Diameter (mm) *	Terminal Post Hole Depth (mm) *
1200	200	1200	300	1500
1800	250	1200	350	1500
2400	250	1200	350	1500

*Gate post holes diameter and depth may vary depending on gate style and opening width. See Clause 3.3.2.

3.2.2 Line posts shall be embedded 750mm into the centre of a concrete filled hole. The line posts shall be placed at intervals of 3.0 m centre to centre and shall be set plumb and in accordance with the alignment staked. Concrete is to be extended 40mm above ground level and crowned to shed water away from the post. Concrete shall cure for a minimum 5 days prior to proceeding with further work.

3.2.3 Terminal posts shall be embedded 1050mm into the centre of a concrete filled hole. Terminal posts shall be set plumb and in accordance with the alignment staked. Concrete is to be extended 40mm above ground level and crowned to shed water away from the post. Concrete shall cure for a minimum 5 days prior to proceeding with further work.

3.2.4 The maximum spacing between straining posts shall be 150m or as directed by the Engineer on a straight continuous stretch of fence. Additional straining posts shall be installed at changes in grade greater than thirty degrees.

3.2.5 Corner posts shall be installed at changes in direction greater than ten degrees.

3.2.6 Top rails, where specified, shall be supported at each line post with a line post cap to provide a continuous brace between terminal posts. Join rails with sleeves and securely fasten top rail to terminal posts using rail ends

and brace bands.

- 3.2.7 Where top rail is specified, all terminal sections, straining sections and corner sections shall be braced parallel to top rail at mid panel to the nearest line post.
- 3.2.8 Where top tension wire is specified, all terminal sections, straining sections, and corner sections shall be braced parallel to top rail at mid panel to the nearest line post with a truss rod installed diagonally from the bottom of the terminal post up to the point where the brace rail is attached to the adjacent line post.
- 3.2.9 Bottom and top tension wire, where specified, is to be stretched taut approximately 100mm up from bottom of fabric and 100mm down from top of fabric. Top tension wire only is to be threaded through clips with mesh attached to wire. Tension wire to be fastened securely to end, corner, gate and straining posts with brace band.
- 3.2.10 The fence fabric shall be attached to the side of the posts facing the private side of the property line. Clearance between bottom of fence fabric and ground surface shall be 50mm above finished ground level.
- 3.2.11 Stretch fabric to tension recommended by manufacturer and fasten to end, corner, gate and straining posts using tension bands at 300mm spacing. Secure fence fabric to line posts using tie wire at 300mm spacing. Tie wires shall have a minimum two twists
- 3.2.12 Secure fence fabric to tension wire using hog rings at maximum 450mm intervals.
- 3.2.13 Where top rail is specified, secure fence fabric using tie wire along top rail at maximum 450mm intervals. Tie wires shall have a minimum two twists.

3.3 Gate Installation

- 3.3.1 Location and sized of gate are to be as shown on the Plans.
- 3.3.2 Post holes shall be to the following minimum diameters and depths:

Gate Post Diameter (Outside) mm	Gate Post Hole Diameter (mm)	Gate Post Hole Depth (mm)
88.9	350	1500
114.3	450	1500
168.3	500	1500

- 3.3.3 Clearance between bottom of gate and ground surface shall be 50mm above ground level.
- 3.3.4 For double gates, cast centre rest in concrete filled hole which measures

250mm diameter and 600mm deep. Concrete shall be crowned above ground to shed water away from the post

3.3.5 Gates are to open inward towards the roadway unless otherwise specified.

3.4 Patching

3.4.1 Touch up damaged galvanized surfaces by cleaning with a wire brush and applying two coats of touch up paint for galvanized metal.

3.5 Grounding

3.5.1 Electrical grounding rods are to be installed where overhead high voltage power lines cross the fence. Grounding rods are to be installed 13m on either side from the point directly under power lines cross over the fence.

3.6 Clean Up

3.6.1 Clean up all debris and earth removed from post holes and trim areas disturbed.

3.6.2 Upon completion of the work, restore areas to at least the condition which existed prior to fence installation.