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## PART II - CONSTRUCTION MATERIALS AND METHODS

### SECTION 36.

#### CHAIN LINK FENCES AND GATES

##### 36.1. GENERAL

Fencing of City property shall be performed in accordance with approved engineered plans, these Specifications and the City of Arvada "Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements". These Specifications shall apply to all new construction within the City of Arvada.

##### 36.2. MATERIALS

Fencing shall be eight (8) feet high unless otherwise specified. All fencing materials shall be hot dip galvanized after fabrication. Fencing shall be topped with three (3) lines of barbed wire unless otherwise specified. Contractor shall furnish and install new, first quality, items specifically manufactured for the intended application. Installation shall include fencing, gates, and all appurtenant work complete in place, in accordance with these contract documents.

- A. Fence fabric shall be No. 9 galvanized steel wire, 2-inch mesh. The fabric shall have a knuckled finish on the top edge and a twisted and barbed finish on the bottom edge.
- B. Fabric ties shall be No. 9 galvanized steel wire, spaced 14 inches apart on posts and 24 inches apart on rails. Aluminum ties will not be permitted. A continuous No. 7 gauge galvanized steel wire shall be interlaced with the fabric or attached to the fabric with clips along the extreme bottom of the fence.
- C. All posts shall be one-piece without circumferential welds, and shall be:
  - 1. Line posts shall be 2-inch schedule 40 pipe, 3.65 lbs. per foot.
  - 2. End and corner posts shall be 2-1/2-inch schedule 40 pipe, 5.70 lbs. per foot.
  - 3. Gate posts shall be 3-1/2-inch schedule 40 pipe, 9.1 lbs. per foot.
- D. Top rail and braces shall be 1-1/4-inch schedule 40 pipe, 2.27 lbs. per foot.
- E. Barbed wire shall be 2-strand, No. 12-1/2 gauge zinc-coated steel or iron wire with 4-point, 14 gauge barbs spaced not more than 5 inches apart.
- F. Stretcher bars shall be 1/4-inch by 3/4-inch steel bars and steel bands for fastening stretcher bars to the posts shall be 1/8-inch by 3/4-inch.
- G. Nuts, bolts and screws shall be of steel, hot-dipped galvanized after fabrication, minimum size 3/8-inch diameter.
- H. Swing gate frames shall be constructed of pipe at least as heavy as the top rails for the fence and shall be fabricated by welding with all welds ground smooth prior to

hot-dip galvanizing. Each gate leaf shall be provided with at least one diagonal brace. Frames shall be galvanized after fabrication. Galvanized malleable iron fittings for latching the gate shall be provided. Swing gates shall be hung by at least 2 steel or malleable iron hinges not less than 3 inches in width. Fabric shall match the fabric used in the fence. Each pair of gates shall be provided with a heavy drop rod latch assembly with a locking device for a padlock.

- I. Concrete shall have a minimum compressive strength of 2,000 psi at the age of 28 days.

### 36.3. INSTALLATION

- A. All earth, brush, or other obstructions which interfere with the proper alignment of construction of fences shall be removed and disposed of.
- B. Line posts shall be spaced at not more than 10-foot intervals, measured from center to center of the posts and generally parallel to the ground slope. Posts shall be set plumb and shall be centered in 12-inch diameter concrete encasement extending 36 inches into the ground.
- C. Changes in the fence lines, where the horizontal angle is 15 degrees or more, shall be considered as corners and corner posts shall be installed.
- D. Bracing shall be provided at all end, gate, and corner posts, the latter in both directions. Horizontal brace rails shall be set midway between top rail and ground running from the corner, end, or gate post to first line post. Diagonal tension members shall connect tautly between posts below horizontal braces.
- E. Corner posts shall be installed in lieu of line posts at intervals not exceeding 500 feet and shall be braced horizontally in both directions.
- F. The chain-link fabric shall be fastened on the side of the posts as shown or as designated by the engineer. The fabric shall be stretched and securely fastened to the posts, and between the posts, the top and bottom edges of the fabric shall be fastened to the top rail and tension wire, respectively. The tension wires shall be stretched tight with turnbuckles at the end and corner posts. The bottom tension wire shall be installed on a straight grade between posts.
- G. The fabric shall be fastened to the end, corner, and gate posts with stretcher bars and stretcher bar bands spaced at approximately 14 inches on line posts and at approximately 18 inches on tension wires.
- H. Encasement concrete for footings shall be placed immediately after mixing in a manner such that there will be no concentration of the large aggregates. The concrete shall be consolidated by tamping or vibrating in an approved manner. Concrete for footings may be placed without forms, providing the ground is firm enough to permit excavation to neat line dimensions. Prior to placing the concrete, the earth around the hole shall be thoroughly moistened. The concrete shall completely fill the hole and top surfaces of the concrete encasement shall be sloped outward to shed water and shall have a neat appearance. Not less than 7 days shall elapse after placing the concrete footings before the fence fabric or barbed wire is fastened to the posts.
- I. Any galvanized coating damaged during construction of the fencing shall be repaired by application of molten Galvo-Weld; Galvinox; or equal.