

## **SECTION 1208 – CHAIN LINK FENCING**

### **1208-1 DESCRIPTION**

This item covers the requirements for furnishing materials and constructing new chain link fences and gates in accordance with the details included herein and as shown on the plans.

The fence shall be the product of a manufacturer who has demonstrated by actual installations of a similar nature that its product is of the type required. The CONTRACTOR shall include all supplementary parts necessary or required for a complete and satisfactory installation within the true meaning and intent of the drawings. All runs of the fence shall present the same general appearance, and the product of one manufacturer only will be accepted, except for items which do not influence the appearance of the completed fence. No used, rerolled, or open seam steel shall be permitted in posts, gate frames, rails, or braces.

### **1208-2 MATERIALS**

**1208-2.1 FABRIC.** The chain link fence fabric shall conform to AASHTO M181, Type 1. The size of mesh shall be 2 inches and the wire shall be No. 9 gauge basic open hearth steel hot dip galvanized after weaving with a minimum of 1.20 ounces of zinc per square foot of uncoated wire surface. The wire shall have a minimum tensile strength of 80,000 psi and shall be standard finish with the top and bottom selvage knuckled.

**1208-2.2 WIRE FABRIC TIES.** Wire fabric ties shall be No. 9 gauge hot dip galvanized steel wire, conforming to ASTM A112, or No. 9 gauge aluminum ties, spaced 12 inches center to center on all posts and 24 inches center to center on all rails.

**1208-2.3 POSTS, RAILS, AND BRACES.** All posts, rails, and braces shall be hot dipped galvanized steel in accordance with AASHTO M181, Grade 2. Line and brace posts shall be 2-inch O.D., 2.75 pounds per linear foot for fabric 6 feet or less and 2 3/8-inch O.D., 3.65 pounds per linear foot for fabric from 7 feet to 10 feet. Corner posts shall be 2 3/8-inch O.D., 3.65 pounds per linear foot for fabric 6 feet or less, and 2 7/8-inch O.D., 5.79 pounds per linear foot for fabric from 7 feet to 10 feet. Top rails and braces shall be 1 5/8-inch O.D., 2.27 pounds per linear foot for all sizes fabric. Each brace section shall be diagonally trussed with 3/8-inch round hot dip galvanized steel rod with truss tightener and fittings. All posts shall be furnished with tops and required fittings for attaching fabric and rail. Fittings shall be of malleable iron or pressed steel.

**1208-2.4 MISCELLANEOUS FITTINGS AND HARDWARE.** Miscellaneous fittings and hardware shall be of design standard with the manufacturer. Miscellaneous fittings and hardware shall be zinc-coated steel.

**1208-2.5 WELDING.** Structural members of gates which are in contact shall be fully welded by a method that will procure a continuous weld on all sides and faces of joints at exposed edges. Surplus welding material shall be removed. All factory or field welds shall be coated with a rust preventive primer and a second coat of paint.

**1208-2.6 CONCRETE.** Concrete for posts shall be a six (6) bag mix of approved materials.

### **1208-3 CONSTRUCTION REQUIREMENTS**

**1208-3.1 GENERAL.** The fence shall be constructed in accordance with the details on the plans and as specified herein using new materials, and all work shall be performed in a workmanlike manner satisfactory to the ENGINEER. Prior to the beginning of the work or upon the request of the CONTRACTOR, the ENGINEER shall locate the position of the work by establishing and marking the property line or fence line. When directed, the CONTRACTOR shall span the opening below the fence with barbed wire fastened to stakes of the required length at locations of small drainage ditches where it is not practical to conform the fences to the general contour of the ground surface, as required. The new fence shall be permanently tied to the terminals of existing fences whenever required by the ENGINEER. The finished fence shall be plumb, taut, true to line and ground contour, and complete in every detail. When directed, the CONTRACTOR shall be required to stake down the chain link fence at several points between posts.

**1208-3.2 CLEARING FENCE LINE.** The site of the fence shall be sufficiently cleared of obstructions, and surface irregularities shall be graded so that the fence will conform to the general contour of the ground. The fence line shall be cleared to a minimum width of 2 feet on each side of the centerline of the fence. This clearing shall consist of the removal of all stumps, brush, rocks, trees, or other obstructions which will interfere with proper construction of the fence. Stumps within the cleared area of the fence line shall be grubbed or excavated. The bottom of the fence shall be placed a uniform distance above the ground as specified on the plans. When shown on the plans or as directed by the ENGINEER, the existing fences which coincide with or are in a position to interfere with the new fence location shall be removed by the CONTRACTOR as a part of the construction work, unless such removal is listed as a separate item in the bid schedule. All holes remaining after post and stump removal shall be refilled with suitable soil, gravel, or other material acceptable to the ENGINEER and shall be compacted properly with tampers.

The work shall include the handling and disposal of all material cleared, excavated, or removed, regardless of the type, character, composition, or condition of such material encountered.

**1208-3.3 INSTALLING POSTS.** All posts shall be spaced not more than 10 feet apart as shown on the plans. Terminal (end, corner, pull, and brace) and gate posts shall be set 36 inches in concrete bases as shown on the plans. All line posts shall be set 30 inches in concrete bases as shown on the plans. The top of the concrete bases shall be slightly above the ground, trowel finished, and sloped to drain away from the posts. Holes of full depth and size for the concrete bases for posts shall be dug to the size and depth as shown on the plans. All post settings shall be done carefully so that all posts shall be vertical and in true alignment and rigidly secured in position.

On terminal (end, corner, pull, and brace) and gate posts, the post tops and brace rail clamps around the posts shall be placed before setting the posts in concrete bases. In setting the gate posts, great care must be taken to make sure that gate posts are set the exact distance apart as shown on the plans. For example, posts for a 6-foot gate must be set so as to leave an opening exactly 6 feet wide. A line drawn across from the top of one gate post to the other must be level, regardless of the grade at the ground line. If the ground is not level, the upgrade gate post shall be set first to get the proper height for the downgrade gate post. The concrete bases for end, corner, pull, brace, and gate posts shall be placed first and allowed to cure for seven (7) days. The concrete bases for line posts shall be allowed to cure for three (3) days. Stretcher bar bands and truss bands as specified on the plans shall be spread and slipped on end, corner, pull, brace, and gate posts as the next operation. Post tops are then inserted on all other posts. No extra compensation shall be made for rock excavation. Rock excavation shall not be grounds for extension of time.

**1208-3.4 INSTALLING TOP RAILS.** To start the installation, a length of top rail shall be run through the first couple of post tops; a rail clamp shall be assembled on the end, corner, or gate post, as the case may be. The end of the rail already placed shall be butted into the clamp and fastened. The top rail shall be installed along the run of the fence and the various sections joined with sleeve couplings. At not more than every 100 feet, an expansion coupling shall be placed to take care of expansion and contraction of the rail. The rail shall be clamped in the end, corner, or gate post at the end of the run of the installation of top rail. The fence shall be constructed in such a manner that the top rail appears straight on line and grade or flows smoothly over contours and/or around curves.

**1208-3.5 INSTALLING BRACES.** All horizontal braces shall be attached together with truss rods at all terminal (end, corner, and pull) and gate posts to the brace posts as shown on the plans.

**1208-3.6 INSTALLING FABRIC.** The fabric shall be unrolled on the outside of the fence line with the bottom edge of the fabric against the posts. The various rolls shall be spliced by bringing the ends close together and weaving in a picket in such a way that it will engage both of the roll ends and catch with each twist each separate mesh of the end pickets of both rolls of fabric. The fabric shall be raised and tied loosely to the top rail with a temporary tie wire at intervals of about 20 feet. The fabric shall be installed by a method approved by the ENGINEER. One method used is given below.

(a) At end, corner, or gate posts, the stretcher bar shall be slipped through the end picket of the fabric and the stretcher bar bands at the same time. Then the bolts in the stretcher bar bands shall be tightened. Additional rolls of fabric shall be spliced and placed as the erection progresses along the fence.

(b) In the long sections, the fence shall be stretched at intervals of about 100 feet. After the stretching is complete, the fabric shall be tied to the top rails with ties securely clinched at the back of the rail. The fastenings shall be spaced not more than 24 inches on centers for the top rail.

(c) The fabric shall be attached to the line posts with ties securely clinched to the back of the line posts. The fastenings shall be spaced not more than 12 inches on centers for line posts. The topmost tie shall be placed on the line post as near the top of the fabric as possible and the lowest tie as near the bottom of the fabric as possible.

(d) At terminal (end, corner, and pull) and gate posts the fabric shall be fastened with stretcher bars and bands. The fastenings shall be spaced not more than 12 inches on centers for terminal (end, corner, and pull) and gate posts. The topmost band shall be placed on these posts as near the top of the fabric as possible and the lowest band as near the bottom of the fabric as possible.

Standard chain link fence stretching equipment shall be provided for stretching the fabric before tying it to the rails and posts. The stretching and tying operations shall be repeated about every 100 feet until the run of fence is completed. Equipment of one type for performing the stretching operation may be composed of four (4) pieces of lumber (2x4s or larger) cut into a slightly shorter length than the width of the fabric. The pieces shall be bored for six (6) bolts of about 1/2 inch or 5/8 inch diameter and shall be assembled as shown on the plans. One (1) pair shall be used for stretching the fabric, and both pairs shall be used for making a closure of a run of the fence.

Before making a closure, the other end of the run shall be fastened to the end, corner, or gate post as described previously. The operation of making a closure of a run shall be as follows: The stretching equipment as described above shall be clamped on the ends of the fabric parallel to each other and about 5 feet apart when the tension is first applied. The stretching shall continue until the slack has been removed from both sections of the fabric. If the ends overlap, the fabric shall be cut to match. The ends shall be joined by the insertion of a picket similar to the method of connecting two (2) rolls of fabric.

**1208-3.7 INSTALLING GATES.** The gates shall be hung on gate fittings as shown on the plans. The lower hinge (ball and socket type) shall be placed on top of the concrete footing in which the gate post is set; the concrete in the footing shall extend up to the bottom of the lower hinge. The sockets for the cane or foot bolts shall be set in concrete so that the plunger pin will fit perfectly in the socket when the gate is in a closed position. Gates shall be erected to swing in the direction indicated and shall be provided with gate stops as specified or as shown on the plans. All hardware shall be thoroughly secured, properly adjusted, and left in perfect working order. Hinges and diagonal bracing in gates shall be adjusted so that the gates will hang level. All gates shall be furnished with a closure which may be secured with a padlock.

**1208-3.8 EXISTING FENCE CONNECTIONS.** Wherever the new fence joins an existing fence, either at a corner or at the intersection of straight fence lines, a corner post with a brace post shall be set at the junction and braced the same as herein described for corner posts or as shown on the plans.

If the connection is made at other than the corner of the new fence, the last span of the old fence shall contain a brace span.

## **1208-4 MEASUREMENT AND PAYMENT**

**1208-4.1 thru 4.9 (SIZE) FOOT CHAIN LINK FENCE.** Chain link fence shall be measured by the linear foot (LF) from outside to outside of corner, end, or gate post and shall be paid for at the unit price bid for "(Size) Foot Chain Link Fence" complete in place and accepted by the ENGINEER.

**1208-4.10 thru 4.18 (SIZE) FOOT CHAIN LINK GATE.** Chain Link Gates shall be measured on an individual unit basis (EA) and shall be paid for at the unit price bid for "(Size) Foot Chain Link Gate" complete in place and accepted by the ENGINEER.