

## Request for Quotes – Security Fence

Quote Request Date: January 17, 2024  
Quote Return Date: February 6, 2024  
Site Location: South 8<sup>th</sup> Street; between South 8<sup>th</sup> Street Wye and Mill Road,  
Port Townsend, WA 98368  
<https://maps.app.goo.gl/v5QaZA7SufSyu3mz8>  
Work Timeframe: March 2024

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### Scope of Work

#### Description

This work consists of furnishing and installing a chain link fence, barbed wire, and a double gate to enclose a Load Center and SCADA Control Panel.

#### Dimensions (WSDOT Standard Plan L-20.10-03 Type 3 Chain Link Fence)

Chain Link Fence: 6-Foot (7-Foot Tall Overall with Barbed Wire)  
Chain Link Double Gate: (2) 6-Foot x 6-Foot Wide Gates with Barbed Wire  
Barbed Wire: 3 Strands, 1-Foot Tall on Vertical Arms  
Perimeter: 12-Foot x 8-Foot (40-Foot Total Including Gates)

#### Materials

All fence materials shall meet the requirements of the 2024 WSDOT Standard Specifications Section 9-16 – Fence and Guardrail.

## Requirements

- Licensed and Bonded
- Prevailing wage is required and shall be included in the quote. Payment will not be made unless a statement of Intent and Affidavit are included with the invoice.
- Insurance Certificate
- W9 Shall be Provided Prior to Issuance of P.O.
- City Business License
- Separate out *Sales Tax*. (Lowest bid will be based on the total price before Sales Tax)

## Enclosed:

- WSDOT Standard Plan L-20.10-03 – Chain Link Fence Types 3 and 4
- WSDOT Standard Plan L-30.10-02 – Chain Link Gate
- WSDOT 2024 Standard Specifications 9-16 – Fence and Guardrail

**9-16 Fence and Guardrail****9-16.1 Chain Link Fence and Gates****9-16.1(1) General**

All material used in the construction of chain link fence and gates shall be new. Iron or steel material shall be galvanized unless specified otherwise. Material upon which serious abrasions of galvanizing occur shall not be acceptable.

**9-16.1(1)A Post Material for Chain Link Fence**

Except as noted otherwise, post material shall conform to the requirements of AASHTO M 181, Type I (zinc-coated steel), Grade 1 or 2, and shall include all round and roll-formed material (line posts, brace posts, end posts, corner posts, and pull posts).

**Round Post Material**

Round post material shall be Grade 1 or 2.

**Roll Form Material**

Roll-formed post material shall be Grade 1.

Roll-formed end, corner, and pull posts shall have integral fastening loops to connect to the fabric for the full length of each post.

Grade 1 post material shall conform to the weight per linear foot, minimum wall thickness and detail requirements of ASTM F1043. Grade 1 post material that exceeds the maximum wall thickness requirement of ASTM F1043 may be accepted, provided it does not interfere with the proper construction of the fence.

Grade 2 post material shall meet the organic exterior coatings requirements of AASHTO M 181 (Section 33) and the additional requirement that the interior coated surface shall be capable of resisting 300 hours of exposure to salt fog with a maximum of 5 percent red rust when tested in accordance with ASTM B117.

**9-16.1(1)B Chain Link Fence Fabric**

Chain link fabric shall consist of 11-gauge wire for chain link fence Types 3, 4, and 6, and 9-gauge wire for chain link fence Type 1. The fabric shall be zinc-coated steel wire conforming to AASHTO M 181, Class C. Zinc 5 percent Aluminum-Mischmetal alloy meeting the requirements of ASTM B750 may be substituted for zinc coating (hot-dipped) at the application rate specified by AASHTO M 181 for hot-dip zinc coating. Coating for chain link fence fabric shall meet the requirements of ASTM A817 with minimum weight of coating of uncoated wire surface 1.0 oz/sq ft (305 g/m<sup>2</sup>). The wire shall be woven into approximately 2-inch diamond mesh. The width and top and bottom finish of the fabric shall be as specified in AASHTO M 181.

**9-16.1(1)C Tension Wire**

Tension wire shall meet the requirements of AASHTO M 181. Tension wire galvanizing shall be Class 1.

**9-16.1(1)D Fittings and Hardware**

Except where indicated, fittings shall be malleable cast iron or pressed steel and shall conform to the requirements of ASTM F626 or AASHTO M 232, whichever is applicable.

Tension truss rods shall be  $\frac{3}{8}$ -inch round galvanized rods with drop forged turnbuckles or other approved type of adjustment. Couplings for tubular sections shall be outside sleeve type and shall be at least 6 inches long.

Eye bolts for attaching tension wire shall be  $\frac{3}{8}$ -inch diameter and of sufficient length to fasten to the type of post being used.

Tension bars shall be  $\frac{3}{16}$  by  $\frac{3}{4}$ -inch nominal and cross sectional area shall be  $0.141 \text{ in}^2 \pm 5$  percent.

Hog rings shall be 12-gauge galvanized steel wire. Tie wire shall be 9-gauge galvanized steel wire or 9-gauge aluminum wire meeting the requirements of ASTM F626.

Fabric bands and stretcher bars shall meet the requirements of [Section 9-16.6\(9\)](#).

#### 9-16.1(1)E Chain Link Gates

Gate frames shall be constructed of not less than 1½-inch (I.D.) galvanized pipe conforming to AASHTO M 181 Type I, Grade 1 or 2, as specified in [Section 9-16.1\(1\)A](#). The corners of the gate frame shall be fastened together and reinforced with a malleable iron or pressed steel fitting designed for the purpose, or they may be welded. Welding shall conform to the requirements of [Section 6-03.3\(25\)](#). All welds shall be ground smooth coated with paint conforming to [Section 9-08.1\(2\)B](#). The paint shall be applied in one or more coats to provide a minimum dry film thickness of 3.5 mils.

Chain link fence fabric for filling the gate frame shall meet the requirements of [Section 9-16.1\(1\)B](#) for the fence type being furnished.

Cross trussing shall be  $\frac{5}{16}$ -inch steel adjustable rods galvanized in accordance with [Section 9-16.1\(1\)D](#).

Each gate shall be furnished complete with necessary hinges, latch, and drop bar locking device designed for the type of gate posts and gate used on the project. Gates shall have positive type latching devices with provisions for padlocking. Hinges, latches, and locking devices shall be galvanized in accordance with [Section 9-16.1\(1\)D](#).

Gate frames constructed of steel sections, other than pipe, that are fabricated in such a manner as to form a gate of equal or better rigidity may be used provided they are approved by the Engineer.

#### 9-16.1(1)F Concrete

All concrete for chain link fence shall be as specified in [Section 6-02.3\(2\)B](#).

### 9-16.2 Wire Fence and Gates

#### 9-16.2(1) General

All materials used in the construction of the wire fence shall be new. All iron or steel material shall be galvanized. Material upon which serious abrasions of galvanizing occur will not be acceptable.

#### 9-16.2(1)A Steel Post Material

##### Round Post Material

Round post material shall conform to AASHTO M 181, Type I, Grade 1.

##### Angle Post Material (Channel, T, U, Y, or Other Approved Style)

All angle post material shall be galvanized in accordance with the requirements of AASHTO M 111, except the anchor plate on fence post material shall be Grade 55. Angle post used for end, corner, gate, and pull post and brace shall have a minimum weight of 3.1 lb/ft.

Posts shall not be less than 7 feet in length. A tolerance of -5 percent on the weight of individual posts, braces or anchor plates will be permitted. One type of line post shall be used throughout the project. Line posts shall be studded, slotted, or properly adapted for attaching either wire or mesh in a manner that will not damage the galvanizing of posts, wire or mesh during the fastening. Line posts shall have a minimum weight of 1.33 lbs/ft and shall be provided with a tapered galvanized steel anchor plate. The anchor plate shall be securely attached and have a surface area of  $20 \pm 2 \text{ in}^2$ , and a minimum weight of 0.67 pounds.

**9-16.2(1)B Wood Fence Posts and Braces**

Douglas fir, Western red cedar, hemlock, or larch shall be used in the construction of wood fence posts and braces. The material shall be of good quality and approved by the Engineer before use. Peeler cores shall not be used for round posts. Wood fencing materials shall have sufficient sapwood in the outer periphery to obtain the specified penetration of preservative. Western red cedar will not require preservative treatment. Fencing materials shall be cut to the correct length before pressure treatment.

Line posts shall be 3-inch minimum diameter round posts or nominal 3 by 3-inch square sawed posts. If the posts are to be pointed for driving, they shall be pointed before treatment. Line posts shall be at least 7 feet in length.

Pull posts and brace posts shall be 6-inch diameter round posts or nominal 6 by 6-inch material not less than 7 feet in length.

End, gate, and corner posts, and posts at an intersecting fence shall be 6-inch diameter round posts or nominal 6 by 6-inch material not less than 7' 10" in length.

All sawed posts and timbers shall meet the requirements in the table under [Section 9-09.2](#).

The preservatives used to pressure treat wood fencing materials shall meet the requirements of [Section 9-09.3](#).

The retention and penetration of the preservative shall be as follows:

Minimum Retention in Pounds Per Cubic Foot		
Preservative	Sawed Posts	Round Posts
Creosote	10.00	8.00
Pentachlorophenol	0.50	0.40
ACZA	0.40	0.40
CCA	0.40	0.40

**Minimum Penetration**

for material 5 inches or less – 0.40 inches penetration and 90 percent of sapwood

for material 5 inches or greater – 0.50 inches penetration and 90 percent of sapwood

**9-16.2(1)C Brace Wire**

Brace wire shall be 9-gauge wire galvanized to meet the requirements of AASHTO M 279, Type Z, Class 1.

**9-16.2(1)D Staples and Wire Clamps**

The staples used to attach the wire fencing to wood posts shall be 9-gauge wire, 1½ inches long, galvanized to meet the requirements of AASHTO M 279, Type Z, Class 1.

The wire clamps used to attach the wire fencing to steel posts shall be 11-gauge wire, galvanized to meet the requirements of AASHTO M 279, Type Z, Class 1.

**9-16.2(1)E Barbed Wire**

Barbed wire shall conform to the requirements of AASHTO M 280, Type Z and shall consist of two strands of 12½-gauge wire, twisted with four point 14-gauge barbs with barbs spaced 5 inches apart (Design 12-4-5-14R). Galvanizing shall be Class 3.

**9-16.2(1)F Wire Mesh**

Wire mesh shall conform to the requirements of AASHTO M 279, Type Z and shall consist of eight horizontal wires with vertical stays spaced 6 inches apart. The top and bottom wires shall be 10-gauge, and the intermediate wires and vertical stays shall be 12½-gauge. The mesh shall have a total width of 32 inches (Design 832-6-12½). Galvanizing shall be Class 3.

The zinc coated wire as represented by the test specimens shall be capable of being wrapped in a close helix at a rate not exceeding 15 turns/minute around a cylindrical steel mandrel having a diameter the same as the specimen being tested, without cracking or flaking the zinc coating to such an extent that any zinc can be removed by rubbing with the bare fingers.

**9-16.2(1)G Vertical Cinch Stays**

Vertical cinch stays shall be 10-gauge galvanized wire meeting the requirements of AASHTO M 279, Type Z, Class 1.

**9-16.2(1)H Miscellaneous Hardware**

Bolts, nuts, hinges, latches and other miscellaneous hardware shall be galvanized in accordance with AASHTO M 232.

**9-16.2(1)I Wire Gates**

Gate frames shall be constructed of galvanized pipe with a nominal diameter of not less than 1 inch. The pipe shall conform to the requirements of AASHTO M 181 Type I, Grade 1. Wire gates shall be not less than 48 inches in height and shall be designed to fit openings of the width called for in the Plans or as indicated by the Bid items. Each gate shall be provided with two upright braces of the same material as the frame, spaced at ½ points in the gate. All gates shall be provided with adjustable ⅝-inch diameter galvanized diagonal truss rods from corner to corner. Galvanizing shall be in accordance with [Section 9-16.2\(1\)H](#).

The gate frame shall be provided with wire mesh conforming to the requirements specified in [Section 9-16.2\(1\)F](#), except that it shall consist of 10 horizontal wires and have a total width of 47 inches.

Each gate shall be furnished complete with necessary galvanized hinges and latch designed for use with the type of gate posts used on the project. The hinges shall be so designed as to be securely attached to the gate post and to enable the gate to be swing back against the fence. Double gates shall be hinged in the same manner as single gates and shall be provided with an approved galvanized drop bar locking device. Galvanizing for hinges, latches, and locking devices shall be in accordance with [Section 9-16.2\(1\)H](#).

**9-16.2(1)J Concrete**

All concrete for wire fence shall be as specified in [Section 6-02.3\(2\)B](#).

**9-16.3 Beam Guardrail****9-16.3(1) Rail Element**

The W-beam or thrie beams rail elements, backup plates, reducer sections, and end sections shall conform to *A Guide to Standardized Highway Barrier Hardware* published by AASHTO, AGC, and ARTBA. All rail elements shall be formed from 12-gauge steel except for thrie beam reducer sections, reduced length thrie beam rail elements, thrie beams used for bridge rail retrofits, and Design F end sections, which shall be formed from 10-gauge steel.

The rail splices shall have a minimum total ultimate strength of 80,000 pounds at each joint.

The 6-inch channel rails and splice plates shall conform to ASTM A36, except that the channel rails may conform to ASTM A992. All fabrication shall be complete before galvanizing.

The holes in the plate shall be slotted to facilitate erection and to permit expansion and contraction. The edges of the rail shall be rolled or rounded so they will present no sharp edges. Where the rail is on a curve, the plates at the splice shall make contact throughout the area of splice. When the radius of curvature is less than 150 feet, the rail shall be shaped in the shop.

### 9-16.3(2) Posts and Blocks

Posts and blocks may be of creosote, pentachlorophenol, waterborne chromate copper arsenate (CCA), or ammoniacal copper zinc arsenate (ACZA), treated timber, or galvanized steel (galvanized steel posts only – no blocks). Blocks made from alternate materials that meet Manual for Assessing Safety Hardware (MASH) criteria may be used in accordance with the manufacturer's recommendations. Wood posts and blocks may be surface four sides (S4S) or rough sawn.

Posts and blocks shall be of the size, length, and type as shown in the Plans and shall meet the requirements of the below Specifications.

Timber posts and blocks shall conform to the grade specified in [Section 9-09.2](#). Timber posts and blocks shall be fabricated as specified in the Plans before being treated. Timber posts and blocks shall be treated by the empty cell process to provide a minimum retention, depending on the treatment used, according to the following:

Treatment	AWPA UC4A	AWPA UC4B
Creosote oil	10.0 lbs. pcf.	10.0 lbs. pcf.
Pentachlorophenol	0.40 lbs. pcf.	0.50 lbs. pcf.
ACZA	0.40 lbs. pcf.	0.60 lbs. pcf.
CCA	0.40 lbs. pcf.	0.60 lbs. pcf.

Treatment shall be in accordance with [Section 9-09.3](#).

Galvanized steel posts, and base plates, where used, shall conform to either ASTM A36 or ASTM A992, and shall be galvanized in accordance with AASHTO M 111. Welding shall conform to [Section 6-03.3\(25\)](#). All fabrication shall be completed prior to galvanizing.

### 9-16.3(3) Galvanizing

W-beam or thrie beam rail elements and terminal sections shall be galvanized in accordance with AASHTO M 180, Class A, Type II. Channel rails, splice plates, WF steel posts, and base plates shall be galvanized in accordance with ASTM A123. Anchor cables shall be galvanized in accordance with Federal Specification RR-W-410, Table II, galvanized at finished size. Bolts, nuts, washers, plates, rods, and other hardware shall be galvanized in accordance with ASTM A153.

### 9-16.3(4) Hardware

Unfinished bolts (ordinary machine bolts), nuts, and washers for unfinished bolts, shall conform to [Section 9-06.5\(1\)](#). High-strength bolts, nuts, and washers for high-strength bolts shall conform to [Section 9-06.5\(3\)](#).

Unfinished bolts shall be accepted by field verification and documentation that bolt heads are stamped 307A. The Contractor shall submit a manufacturer's certificate of compliance per [Section 1-06.3](#) for high-strength bolts, nuts, and washers prior to installation of the hardware.

**9-16.3(5) Anchors**

Welding shall conform to [Section 6-03.3\(25\)](#).

All welding shall be equal in strength to the parent metal.

All fabrication shall be complete and ready for assembly before galvanizing. No punching, drilling, cutting, or welding will be permitted after galvanizing unless authorized by the Engineer.

Foundation tubes shall be fabricated from steel conforming to the requirements of ASTM A500, Grade B or ASTM A501.

The anchor plate assembly shall develop a minimum tensile strength of 40,000 pounds.

The anchor plate, W8 × 18, and metal plates shall be fabricated of steel conforming to the Specifications of ASTM A36, except that the W8 × 18 may conform to ASTM A992.

The strut and yoke assembly shall be fabricated of 10-gauge steel conforming to the Specifications of ASTM A36. The bearing plate shall be fabricated of steel conforming to the Specifications of ASTM A36. The breakaway terminal post sleeve shall be fabricated of steel conforming to the Specifications of ASTM A53, Grade B, Schedule 40.

Anchor cable shall be ¾ inch preformed, 6 by 19 wire strand core or independent wire rope core (IWRC), galvanized, right regular lay manufactured of improved plow steel with a minimum breaking strength of 42,800 pounds. Two certified copies of mill test reports of the cable used shall be furnished to the Engineer.

Swaged cable fittings shall develop 100 percent of the specified breaking strength of the cable. One swaged fitting attached to 3 feet of cable shall be furnished to the Engineer for testing.

The swaged fitting and stud assembly shall be of steel conforming to the requirements of American Iron and Steel Institute C-1035 and shall be annealed and galvanized suitable for cold swaging.

All metal components of the anchor and cable assembly and not less than the top 14 inches of the W8 × 18 for the Type 2 anchor shall be galvanized in accordance with [Section 9-16.3\(3\)](#).

Cement concrete shall conform to the requirements of [Section 6-02.3\(2\)B](#).

Cement grout shall conform to [Section 9-20.3\(4\)](#) and consist of one part portland cement or blended hydraulic cement and two parts sand.

**9-16.3(6) Inspection and Acceptance**

The Contractor shall give notice to the Engineer before the rail elements are fabricated in order that inspections may be provided. The Contractor shall arrange for all facilities necessary for the inspection of material and quality of construction at the point of fabrication of the rail element, and inspectors shall be allowed free access to necessary parts of the premises.

The Inspector shall have the authority to reject materials or work that do not fulfill the requirements of these Specifications. In cases of dispute, the Contractor may appeal to the Engineer, whose decision will be final.

The Inspector may accept a mill test report certifying that the steel used in fabricating the rail element meets the requirements of the Specifications. The Contracting Agency reserves the right, however, to require the Contractor to furnish samples of the steel proposed for use and to determine to its satisfaction that the steel meets the Specification requirements. Steel rail elements, fittings, end section hardware, and bolts may be accepted by the Engineer based on the Manufacturer's Certification of Compliance.



#### 9-16.4 Wire Mesh Slope Protection

##### 9-16.4(1) General

All metal material used in the construction of wire mesh slope protection shall be new and galvanized. Imperfectly galvanized material or material upon which serious abrasion of galvanizing occurs will not be acceptable.

##### 9-16.4(2) Wire Mesh

The galvanized wire mesh shall be a Style 1 double-twisted hexagonal mesh conforming to ASTM A975 with 8 by 10 opening, except when a colorized, polyvinyl chloride coating is required then the Style shall be a Style 3.

The longitudinal edges of the wire mesh fabric shall have knuckled selvedges with continuous selvedge wire as specified in ASTM A975.

##### 9-16.4(3) Wire Rope

Wire rope shall be  $\frac{3}{4}$ -inch-diameter, independent wire rope class (IWRC) 6x19, extra improved plow steel (EIP) wire rope galvanized in accordance with ASTM A1023. Each lot of wire rope shall be accompanied by a Manufacturer's Certificate of Compliance, a mill certificate, and a test report showing the wire rope meets the minimum breaking force requirements of ASTM A1023.

##### 9-16.4(4) Hardware

Weldless steel rings shall be drop-forged steel and heat treated after forging; have a single pull, working load limit of at least 10,000 lbs; and meet performance requirements of Federal Specification RR-C-271D Type VI.

Thimbles required for all wire rope loops shall be standard weight, galvanized, and meet performance requirements of Federal Specification FF-T-276b Type II.

Wire rope clips shall have drop-forged steel bases, be galvanized, and meet performance requirements of Federal Specification FF-C-450 Type I Class 1.

##### 9-16.4(5) Fasteners and Lacing Wire

Fasteners shall consist of 11 gauge high tensile steel. Lacing wire shall consist of 9 gauge, zinc-coated steel wire conforming to ASTM A641.

##### 9-16.4(6) Ground Anchors

Threaded bar ground anchors shall be deformed, continuously threaded, steel reinforcement bars conforming to either [Section 9-07.2](#) or [Section 9-07.11](#). Threaded bar ground anchors shall be either epoxy-coated in accordance with [Sections 6-02.3\(24\)H](#) and [9-07.3](#) or galvanized after fabrication in accordance with ASTM A767 Class I.

Hollow-core anchor bars shall have continuous threads/deformations and be fabricated from steel tubing conforming to ASTM A519. Couplers and nuts shall provide 100 percent of the guaranteed minimum tensile strength of the hollow core anchor bars.

Bearing plates shall conform to ASTM A572 Grade 50 and shall be galvanized after fabrication in accordance with AASHTO M 111. Nuts shall conform to either AASHTO M 291 Grade B, hexagonal, or [Section 9-07.11](#). Nuts shall be galvanized after fabrication in accordance with AASHTO M 111 for plate washers and AASHTO M 232 for all other hardware.

Grout for ground anchors shall be Grout Type 2 for Nonshrink Applications, conforming to [Section 9-20.3\(2\)](#).

Concrete for gravity anchors shall be either commercial concrete conforming to 8 [Section 6-02.3\(2\)B](#) or Class 3000 conforming to [Section 6-02](#).

Steel reinforcing bars for gravity anchors shall conform to [Section 9-07.2](#), and shall be epoxy-coated in accordance with [Sections 6-02.3\(24\)H](#) and [9-07.3](#).

#### 9-16.5 Vacant

#### 9-16.6 Glare Screen

##### 9-16.6(1) General

All material used in the construction of the fence shall be new. Iron or steel material shall be galvanized or aluminum coated as specified. Imperfectly galvanized or aluminum coated material, or material upon which serious abrasions of galvanizing or aluminum coating occur, will not be acceptable.

##### 9-16.6(2) Glare Screen Fabric

Glare screen fabric shall consist of diamond woven wire mesh. The fabric wire may be 0.148-inch diameter aluminum alloy complying with the Aluminum Association requirements for alloy 6061T94, or it may be 0.148-inch diameter (9-gauge) iron or steel wire complying with the requirements of ASTM A392 galvanized or ASTM A491 for aluminum coated, except that galvanizing of Type 2 glare screen fabric shall be not less than 0.8 ounce per square foot and shall be done before weaving. Aluminum coating shall be Class II.

Type 1 glare screen mesh size shall be approximately a 1 inch diamond. Type 2 glare screen mesh size shall be a maximum of 3½ inch vertical and 5½ inch horizontal. The design shall permit the slats to be installed in a vertical position as shown in the Plans without distortion of the slats.

##### 9-16.6(3) Posts

Line posts for Types 1 and 2 glare screens shall be 2 inch inside diameter galvanized steel pipe with a nominal weight of 3.65 pounds per linear foot. End, corner, brace, and pull posts for Type 1 Design A and B and Type 2 shall be 2½ inch inside diameter galvanized steel pipe with a nominal weight of 5.79 pounds per linear foot. Intermediate pull posts (braced line posts) shall be as specified for line posts.

The base material for the manufacture of steel pipes used for posts shall conform to the requirements of ASTM A53, except the weight tolerance on tubular posts shall be applied as provided below.

Posts provided for glare screen will have an acceptance tolerance on the weight per linear foot, as specified, equal to plus or minus 5 percent. This tolerance will apply to each individual post.

All posts shall be galvanized in accordance with AASHTO M 181, Section 32. The minimum average zinc coating is per square foot of surface area. This area is defined as the total area inside and outside. A sample for computing the average of mass of coating is defined as a 12-inch piece cut from each end of the galvanized member.

##### 9-16.6(4) Tension Wire

Top and bottom tension wire shall be 7-gauge coil spring steel wire of good commercial quality and shall have a zinc coating averaging 0.8 ounces per square foot of surface area.

##### 9-16.6(5) Vacant

**9-16.6(6) Tension Wire Attachments**

All tension wire attachments shall be galvanized steel conforming to the requirements of AASHTO M 232 unless otherwise specified. Eye bolts shall have either a shoulder or a back-up nut on the eye end and be provided with an eye nut where needed or standard hex nut and lock washer  $\frac{3}{8}$ -inch diameter for tension wire and of sufficient length to fasten to the type of posts used. Turnbuckles shall be of the shackle end type,  $\frac{1}{2}$ -inch diameter, with standard take-up of 6 inches and provided with  $\frac{3}{8}$ -inch diameter pins.

**9-16.6(7) Slats****9-16.6(7)A Wood Slats**

Wood slats shall be  $\frac{3}{8}$  by  $2\frac{3}{8}$  inch by the height designation of the fence. Material shall be finished and treated cedar or redwood and shall be free from loose knots, cracks, and other imperfections. A dimensional tolerance of plus or minus  $\frac{1}{16}$  inch in width or thickness is allowed provided that the maximum space between slats does not exceed  $\frac{3}{8}$  inch.

**9-16.6(7)B Plastic Slats**

Plastic slats shall be  $\frac{3}{8}$  by  $2\frac{3}{8}$  inch by the height designation of the fence. They shall be manufactured from tubular polyethylene color pigmented material consisting of high-density virgin polyethylene and color pigments, designed to retard ultraviolet penetration. The material shall have a minimum wall thickness of 0.0030 inch plus or minus 0.0003 inch and shall remain flexible without distortion and without becoming brittle through a temperature range of  $-70^{\circ}\text{F}$  to  $+250^{\circ}\text{F}$ . Tensile strength shall be at least 3,600 psi and the melt index shall not exceed 0.25.

Plastic slats shall be retained in place by means of U-shaped retainer members at the bottom and top of the fence. Retainer members shall be of the same material as the slats.

The color for plastic slats will be approved by the Engineer from samples submitted by the Contractor or supplier.

**9-16.6(8) Fittings**

Fittings shall be malleable cast iron or pressed steel and galvanized in accordance with the requirements of AASHTO M 232.

Fittings shall be those furnished by the manufacturer of the fence.

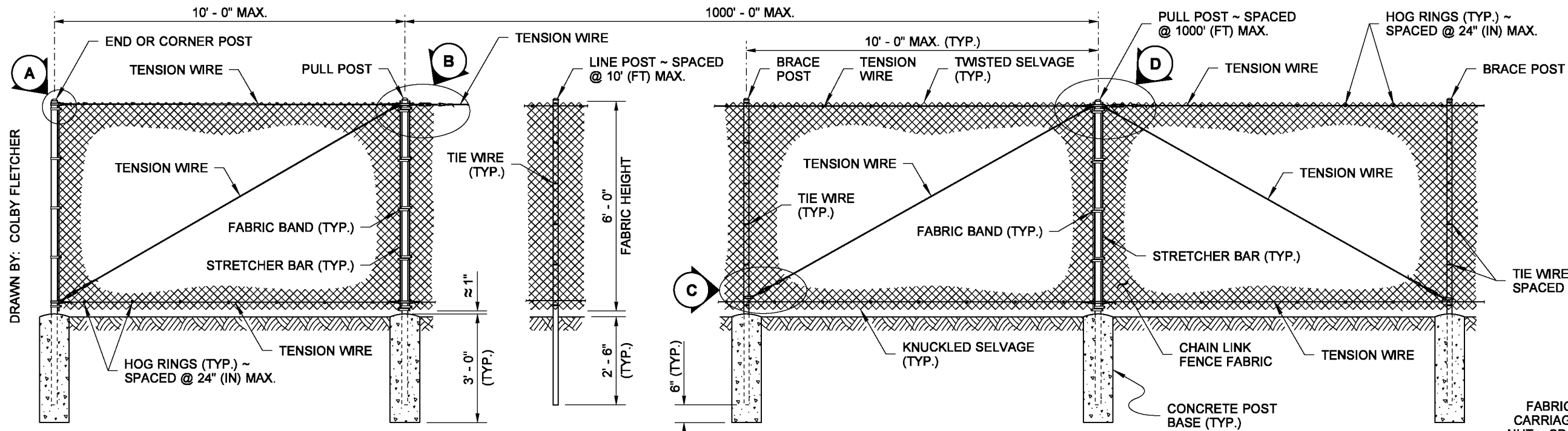
**9-16.6(9) Fabric Bands and Stretcher Bars**

Fabric bands shall be  $\frac{1}{8}$  inch by 1-inch nominal. Stretcher bars shall be  $\frac{3}{16}$  inch by  $\frac{3}{8}$  inch nominal or  $\frac{5}{16}$  inch diameter round bar nominal  $\frac{3}{16}$  inch diameter round stretcher bar shall be used with Type 1. Nominal shall be construed to be the area of the cross section of the shape obtained by multiplying the specified width by thickness. A variation of minus 5-percent from this theoretical area shall be construed as "nominal" size. All shall be galvanized to meet the requirements of ASTM F626.

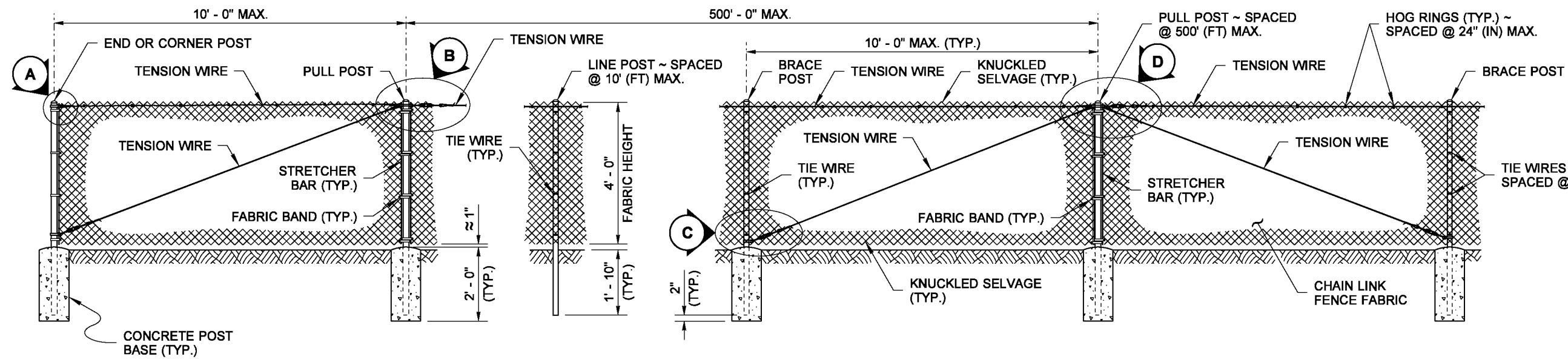
**9-16.6(10) Tie Wire and Hog Rings**

Tie wire shall be 9-gauge aluminum wire complying with the ASTM B211 for alloy 1100 H14 or 9-gauge galvanized wire meeting the requirements of AASHTO M 279. Galvanizing shall be Class 1.

Hog rings shall be 12-gauge galvanized steel wire.



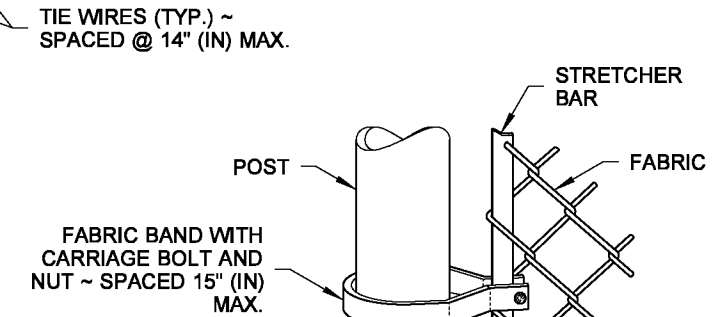
**TYPE 3**



**TYPE 4**

**NOTES**

1. All concrete post bases shall be 10" (in) minimum diameter.
2. Along the top and bottom, using Hog Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first full fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.



**METHOD OF FASTENING STRETCHER BAR TO POST**



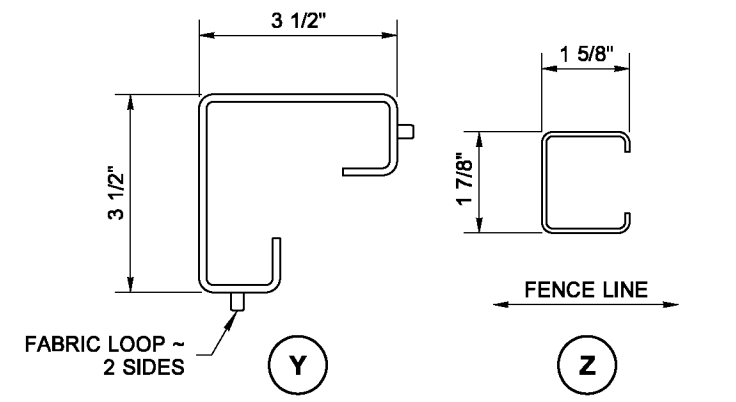
**CHAIN LINK FENCE  
TYPES 3 AND 4  
STANDARD PLAN L-20.10-03**

SHEET 1 OF 2 SHEETS

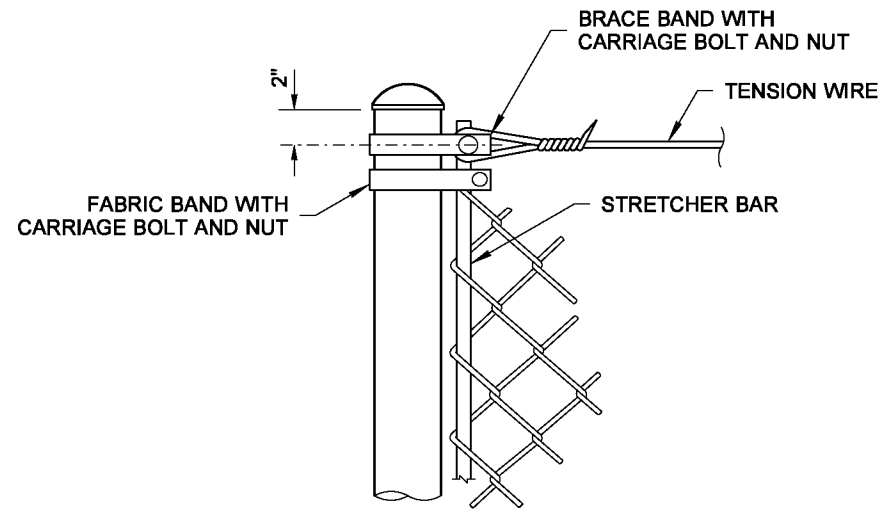
APPROVED FOR PUBLICATION

**POST AND RAIL SPECIFICATIONS**

POST	PIPE	ROLL FORMED	
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2 1/2" DIAM.	(Y)	5.10
LINE OR BRACE POST	2" DIAM.	(Z)	1.85

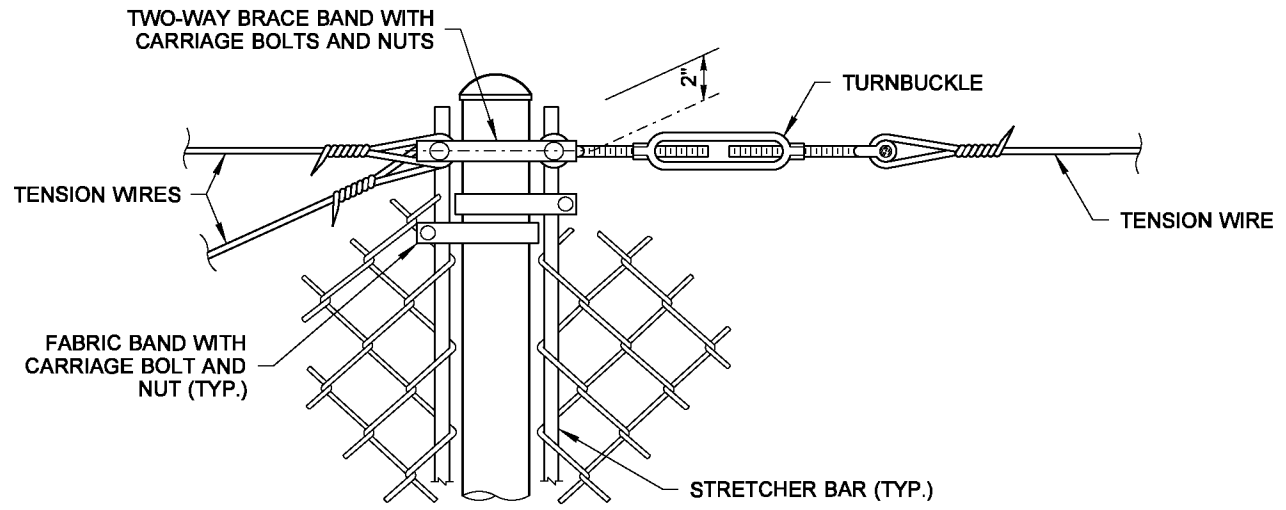


DRAWN BY: COLBY FLETCHER



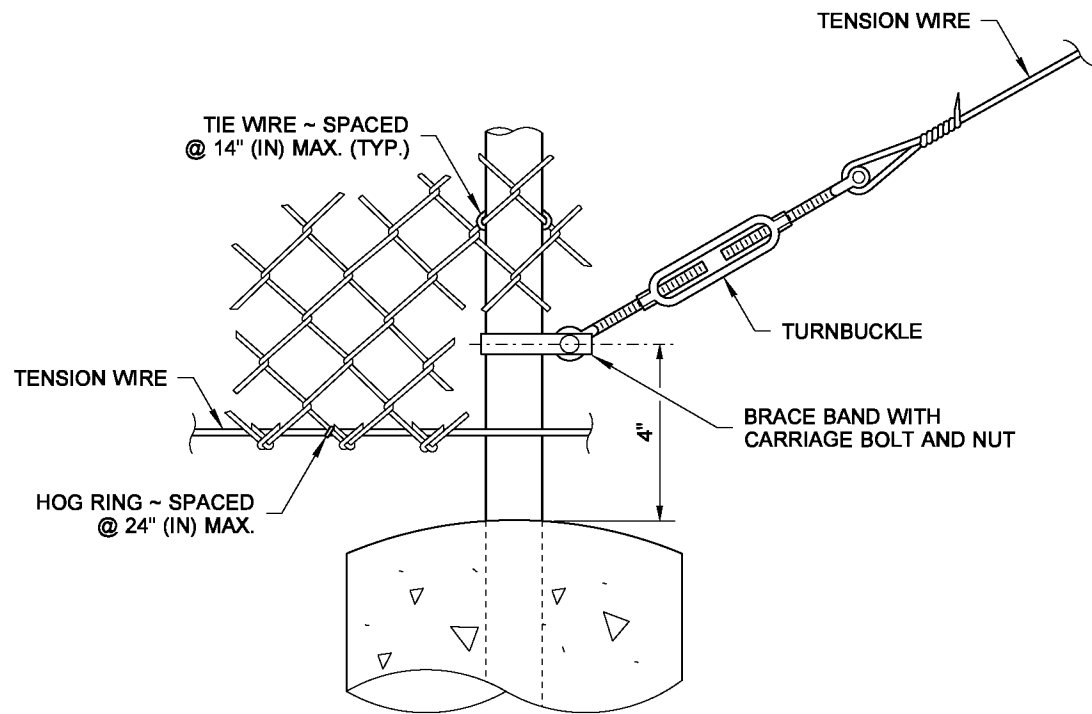
END OR CORNER POST

DETAIL A



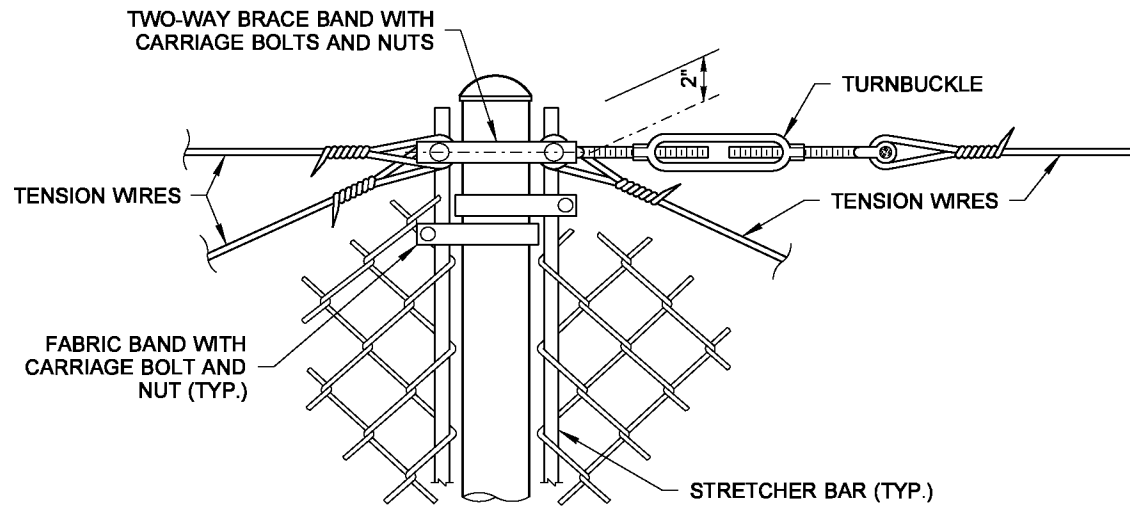
PULL POST (AT END OR CORNER)

DETAIL B



BRACE POST

DETAIL C



PULL POST (WITHIN RUN)

DETAIL D



**CHAIN LINK FENCE  
TYPES 3 AND 4  
STANDARD PLAN L-20.10-03**

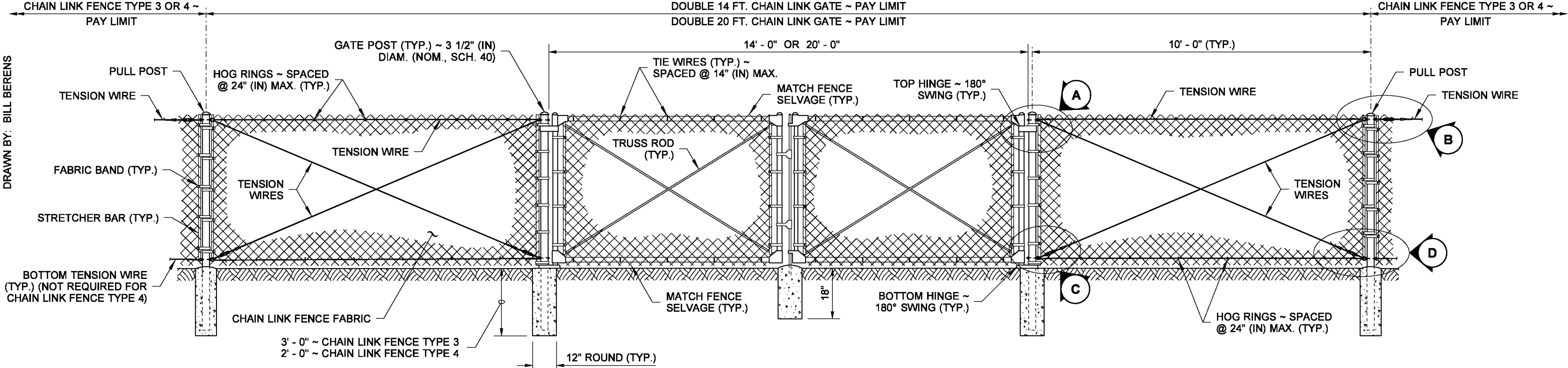
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

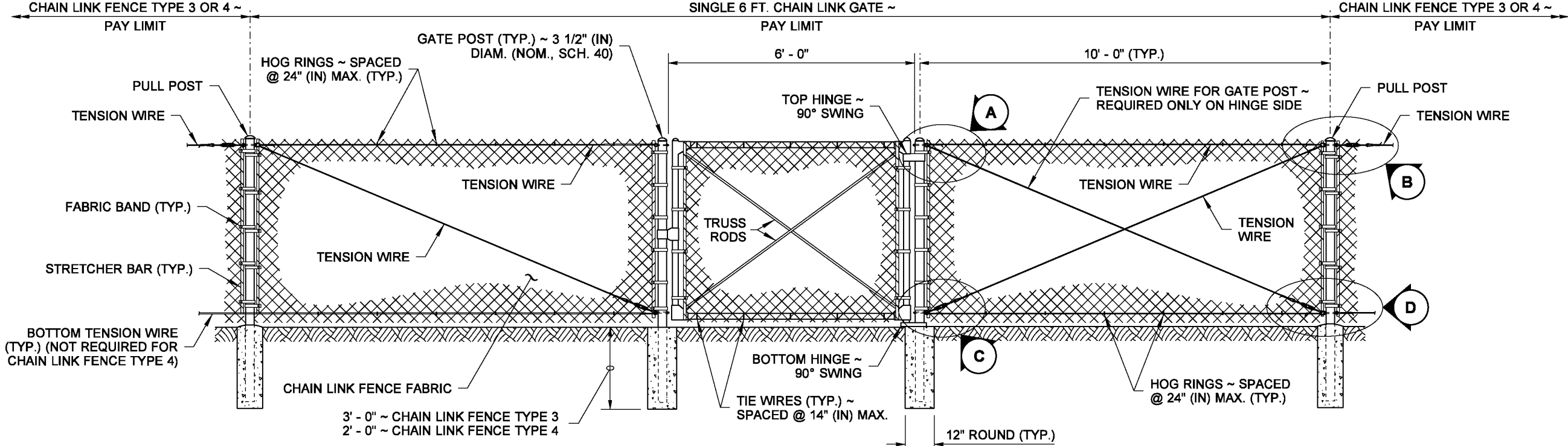
STATE DESIGN ENGINEER  
 Washington State Department of Transportation

**NOTES**

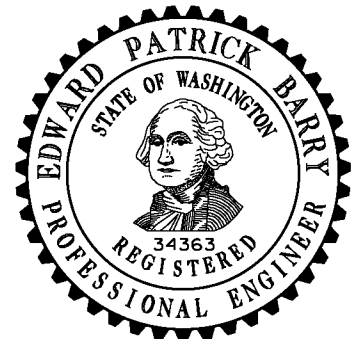
1. Materials shall meet the requirements of **Standard Specification 9-16**.



**DOUBLE GATE**



**SINGLE GATE**

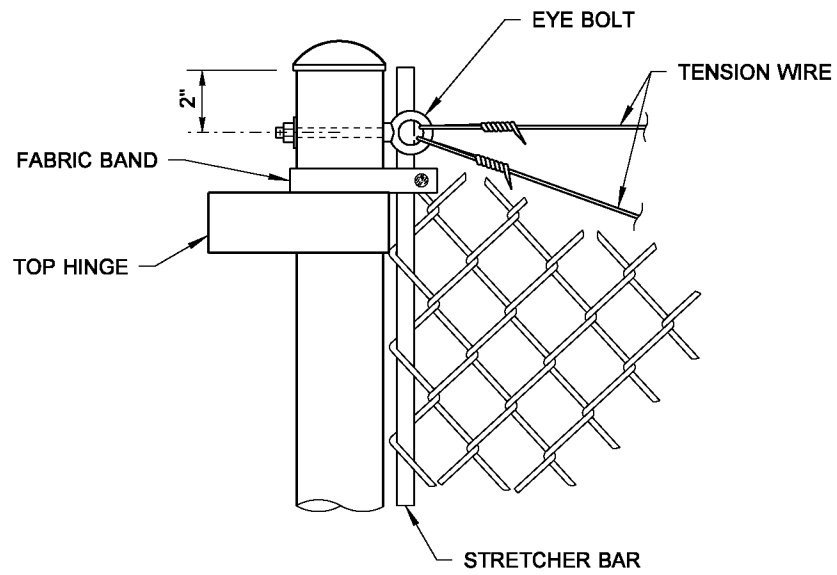


**CHAIN LINK GATE**  
**STANDARD PLAN L-30.10-02**

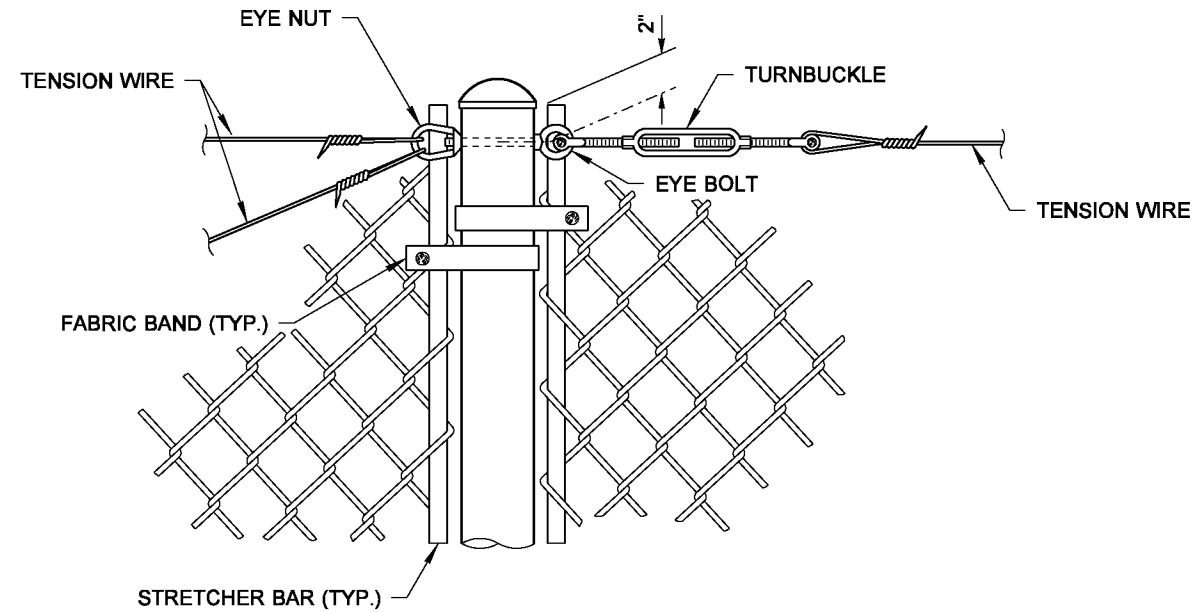
SHEET 1 OF 2 SHEETS  
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER  
Washington State Department of Transportation

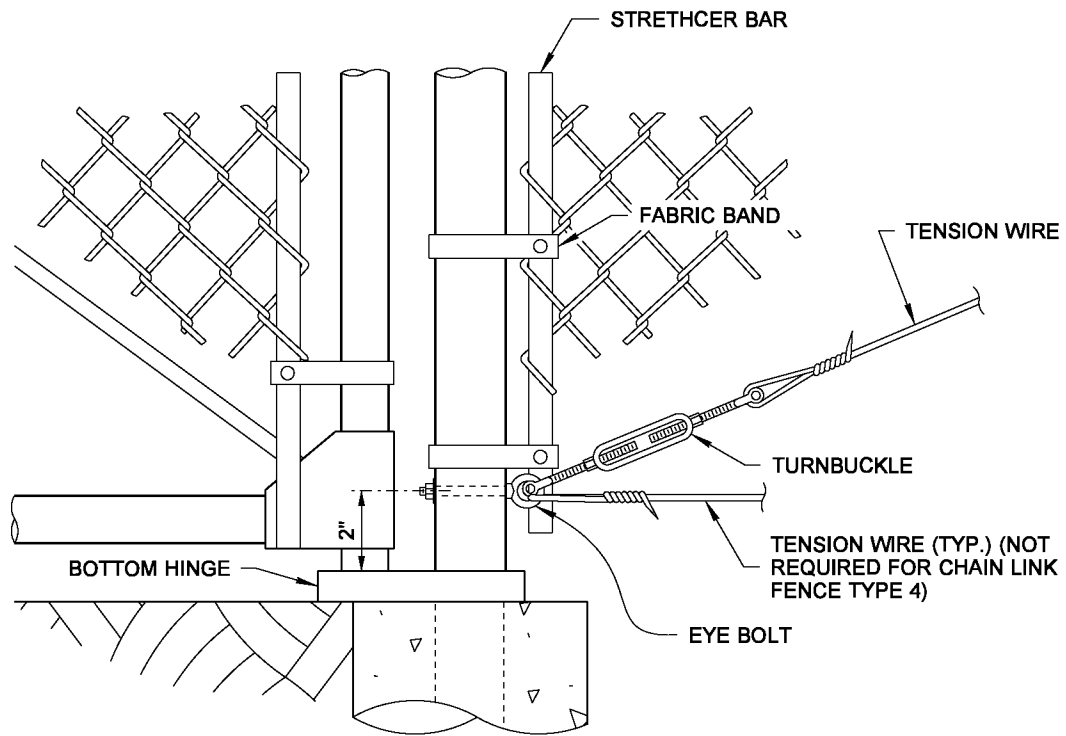
DRAWN BY: BILL BERENS



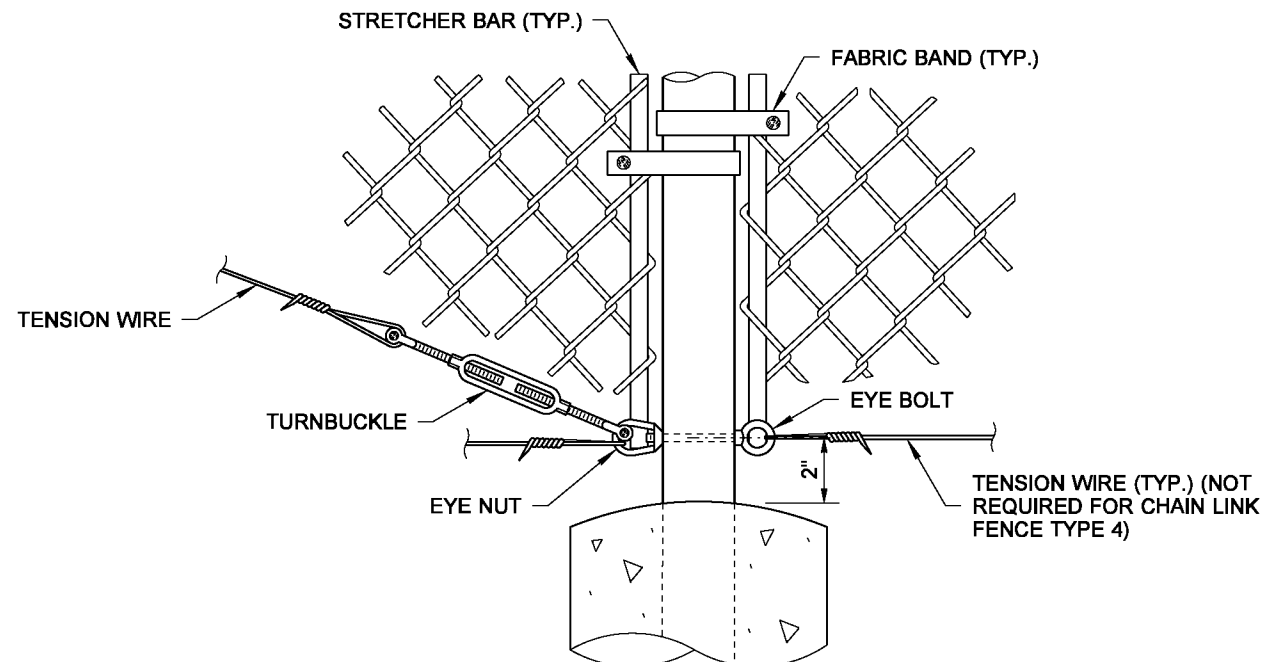
GATE POST  
DETAIL A



PULL POST  
DETAIL B



GATE POST  
DETAIL C



PULL POST  
DETAIL D



**CHAIN LINK GATE**

**STANDARD PLAN L-30.10-02**

SHEET 2 OF 2 SHEETS

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