



SECTION 32 31 00

FENCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section shall consist of furnishing and installing new fence and/or removing and salvaging existing fence and restoring the same in conformance with the lines and grades and requirements shown on the DRAWINGS. Wherever the materials to be removed are not in good condition, as judged by the ENGINEER, or wherever CONTRACTOR has damaged the materials during the process of removal, equal or better quality fencing materials than the existing shall be furnished and installed by CONTRACTOR.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. M111M/M111, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - b. M133, Standard Specification for Preservatives and Pressure Treatment Processes for Timber.
 - c. M181, Standard Specification for Chain-Link Fence.
 - d. M232M/M232, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - e. M281, Standard Specification for Steel Fence Posts and Assemblies, Hot-Wrought.
 2. ASTM International (ASTM):
 - a. A116, Standard Specification for Metallic-Coated, Steel-Woven Wire Fence Fabric.
 - b. A121, Standard Specification for Metallic-Coated Carbon Steel Barbed Wire.
 - c. A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
 - d. A491, Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric.
 - e. B211, Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.



- f. F537, Standard Specification for Design, Fabrication, and Installation of Fences Constructed of Wood and Related Materials.
3. Federal Specification (FED): FCGS-02-1, Fencing, Wire and Post, Metal (Chain-link Fence Posts, Top Rails and Braces).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Timber: All timber materials for new fencing shall be No. 1 grade cedar.
- B. Barbed Wire: Steel barbed wire shall conform to the requirements of ASTM A121 Class I. Aluminum barbed wire shall be manufactured in accordance with ASTM B211 with alloy 5052-O for the line wire and alloy 5052-H38 for the barbs.
- C. Woven Wire: Woven wire shall conform to the details and requirements shown on the DRAWINGS and to the following:
 1. Zinc-coated steel woven wire shall conform to the requirements of ASTM A116, coating Class I.
 2. Aluminum-coated steel woven wire shall conform to the requirements of ASTM A116, coating Class I.
 3. Fittings and attachments shall be zinc coated to conform to the requirements of AASHTO M232M/M232.
- D. Chain Link Fabric: Chain link fabric and required fittings and hardware shall conform to the requirements of AASHTO M181 for the kind of metal, sizes of wire and mesh specified. Zinc coating for steel fabric shall conform to ASTM A392, Class I and aluminum coating for steel fabric to ASTM A491, Class I.
- E. Snow Fence: Wire-bound picket fence shall conform to the requirements of ASTM F537. Posts shall conform to the requirements of AASHTO M281.
- F. Construction Fence: Construction fence shall be bright orange woven plastic mesh, four feet (4') minimum in height.
- G. Fence Posts:
 1. Wood posts shall conform to the details and dimensions indicated on the DRAWINGS. Wood posts shall be straight, sound, and seasoned with ends sawed off square or as indicated. All knots shall be trimmed flush with the surface. Wood posts shall be peeled and treated with preservative in accordance with AASHTO M133. When native cedar posts are called for on the DRAWINGS, the requirements for peeling and for treating may be omitted.
 2. All dimension timber and lumber required for fences or gates shall be sound, straight, and free from knots, splits, and shakes. It shall be of the species and grades indicated on the DRAWINGS.



3. Concrete posts shall be made of concrete of the class specified, and shall contain steel reinforcement as shown on the DRAWINGS.
4. Steel posts shall be galvanized in accordance with AASHTO M111M/M111. Fittings, hardware, and other appurtenances not specifically covered by the DRAWINGS and SPECIFICATIONS shall be standard commercial grade, and in accordance with current standard practice. Pipe material for fence posts shall conform to the requirements shown on the DRAWINGS and to the requirements of Class 1 Pipe, Grade A or Grade B, of FED FCGS-02-01.
5. Construction fence posts shall be studded steel tee posts.

H. Nails: All nails used for construction shall be galvanized.

PART 3 EXECUTION

3.01 REMOVAL OF EXISTING FENCE

- A. All rails, braces, posts, and the like shall be removed and disposed of or salvaged by CONTRACTOR to allow construction of the PROJECT as described on the DRAWINGS.

3.02 CONSTRUCTION OR REPLACEMENT OF FENCE

- A. General:
 1. CONTRACTOR shall perform such clearing and grubbing as may be necessary to construct or replace the fence to the required grade and alignment as shown on the DRAWINGS.
 2. At locations where breaks in a run of fencing are required, appropriate adjustments in fence alignment and/or post spacing shall be made to satisfy requirements or conditions encountered.
- B. Posts and Rails: Posts shall be securely embedded into the ground to meet the proper alignment and elevations. Posts shall be embedded in concrete as shown on the DRAWINGS. Posts and rails shall be held in proper positions by secure bracing until such time as the concrete has set sufficiently to hold the posts. Materials shall not be installed on posts, or stress placed on bracing until the concrete has set sufficiently to withstand the stress. The complete fence shall be plumb and in straight alignment as shown on the DRAWINGS or as directed by ENGINEER.
- C. Construction Fence: Construction fence posts shall be installed at ten (10) feet on center and the plastic mesh shall be attached to each post at top, bottom, and center using plastic ties. A twelve and one-half (12-1/2) gage wire strand shall be installed along the top and bottom of the fence for added stability. The plastic mesh shall be attached to the top and bottom strand wires in three (3) equally spaced locations between each post using plastic ties. Construction fence shall be installed along the limits of disturbance. Construction fence shall remain in place and be repaired as necessary throughout construction.

END OF SECTION



Revised 08/2015

THIS PAGE INTENTIONALLY LEFT BLANK