

STD & SPEC 3.01



SAFETY FENCE

Definition

A protective barrier installed to prevent access to an erosion control measure.

Purpose

To prohibit the undesirable use of an erosion control measure by the public.

Conditions Where Practice Applies

Applicable to any control measure or series of measures which can be considered unsafe by virtue of potential for access by the public.



Planning Considerations

The safety of the public must always be considered at both the planning and implementation phases of a land-disturbing activity. If there is any question concerning the risk of a particular erosion control measure to the general public, the measure should be relocated to a safer area, or an appropriate safety fence should be installed to prevent undesired access. Many times, the danger posed by a control may not be easily seen by plan designers and reviewers - that is when the on-site contractor or inspector must correct such situations in the field. Properly designed and installed safety fences prevent the trespassing of people into potentially dangerous areas, such as children using a sediment basin or a stormwater retention structure as play areas. The installation of these fences will protect people from hazards and the owner from possible litigation.

Two different types of fence will be discussed in this specification. The designer, developer, and contractor should always be sure that the most appropriate type of fence is utilized for a particular need.

Design Criteria

1. Safety fences should be located so as to create a formidable barrier to undesired access, while allowing for the continuation of necessary construction operations.
2. Safety fences are most applicable to the construction of berms, traps, and dams. In use with those structures, safety fences should be located far enough beyond the outer toe of the embankment to allow for the passage of maintenance vehicles. Fences should not be installed across the slope of a dam or dike.
3. The height of the fence shall be a minimum of 5 feet for plastic fence and 6 feet for metal fence. A fence must never be so short as to become an attraction for children to climb on or over.
4. Signs noting potential hazards such as "DANGER-QUICKSAND" or "HAZARDOUS AREA - KEEP OUT" should be posted and easily seen by anyone approaching the protected area.
5. Plastic (polyethylene) fence may be used as safety fencing, primarily in situations where the need is for a temporary barrier (see Plate 3.01-1). The fence should meet the physical requirements noted in the following table:

TABLE 3.01-A

PHYSICAL PROPERTIES OF PLASTIC SAFETY FENCE

<u>Physical Property</u>	<u>Test</u>	<u>Requirements</u>
Recommended color	N/A	"International" orange
Tensile yield	ASTM D638	Average 2000 lbs. per 4 ft. width
Ultimate tensile strength	ASTM D638	Average 2900 lbs. per 4 ft. width
Elongation at break(%)	ASTM D638	Greater than 1000%
Chemical resistance	N/A	Inert to most chemicals and acids

Source: Conwed Plastics

6. Metal or "chain-link" fence should be used when a potentially dangerous control measure will remain in place permanently, such as a stormwater detention or retention basin (see Plate 3.01-1). However, they may also be used for measures which will only serve a temporary function, at the discretion of those responsible for project safety. The metal fence must meet the following physical requirements:
- a. Fabric shall be zinc-coated steel, 2-inch mesh, 9-gauge, minimum.
 - b. Zinc coating shall have a minimum weight of 1.8 ounces per square foot.
 - c. Posts shall be steel pipe, zinc-coated.
 - d. Top nails shall be steel pipe, zinc-coated.
 - e. Braces shall be made of zinc-coated steel.
 - f. Gates shall be single or double swing, zinc-coated steel. They shall be a minimum of 12-feet wide.

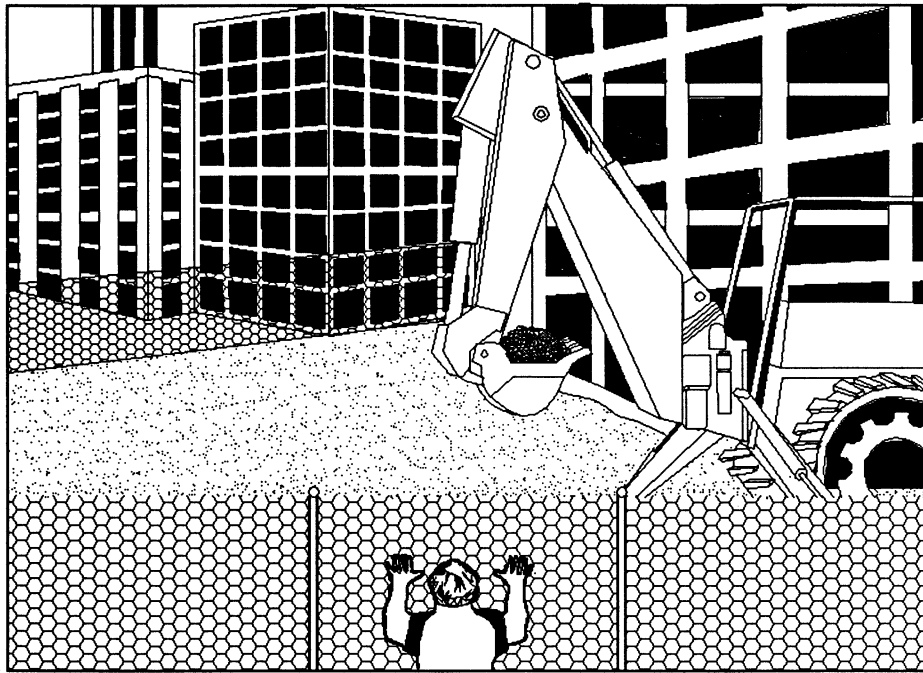
Construction Specifications

1. Safety fences must be installed prior to the E&S measure becoming accessible.
2. The polyethylene web of the plastic safety fence shall be secured to a conventional metal "T" or "U" post driven into the ground to a minimum depth of 18 inches; posts should be spaced at 6-foot centers. See "perspective" view in Plate 3.01-1.
3. The metal safety fence shall be installed as per the following procedure:
 - a. Line posts shall be placed at intervals of 10 feet measured from center to center of adjacent posts. In determining the post spacing, measurement will be made parallel with the ground surface. See "perspective" view in Plate 3.01-1.
 - b. Posts will be set in concrete and backfilled or anchored by other acceptable means.
 - c. Posts set in the tops of concrete walls shall be grouted into preformed holes to a minimum depth of 12 inches.
 - d. All corner posts, end posts, gate posts, and pull posts shall be embedded, braced, and trussed as shown in the "Standard Fence - Chain Link" detail found in the latest version of the Virginia Department of Transportation (VDOT) Road and Bridge Standards.
 - e. Fencing fabric shall not be stretched until at least 4 days after the posts are grouted into walls or 14 days after the posts are set into concrete.
 - f. The fabric shall be stretched taut and securely fastened, by means of tie clips, to the posts at intervals not exceeding 15 inches and to the top rails or tension wires at intervals not exceeding 2 feet. Care shall be taken to equalize the tension on each side of each post.
4. Applicable warning signs noting hazardous conditions must be installed immediately upon installation of safety fence.

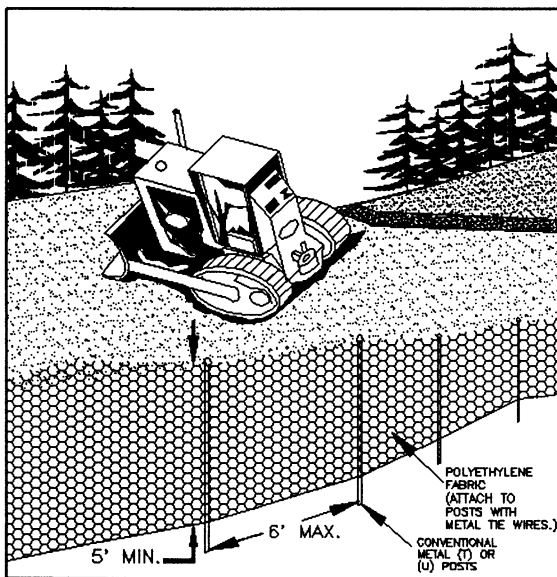
Maintenance

1. Safety fence shall be checked regularly for weather-related or other damage. Any necessary repairs must be made immediately.
2. Care should be taken to secure all access points (gates) at the end of each working day. All locking devices must be repaired or replaced as necessary.

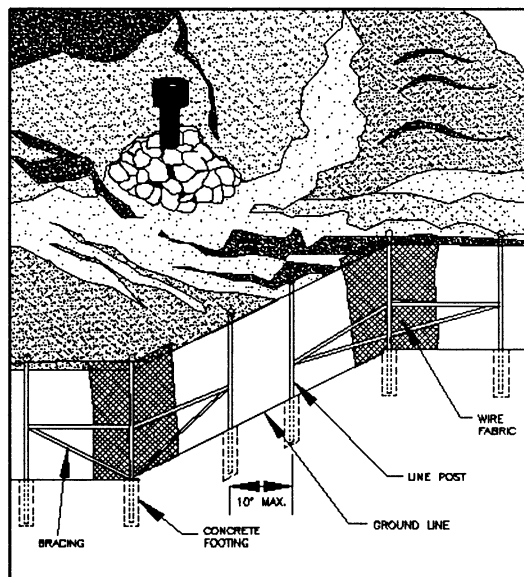
SAFETY FENCE



PERSPECTIVE VIEW



PERSPECTIVE VIEW
PLASTIC FENCE



PERSPECTIVE VIEW
METAL FENCE

Source: Adapted from Conwed Plastics and VDOT Road and Bridge Standards

Plate 3.01-1