

## Section 4143. Subdrain Pipe

### 4143.01 GENERAL REQUIREMENTS.

Use the size and type shown in the contract documents. When not designated, meet the following requirements:

#### A. Pipe for Horizontal Drains.

Use plastic pipe complying with the requirements of ASTM D 1785, Schedule 80. Comply with the following:

1. Unless specified otherwise, 3 rows of slots, 0.010 inch  $\pm$  0.005 inch (254  $\mu\text{m}$   $\pm$  127  $\mu\text{m}$ ) wide, on 120 degree centers around the circumference.
2. Minimum of 0.75 square inch (1588 mm<sup>2</sup>) of slot opening per linear foot (meter).
3. Provide with a suitable cap at the inlet end. Obtain Engineer's approval for caps and couplings.

#### B. Pipe for Longitudinal Subdrains.

1. Use perforated corrugated PE tubing and fittings manufactured and marked according to AASHTO M 252 with the following modification:

Use tubing perforated with slots according to AASHTO M 252. Circular perforations will not be approved.

2. Outlet subdrains using one of the following options:
  - a. Corrugated metal pipe meeting the requirements of [Article 4141.01](#), including tapered ends when required.
  - b. Corrugated PE pipe, type S, approved per [Materials I.M. 443 Appendix A, Part B](#).
  - c. Corrugated PVC pipe, Type S, approved per [Materials I.M. 443 Appendix A, Part C](#).
3. When special connections are required for subdrain outlets, they will be detailed in the contract documents.
4. Cover outlet with a rodent guard meeting the requirements of [Materials I.M. 443.01](#). Attach as shown in the contract documents. Engineer will inspect and accept according to [Materials I.M. 443.01](#).

#### C. Standard Subdrains.

1. Use one of the following:
  - Subdrain meeting the requirements of AASHTO M 196/M 196M or M 36/M 36M Type I or Type III.
  - Drain tile ([Section 4148](#)) or Plastic Pipe ([Section 4146](#)).
  - Polyethylene tubing meeting the requirements of [Article 4143.01, B](#).
2. If furnishing subdrains that comply with AASHTO M 196/M 196M, use a specified sheet thickness of 0.048 inch (1.22 mm) for 6 inch (150 mm)

diameter and 0.060 inch (1.52 mm) for larger diameters. If furnishing subdrains that comply with AASHTO M 36/M 36M, use a specified sheet thickness of 0.052 inch (1.32 mm) for 6 inch (150 mm) diameter and 0.064 inch (1.63 mm) for larger diameters.

3. Use perforated subdrains only when specified. As an option, AASHTO M 36/M 36M subdrains may be perforated with slots formed on the outside crests of helical corrugations, approximately 1 inch (25 mm) in length and 0.1 inch (2.5 mm) in width, spaced at 2 inches (50 mm) on centers.
4. When corrugated steel subdrains are specified, coated subdrains may also be specified. If so, ensure the coating complies with [Article 4141.02](#).
5. If using plastic pipe meeting the requirements of ASTM F 758, D 3034, or D 2751, ensure perforations are as specified in ASTM F 758. Plastic pipe meeting the requirements of ASTM F 949 with slots may also be used.
6. If embedding the subdrain in granular or porous backfill material, use slotted plastic pipe meeting the requirements of ASTM F 949 or perforated, corrugated polyethylene (PE) tubing meeting the requirements of [Article 4143.01, B](#).

**D. Patch Subdrains.**

Follow requirements for [Article 4143.01, B](#), except that subdrain outlets will not be required.