

American Drainage Systems, Inc.

VERTICAL (WICK) DRAIN INSTALLATION SPECIFICATIONS

THE FOLLOWING ARE SUGGESTED SPECIFICATIONS FOR THE INSTALLATION OF PREFABRICATED PLASTIC VERTICAL SOIL DRAINS

A) Description

The Contractor shall furnish all necessary labor, equipment, and materials and perform all operations necessary for the installation of vertical drains in accordance with the details shown on the plans and with the requirements of these specifications. The drains shall consist of a band-shaped plastic core enclosed in a suitable filter material and shall be spaced and arranged as shown on the plans or as otherwise directed by the Engineer.

B) Equipment

Drains shall be installed with approved modern equipment of a type that will cause a minimum of disturbance of the subsoil during the installation operation.

The prefabricated drains shall be installed using a mandrel or sleeve that will be advanced through the soil to the required depth. Constant load or constant rates of advancement methods are the preferred methods. A vibrator will be used in areas where constant rate/load is unable to install the drains to the designed depths. Drains which cannot be installed to design penetration using only constant rate/load methods may be advanced with the use of a vibrator that is mounted to the machine. The vibrator will only be used in cases where design penetration cannot be achieved when using the full static push force. A drain may be abandoned before reaching design penetration when the rate of installation is less than 6 inches (15 cm) per second with the full static force and maximum dynamic forces applied. Use of falling weight impact hammers will not be allowed. Provision must be provided for introducing water into the top of the mandrel. The mandrel shall protect the prefabricated drain material from tears, cuts, and abrasions during installation and shall be withdrawn after installation of the drain. The mandrel shall be a minimum cross sectional area not to exceed 11 in².

C) Construction Requirements

Drains will be located, numbered and staked out by the Engineer. The contractor shall take all reasonable precautions to preserve the stakes. The location of the drains shall not vary by more than 6 inches (150mm) from the locations indicated on the drawings or as directed by the Engineer.

Drains shall be installed from the working surface to the depth shown on the drawings, or to such a depth where the soil resists a reasonable effort at further penetration. The Engineer may vary the depths, spacing, or the number of drains to be installed, and may revise the plan limits for this work as necessary.

The contractor shall provide the Engineer with suitable means of making a linear determination of the quantity of drain material used.

During installation of the drain, the contractor shall provide suitable means of determining the depth of the drain.

Splices or connections in the drainage material shall be done in a workmanlike manner and so as to insure continuity of drain material. There should be a 4-8 inch(100-200 mm) length of drain material protruding above the natural ground surface at each drain location. The drain material shall be cut neatly at its upper end.

The Contractor shall be permitted to use auguring or other methods to loosen stiff upper soils prior to the installation of the drains, provided that such auguring does not extend more than 2 feet(600 mm) into the underlying highly compressible soils.

Where obstructions are encountered below the working surface that cannot be penetrated using normal and accepted procedures, the Contractor shall complete the drain from the elevation of the obstruction to the working surface and notify the Engineer's representative. At the direction of the Engineer, the Contractor shall then install a new drain within 18 inches (500mm) from the obstructed drain. The Contractor shall be paid for all obstructed drains at the contract unit price unless the drain is improperly completed.

The Contractor shall observe precautions necessary for protection of instrumentation devices. After instrumentation devices have been installed, the Contractor shall replace at his cost any equipment that is damaged or becomes unreliable as a result of his negligence

D) Method of Measurement

Vertical drains will be measured by the linear foot (meter) for the full length of drain complete and in place.

E) Basis of Payment

Payment for drains will be made at the contract unit price per linear foot (meter). This price shall be full compensation for the cost of furnishing the full length of drain material in accordance with plans and specifications. The price should also reflect the costs furnishing all tools, materials, labor, equipment and all other costs necessary to complete the required work.