

PERIMETER CONTROL

SCDOT Designation: SC-M-815-17 (07/18)

1.0 Perimeter Control

This Supplemental Technical Specification may be used as an alternative to Sections 815.2.5 and 815.4.6, 815.5 paragraphs 3, 4, 5, and 6, and 815.6 paragraphs 4, 5, and 6, *Silt Fences*, in the *South Carolina Department of Transportation Standard Specifications for Highway Construction*, 2007 Edition. This Supplemental Technical Specification may also be used as an alternative for *SCDOT Supplemental Specification for Silt Fence Systems (SC-M-815-2) or latest revision*.

1.1 Description

Perimeter Control is used as a temporary sediment control practice around the perimeter of sites where there will be soil disturbance due to construction activities. Perimeter Control consists of a barrier supported by posts. Use Perimeter Control as a sediment control practice for sheet flow runoff conditions. Do not use Perimeter Control for areas receiving concentrated flow.

1.2 Materials

Provide materials for Perimeter Control complying with the requirements of this Specification, on the Plans, or as approved by the Resident Construction Engineer (RCE).

Do not use straw bales, natural pine needle bales, leaf mulch, and or grass clippings as Perimeter Control. Provide Perimeter Control that exhibits the following properties:

- Machine produced by a manufacturer experienced in sediment control manufacturing.
- Materials are certified 100% weed free.
- When using Sediment Tubes for Perimeter Control, use Sediment Tubes meeting *SCDOT Supplemental Specification for Sediment Tubes for Ditch Checks (SC-M-815-12) or latest revision*.
- When using compost as a filtering component for Perimeter Control, use Compost meeting *SCDOT Supplemental Specification for Compost (SC-M-815-3) or latest revision*.
- When using compost as a filtering component for Perimeter Control, use a knitted netting material with 1/8-inch to 3/8-inch openings.
- Primary material or netting is stable to ultraviolet light or are treated with ultraviolet stabilizers.

Do not use straw, curled excelsior wood, or natural coconut rolled erosion control products (RECPs) that are rolled up to create a Perimeter Control.

If netting is used to contain a filter material, ensure the openings of the netting are of the proper size and are smaller than the filter material to ensure that the filter material is properly contained.

Table 1: Minimum Perimeter Control Performance Requirements

Physical Property*	Test Method	Required Value
Filtering Efficiency Performance	ASTM D7351 or Equivalent	80% Total Suspended Solids (TSS)
Primary Material or Netting Ultraviolet Stability (retained strength after 500 hrs. of ultraviolet exposure)	ASTM D 4355	70%

*Unless otherwise indicated, numerical values represent the MARV.

1.2.1 Steel Posts

Furnish steel posts meeting the following minimum physical requirements:

- Minimum length of 4 feet.
- Composed of high strength steel with minimum yield strength of 50,000 psi.
- Standard “T” section with a nominal face width of 1.38 inches and nominal “T” length of 1.48 inches.
- Weighs 1.25 pounds per foot ($\pm 8\%$).
- Painted with a water based baked enamel paint.

1.2.2 Wood Posts

Furnish wood posts meeting the following minimum physical requirements:

- Minimum length of 4 feet.
- Rectangular in shape with a minimum measured dimension of $\frac{3}{4}$ -inch x $\frac{3}{4}$ -inch and a maximum measured dimension of 2 inches x 2 inches.

1.2.3 Quality Assurance

Provide Perimeter Control listed on the most recent edition of *SCDOT Qualified Product List 84* or as approved by the RCE.

At the time of delivery, provide the RCE with the Perimeter Control packing list containing complete identification, including but not limited to the following:

- Manufacturer’s name and location.
- Manufacturer’s telephone number and fax number.
- Manufacturer’s e-mail address and web address.
- Perimeter Control name, model, and/or serial number.
- Perimeter Control height, diameter, length, and weight.
- Certification that the Perimeter Control meets the physical and performance criteria of this Specification.

1.3 Construction Requirements

1.3.1 Site Preparation

Proper site preparation is essential to ensure Perimeter Control is in complete contact with the underlying soil or underlying surface or is installed in a manner where runoff cannot undermine the Perimeter Control. Remove all rocks, clods, vegetation, or other obstructions that would prevent the installed Perimeter Control from having direct contact with the underlying soil or surface.

1.3.2 Installation

1.3.2.1 General Installation

If requested by the RCE, provide a manufacturer’s representative on-site to oversee and approve the initial Perimeter Control installation. Provide a letter from the manufacturer approving the installation if requested by the RCE.

Install Perimeter Control before major construction in an area is started.

Install Perimeter Control perpendicular to the direction of flow and at the proper distance from the toe of slopes as shown in Table 2 to provide sediment storage and access for maintenance and cleanout.

Table 2: Perimeter Control Installation Dimensions

Height of Fill (ft)	Fill Slope	Minimum Offset from Toe of Slope (ft)	Minimum Right of Way Offset From Toe of Slope (ft)
< 6	2:1 to 6:1	2	3
6-10	2:1	12*	13*
	3:1	7*	8*
	4:1	5*	6*
	5:1 or 6:1	3	4
> 10	2:1	12*	13*
	3:1	8*	9*
	4:1	6*	7*
	5:1 or 6:1	4	5

* These minimum offsets may be reduced when curb and gutter or some other feature reduces the flow of water down the slope. The smaller offsets of each group of height of fill cannot be reduced.

Install Perimeter Control to a minimum height of **18 inches** above the ground.

When necessary, the height of the perimeter control above ground may be greater than 18 inches.

In tidal areas, extra Perimeter Control height may be required.

If trenching of Perimeter Control material is required, excavate a trench approximately 6 inches wide and 6 inches deep and place the Perimeter Control material into the 6-inch deep trench, extending the remaining 6 inches towards the upslope side of the trench. Backfill the trench with soil or gravel and compact.

Install Perimeter Control in continuous lengths to avoid joints. When joints are necessary, lap the ends of adjacent Perimeter Control with a minimum 6-inch overlap to prevent flow and sediment from passing through the field joint. A 12-inch minimum overlap is required in tidal areas.

Install Perimeter Control using wooden posts or using steel posts. Space posts or stakes on 6-foot centers and drive them into the ground to a depth of 2 feet or to the maximum extent practicable.

1.3.2.2 Sediment Tube Installation for Perimeter Control

When using Sediment Tubes for Perimeter Control ensure the minimum installed Sediment Tube height is 18 inches above the ground.

When installing Sediment Tubes for Perimeter Control on a soil surface, construct a small U-shaped trench to a depth that is 20% of the perimeter control diameter/height. Lay the Sediment Tubes for Perimeter Control flat in the U-shaped trench and compact the upstream Perimeter Control soil interface with the excavated soil.

Install the posts in the middle, or on the downstream third of the Sediment Tubes for Perimeter Control, or install posts per the manufacturer's recommendation.

Sediment Tubes for Perimeter Control weighing more than 18 pounds per foot do not require posts, trenching, or additional filter media. In areas where concentrated flow is experienced, backfill Sediment Tubes for Perimeter Control weighing more than 18 pounds per foot with No. 5 or No. 57 filter media on the upstream side of the Sediment Tubes for Perimeter Control to increase the contact area with the underlying soil or surface, increase filter size, slow down flow, capture more sediment, and reduce undercutting.

1.3.3 Delivery, Storage, and Handling

Follow the manufacturer's written storage and handling procedures for Perimeter Control labeling, shipment, and storage. Clearly show the Perimeter Control manufacturer or supplier name on product labels.

Store Perimeter Controls off the ground and cover them to adequately protect them from the following:

- Construction damage.
- Precipitation.
- Extended exposure to ultraviolet radiation including sunlight.
- On-site chemicals.
- Flames and sparks.
- Excess temperatures.
- Other environmental conditions that can damage the physical properties.

1.3.4 Inspection and Maintenance

Inspect Perimeter Control after installation to ensure that no gaps exist under the Perimeter Control or between the joints of adjacent ends of sediment tubes.

Inspect Perimeter Control every 7 days. Check where runoff has eroded a channel beneath the Perimeter Control, or where the Perimeter Control has sagged or collapsed by overtopping. Repair rills, gullies, and undercutting near the Perimeter Control.

Remove sediment deposits that impair the sediment control capability of the Perimeter Control when the sediment reaches one-third of the height of the exposed Perimeter Control. Remove trapped sediment or stabilize on site. If a Perimeter Control or portion of Perimeter Control is located in an area where removing the sediment is not possible, install a second Perimeter Control, if necessary, at the direction of the RCE. In this case, payment for both Perimeter Control and portions involved is made at the unit price for Perimeter Control.

Remove and/or replace installed Perimeter Control as required to adapt to changing construction site conditions. Review daily the location of Perimeter Control in area where construction activities have changed the natural contour and runoff pattern to ensure that the Perimeter Control is properly located for effectiveness. Install additional Perimeter Control as directed by the RCE where deficiencies exist.

When the functional longevity of the Perimeter Control is exceeded as determined by the RCE or manufacturer's representative, remove them from the site.

Remove Perimeter Control within 30 days after final stabilization is achieved or after temporary Best Management Practices (BMPs) are no longer needed. Permanently stabilize disturbed areas resulting from Perimeter Control removal. The Perimeter Control material remains the property of the contractor and may be used in other locations provided the materials meet the appropriate requirements contained in this Specification and/or on the Plans.

Gather and dispose Perimeter Control in regular means as non-hazardous, inert material. Before final stabilization, backfill all trenches, depressions, or other ground disturbances caused by the removal of Perimeter Control.

1.3.5 Acceptance

Obtain RCE acceptance and approval of Perimeter Control installations. When requested by the RCE, ensure that a manufacturer's representative is on-site to oversee and approve the initial installation of Perimeter Control. Obtain a letter from the manufacturer approving the installation when requested by the RCE.

1.4 Measurement

The quantity of the pay item Perimeter Control is the length of Perimeter Control installed, including overlaps and wastage, and is measured by the linear foot (LF) of Perimeter Control in-place, complete and accepted. Perimeter Control damaged by the Contractor's operations is not included in the measurement. The installation of Perimeter Control may require written acceptance by the manufacturer's representative before the quantity is accepted.

Removal of Silt Retained by Silt Fence (Perimeter Control) - The quantity for the removal of silt retained by Perimeter Control is the length of Perimeter Control in front of which silt deposit is removed as ordered by the RCE and is measured by the linear foot (LF) along the line of Perimeter Control, complete and accepted.

Repair/Replace of Silt Fence Systems (Perimeter Control) - The quantity for the repair/replace of Perimeter Control is the length of Perimeter Control repaired or replaced because of failure of the Perimeter Control not the fault of the contractor and is measured by the linear foot (LF) along the line of Perimeter Control, complete and accepted.

1.5 Payment

Perimeter Control - Payment for Perimeter Control is full compensation for installing the Perimeter Control as specified or directed and includes furnishing, placing, maintaining, inspecting, removing, and disposing of the Perimeter Control, providing wooden stakes, steel posts, ties or staples, proper storage facilities, documentation of quality control and quality assurance programs, and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, Specifications, and other terms of the Contract.

Removal of Silt Retained by Silt Fence (Perimeter Control) – Payment for removal of silt retained by Perimeter Control is full compensation for removing and disposing of sediment deposits accumulated by Perimeter Control as specified or directed and includes all material, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications and other terms of the Contract.

Repair/Replace of Silt Fence Systems (Perimeter Control) - Payment for replace/repair Perimeter Control is full compensation for repairing or replacing damaged or malfunctioned Perimeter Control as specified or directed and includes furnishing or repairing Perimeter Control material, posts, ties or staples, and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

Table 3: Bid Item Number

Bid Item Number	Description	Units
8152007	Sediment Tubes for Ditch Checks	LF
8153000	Perimeter Control (Silt Fence)	LF
8153090	Replace/Repair Silt Fence System	LF
8154050	Removal of Silt Retained by Silt Fence	LF