February 2, 2015

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT #:
P.I. #:

Section 999—Miscellaneous (Dry Swale Edge Drains)

Add the following:

999.1 General Description

This work consists of constructing dry swale edge drains by installing drainage aggregate, sand, plant topsoil, filter fabric, pipe, and other incidentals and grading as necessary according to the Specifications and the details shown in the plans or as directed by the Engineer.

999.1.01 Related References

A. Standard Specifications

Section 301—Soil Cement

Section 574—Edge Drains

Section 700—Grassing

Section 711—Turf Reinforcement Matting

Section 800—Coarse Aggregate

Section 801—Fine Aggregate

Section 814—Soil Base Materials

Section 830—Portland Cement

Section 839—Corrugated Polyethylene Underdrain Pipe

Section 881—Fabrics

Section 890—Seed and Sod

Section 893—Plant Topsoil

B. Referenced Documents

(ASTM D-4491)
(ASTM D-4751)
(ASTM D-3786)
(ASTM D-4632)
(ASTM D-4632)
(ASTM D-4833)
(ASTM D-4533)
(ASTM D-5890)

Section 999-Miscellaneous (Dry Swale Edge Drain)

999.1.02 Submittals

General Provisions 101 through 150.

999.2 Materials

Provide the materials shown in the plans, such as sand, filter fabric, drainage aggregate, pipe, plant topsoil, and other accessories as necessary. Materials shall meet the requirements of the following Specifications:

Material	Requirement
10 NS Natural Concrete Sand	Subsection 801.2.02
6" Corrugated Polyethylene Underdrain Pipe	Sections 574, 839
Nonwoven Plastic Filter Fabric	ASTM D-4491: permittivity = 1.30 sec^{-1} ASTM D-4751: AOS = 70 US standard sieve ASTM D-3786: Mullen burst strength = 280 psi ASTM D-4632: Grab tensile strength = 160 lb ASTM D-4632: Grab tensile elongation = 50% ASTM D-4833: Puncture Resistance = 85 lb ASTM D-4533: Trapezoidal tear strength = 60 lb
Drainage Aggregate, Size No. 78	Subsection 800.2.01
Plant Topsoil	Subsections 893.2.01, 814.2.01.A.8
Soil-Cement Material	Subsection 814.2.02
Portland Cement	Subsection 830.2.01
Pulverized Bentonite	ASTM D-5890 Swell Index
Bunch Grass and Sod	Sections 700, 890
Turf Reinforcement Matting Type 2*	Section 711
*Use for soil cement ditch dam protection.	

999.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

999.3 Construction Requirements

999.3.01 Personnel

General Provisions 101 through 150.

999.3.02 Equipment

General Provisions 101 through 150.

999.3.03 Preparation

General Provisions 101 through 150.

999.3.04 Fabrication

General Provisions 101 through 150.

999.3.05 Construction

Side slopes and top of swales are to be roughed in during normal stage construction. Complete dry swale edge drains as shown in the construction plans after final grade and stabilization is reached. Enclose the 10 NS natural concrete sand filter with nonwoven geotextile on all four (4) sides: top, both sides, and bottom. Construct mat-protected,

permanently grassed road foreslopes above and adjacent to dry swale edge drains immediately after each dry swale edge drain is installed.

Construct ditch dams with soil cement compacted to 95% proctor. The composition of the soil cement by dry weight shall be 5% pulverized bentonite, 10% Portland cement, and 85% soil. Prepare the soil cement using the central plant mixing method.

Key ditch dams into the swale bottom a minimum of 2.0 feet deep. Protect ditch dams with TRM 2 or higher as directed by the Engineer. Anchor the TRM with staples from 5 feet upstream of the dam toe to 5 feet downstream of the dam leeward toe.

Plant topsoil thickness shall be 6 inches. Natural concrete sand thickness shall be 24 inches. Drainage aggregate thickness shall be 9 inches.

999.3.06 Quality Acceptance

General Provisions 101 through 150.

The Contractor shall perform comprehensive inspections of the enhanced dry swales after every major storm event of 0.5 inches of rainfall or greater in a 24-hour period until the project has final acceptance by the Department. These inspections shall be performed in accordance with the criteria established in the Georgia Department of Transportation Stormwater System Inspection and Maintenance Manual (GDOT I&M Manual). Inspections shall be documented using the GDOT Enhanced Swale Inspection Checklist Form B-3 in Appendix B of the GDOT I&M Manual. Maintenance shall be performed as directed by the Engineer and the GDOT I&M Manual.

999.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

999.4 Measurement

Dry swale edge drains are measured for payment by linear feet (meters) installed and accepted. The outlet control structure and any outlet pipe are paid for separately.

999.4.01 Limits

General Provisions 101 through 150.

999.5 Payment

Specified dry swale edge drains are paid for at the contract price per linear foot (meter). The outlet control structure and any outlet pipe are paid for separately.

Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to install dry swale edge drains
- Installation of the drainage aggregate, pipe, 10 NS sand, filter fabric, and plant topsoil as shown in the details for construction of dry swale edge drains
- Any other incidentals, such as pipe fittings, required to install dry swale edge drains
- Comprehensive inspections and maintenance

Payment is made under:

Item No. 999	Dry swale edge drain	Per linear foot (meter)

999.5.01 Adjustments

General Provisions 101 through 150.