

**SECTION 334001
STORMWATER TREATMENT SYSTEM SPECIFICATION**

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

The manufacturer selected by the Contractor and approved by the Engineer, shall furnish all labor, materials, equipment and incidentals required to manufacture the stormwater treatment system(s) specified herein in accordance with the attached Drawing(s) and these specifications.

1.2 QUALITY CONTROL INSPECTION

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the worksite after delivery, or at both places, and shall be subject to rejection at any time if material conditions fail to meet substantially any of the specification requirements. If a Stormwater Treatment Unit is rejected after delivery to the site, it shall be marked for identification and removed from the site. The Stormwater Treatment Unit(s) which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer's and manufacturer's acceptance level, if permitted.

B. All sections shall be field inspected for general appearance, dimensions, soundness, etc.

1.3 SUBMITTALS

A. Plan, elevation, and profile dimensional drawings shall be submitted to the Engineer for review and approval. The Contractor shall be provided with the approved plan, elevation, and profile dimensional drawings.

PART 2 PRODUCTS

2.1 MATERIALS AND DESIGN

A. Concrete structures shall be designed for H-20 traffic loading and applicable soil loads or as otherwise determined by a Licensed Professional Engineer. The materials and structural design of the devices shall be per ASTM C857 and ASTM C858.

1. The minimum compressive strength of the concrete in the manhole base, riser, and top sections shall be 4000 psi.
2. The minimum wall thickness shall be one twelfth of the internal diameter of the riser or largest cone diameter.
3. Cement shall conform to the requirements for Portland cement of Specification C150.
4. Aggregates shall conform to Specification C33, except that the requirement for gradation shall not apply.
5. Reinforcement shall consist of wire conforming to Specification A82 or Specification A496, of wire fabric conforming to Specification A185 or Specification A497, or of bars of Grade 40 steel conforming to Specification A615/A615M.
6. The access cover shall be designed for HS20-44 traffic loading and shall provide a minimum 30 inch clear opening.

7. All joints shall be waterproof with wrapped gaskets or sealed with a mastic treatment.
 8. Any grout used within the system shall meet the ASTM C 1107 "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink)". Grades A, B and C at a pourable and plastic consistency at 70°F. CRD C 621 "Corps of Engineers Specification For Non-Shrink Grout."
 9. Storage manhole connector pipes shall be equipped with a seal gasket that meets or exceeds material specifications of ASTM C-923 or other locally approved methods.
- B. The separator structure shall be substantially constructed of HDPE or equivalent corrosion resistant material meeting ASTM D330, ASTM F412, and ASTM C-425.
 - C. Pipes within the unit, (i.e., tee pipes, connector pipes and down pipes) shall be constructed of at least SDR 32.5 HDPE pipe of standard ASTM F412.
 - D. Pipe and fitting material shall be high-density polyethylene meeting ASTM D330 minimum cell classification 335400C for 24-inch through 60-inch diameters. The 24- through 60- inch pipe material shall be slow crack resistant HDPE material, evaluated using the single point notched constant tensile load (SP-NCTL) test.
 - E. The reducer/adaptor to the mainline shall be installed with an exterior joining coupler. The joint coupler shall be Polyseal Pipe Coupler as manufactured by MarMac Manufacturing Company or an approved equal and shall be installed according to the manufacturer's recommendations.
 - F. The connector pipes shall be connected with the down pipes using Fernco® Flexible Couplings or approved equal that have been manufactured to conform to ASTM C-425.

2.2 PERFORMANCE

- A. The stormwater treatment unit shall be an online unit capable of conveying 100% of the design peak flow.
- B. The BaySeparator™ stormwater treatment unit or approved equal shall be designed to remove at least 80% of the suspended solids on an annual aggregate removal basis. Said removal shall be based on full-scale third party testing using F-95 media gradation (manufactured by US Silica) or equivalent. Said full scale testing shall have included sediment capture based on actual total mass collected by the Stormwater Treatment Unit .
- C. The stormwater treatment unit shall consist of one (1) prefabricated separator structure, one (1) online coarse sediment capture structure, and one (1) offline sediment and floatable capture structure. The separator structure shall be substantially constructed of HDPE or equivalent corrosion resistant material. The offline sediment storage structure must provide for offline sediment storage of sediments and floatables that are isolated from high intensity storms.
- D. The stormwater treatment unit(s) head loss at the Peak Design Flow Rate shall not exceed the head loss specified by the Engineer.
- E. The unit shall be designed to remove sediment particles as well as floating oils and debris.
- F. Individual stormwater treatment systems shall not resuspend trapped sediments.

2.3 MANUFACTURER

- A. The stormwater treatment unit(s) shall be of a basic design that has been installed and used successfully for a minimum of 10 years.

Proj. No. 450252
AASF Hangar Addition #2
McEntire JNGB
Eastover, South Carolina

L.T.C. Associates, Inc.
912 Lady Street
Columbia, South Carolina

- B. Each stormwater treatment system shall be a BaySeparator™ system as manufactured by BAYSAVER®, INC., 1302 Rising Ridge Rd, Unit 1, Mount Airy, MD 21771, Phone: (301) 829-6470, Fax: (301) 829-3747, Toll Free: 1-800-229-7283 (1-800-BaySaver), E-mail: Info@BaySaver, or engineer approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Installation of the Stormwater Treatment Unit(s) shall be performed per manufacturer's Installation Instructions.

PART 4 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for work set forth in this section; such costs will be considered as incidental to and included in the lump sum price bid for the project.

--End of Section 334001--