

ALABAMA DEPARTMENT OF TRANSPORTATION

DATE: March 28, 2013

Special Provision No. 12-0575

EFFECTIVE DATE: August 1, 2013

SUBJECT: Stormwater Turbidity Control.

Alabama Standard Specifications, 2012 Edition, shall be modified by the addition of the following Section 672:

SECTION 672 STORMWATER TURBIDITY CONTROL

672.01 Description.

This Section shall cover active and passive treatment methods of reducing the turbidity level of construction stormwater. Turbidity is typically the result of fine soil particles of erodible material exposed during construction, dislodged by precipitation and runoff, and subsequently suspended in stormwater. Conventional means of erosion and sediment control are not designed to remove turbidity from construction stormwater. Additional measures must be implemented to remove the suspended materials from the water. Chemical flocculants are used to increase the particle size of suspended materials making them easier to remove. Prior to discharging construction stormwater, flocculated materials should be removed to the maximum extent practicable.

Active treatment should be used as a supplement to passive treatment for stormwater discharges that do not meet water quality standards. Active treatment typically employs mechanical pumping of captured stormwater as the means of introducing flocculant prior to mechanical filtering of flocculated materials.

Passive treatment typically employs precipitation and runoff as the means of introducing flocculant prior to physical settling of flocculated materials, typically by means of filtering devices and sedimentation basins.

672.02 Materials.

(a) ACTIVE TREATMENT SYSTEM.

The Active Treatment System shall be designed to treat and reduce the turbidity level of construction stormwater discharges to meet state water quality standards and the requirements of the NPDES Construction General Permit at the flowrate required in the plans. The Active Treatment System flowrate specified is designed to dewater the basin within 10 hours. Typical equipment and materials may include pumps, manifolds, flocculants, filter bags, sand media filters and other items designed to remove suspended materials from construction stormwater. The Contractor shall submit to the Engineer the proposed Active Treatment System for review as part of the Contractor's Stormwater Management Plan that is described in Subarticle 108.04(b).

(b) FLOCCULANT.

Flocculant shall be of the type that is manufactured for use in reducing turbidity caused by soil erosion and sediment transport. All forms of Flocculant utilized on a project shall be compatible and shall be provided from a single manufacturer. Flocculant may be in the form of blocks, powder, sock sets or other non-liquid forms. Liquid forms of Flocculant may only be utilized in a monitored active treatment system. The Contractor shall be responsible for the testing of the project soil and potential sediment and for the proper selection of those Flocculants that have a soil specific chemical makeup. Flocculant application rates shall be per the manufacturer's recommendations.

A list of acceptable Flocculants (LIST II-24 "TEMPORARY EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT manual titled "Materials, Sources, and Devices with Special Acceptance Requirements". For Flocculants without prior acceptance, Contractor shall submit to the Engineer three copies of documentation of the effectiveness of the Flocculant, Material Safety Data Sheets, and the manufacturer's 7-day Chronic Ceriodaphnia Reproduction Testing for review and approval by the State Construction Engineer prior to use on the project.

(c) CONTRACTOR RETAINED TURBIDIMETERS.

Turbidimeters shall be devices capable of measuring the nephelometric turbidity units (NTU) of construction stormwater that meets the following requirements:

- Portable waterproof device that meets USEPA Method 180.1 with a 0-1000 NTU range;
- Sample Tubes, Calibration Kit, and Protective Carrying Case;
- Rechargeable Battery, USB Interface, Cable, and Computer Software.

A list of equipment acceptable for use in this application (List II-24 "TEMPORARY EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT manual titled "Materials, Sources, and Devices with Special Acceptance Requirements". Information concerning this list is given in Subarticle 106.01(f).

672.03 Construction Requirements.

(a) ACTIVE TREATMENT.

The Contractor shall provide an Active Treatment System at the locations given in the plans or as directed by the Engineer. Treated construction stormwater discharges that do not meet state water quality standards or that do not meet the requirements of the NPDES Construction General Permit (CGP) will not be allowed.

Active Treatment Systems will typically be utilized for the dewatering of sedimentation basins. Valves located on the outlet pipe of the basin dewatering device shall remain closed until such time that the potential discharge meets state water quality standards and the requirements of the NPDES CGP. If discharge standards are not met and the sedimentation basin volume reaches 2/3 full or there is forecasted rain, the Engineer will determine if the basin should be dewatered by means of the Active Treatment System. Weather permitting, discharges may be recirculated into sedimentation basins in an effort to achieve discharge standards. The Engineer may also direct dewatering by means of the Active Treatment System to facilitate sedimentation basin maintenance. The Contractor shall ensure proper Flocculant dosing of the Active Treatment System per the manufacturer's dosing recommendations to prevent the discharge of any harmful levels of Flocculant. The turbidity level of the Active Treatment System discharge and the effectiveness of the Flocculant shall be monitored by the Contractor and will be verified by the Engineer.

(b) PASSIVE TREATMENT.

The Contractor shall apply Flocculant at the locations given in the plans or as directed by the Engineer. Flocculant shall be introduced to flowing stormwater at locations such as ditch checks, temporary slope drains and forebays of sedimentation basins, prior to retention BMPs intended to promote settling and capture of flocculated material. Heavy sediment and sand should be captured prior to the location of the Flocculant application. Flocculant shall never be applied directly to live streams or waters of the state. Flocculant shall be applied in accordance with the Flocculant manufacturer's dosing recommendations and the requirements shown on the plans for construction stormwater turbidity reduction. The effectiveness of the Flocculant will be monitored by the Engineer. ALDOT and Contractor QCIs shall inspect Flocculant applications after each rain event to determine if the reapplication of Flocculant is needed.

(c) CONSTRUCTION STORMWATER SAMPLING AND TURBIDITY MONITORING.

When construction stormwater sampling and turbidity monitoring is required per Item 107.21(d)2., the Contractor shall furnish the required quantity of Turbidimeters for use by the Engineer. The Contractor shall provide documentation of professional calibration of the device prior to delivery to the project and shall maintain annual professional calibration during the time that it is required on the project. Daily calibration and required stormwater sample testing shall be performed by the Engineer. The Contractor shall immediately replace any Turbidimeters that are in need of annual professional calibration or are otherwise not properly functioning, without additional

compensation. The Contractor shall retain ownership of the device and will be notified once the Engineer determines that the device is no longer needed.

672.04 Method of Measurement.

(a) ACTIVE TREATMENT SYSTEM.

Active Treatment System (Item 672-A) will be measured per each.

(b) ACTIVE TREATMENT SYSTEM, OPERATING DAY.

Active Treatment System, Operating Day (Item 672-B) will be measured per each. Operating days shall be measured individually for each Active Treatment System.

(c) FLOCCULANT APPLICATION.

Flocculant Application (Item 672-C) will be measured per each based on the type of application (ditch check, temporary slope drain, sedimentation basin, or inlet protection).

(d) CONTRACTOR RETAINED TURBIDIMETERS.

Contractor Retained Turbidimeters (Item 672-D) will be measured per each.

672.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

Payment for Active Treatment System shall be full compensation for all equipment costs for a complete system designed to dewater at the required flowrate given in gallons per minute (GPM), including but not limited to delivery, installation, maintenance, and rental fees. Payment will not be made for the replacement of an Active Treatment System that does not produce discharges meeting requirements.

Payment for an Operating Day of the Active Treatment System shall be full compensation for all labor and material costs to operate one complete system at the required flowrate given in gallons per minute (GPM), for up to 10 hours, including but not limited to Flocculant, filter media, and other consumables. Payment shall only be made for operation directed by the Engineer.

Payment for flocculant shall be full compensation for testing (if required), furnishing and placing the flocculant.

Payment for the accepted Turbidimeter shall include furnishing of the device with all the required accessories and for any required calibrations. Payment shall be for the exclusive use of the device for the duration of the contract or until the Engineer determines that there will be no further need for the device.

(b) PAYMENT WILL BE MADE UNDER ITEM NO. :

- 672-A Active Treatment System, ____ GPM - per each
- 672-B Active Treatment System, ____ GPM, Operating Day - per each
- 672-C Flocculant Application, ____* - per each
- 672-D Contractor Retained Turbidimeter - per each

* Ditch Check, Temporary Slope Drain, Sedimentation Basin, or Inlet Protection