SP-150379a
(New)

SPECIAL PROVISIONS
FOR
CONSTRUCTION OF SHALE AND SOFT ROCK EMBANKMENTS

Dubuque County
NHSX-032-1(50)--3H-31

Effective Date
January 17, 2018

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150379a.01 DESCRIPTION.

A. This Special Provision describes the construction requirements for placing shale materials within the roadway embankment.

B. The following construction procedures shall be followed for all shale materials placed in the new embankments. The engineer will determine in the field which materials are classified as shale.

150379a.02 CONSTRUCTION.

The requirements for lift placement and compaction include:

A. Pulverize nondurable shale and soft rock to a maximum particle size less than 8 inches and place in 8 inch maximum loose lifts in nearly horizontal layers.

B. Water is required to be applied to the shale in the cut to accelerate the slaking action and again prior to disking and compaction.

1. Use water to aid in breaking down large particles and to bring the shale to at least 2% above optimum moisture content prior to disking and compaction.

2. Water is paid for on a volume basis.

C. The water is required to be uniformly incorporated throughout the entire lift by a multiple gang disk with a minimum disk wheel diameter of 24 inches.

D. The moisture content is required to be controlled within -1% and +4% of optimum moisture content following compaction.

E. The compaction is required to be done with an approved vibratory tamping-foot roller in conjunction with a static tamping-foot roller. Each tamping foot on the static roller is required to project from the drum a minimum of 6 inches. Each tamping foot on the vibratory roller is required to project from the drum a minimum of 4 inches.

Static rollers shall have a minimum weight of 15 tons. Contractor may use a vibratory roller with an equivalent centrifugal force. In all cases, submit documentation proving the minimum weight requirements are met.

F. Shale, shale and soft rock mixtures, or soft rock are required to be compacted to at least 95% of maximum dry density.

1. Maximum dry density shall be determined in accordance with ASTM D698 (Standard Proctor compaction).

2. Samples of shale for maximum dry density determination shall be crushed to a maximum particle size less than 2 inches prior to screening and preparation of compaction test specimens.

3. The field compacted density shall be measured with a calibrated nuclear gauge.

G. Unless otherwise approved in writing, each embankment lift is required to receive a minimum of three passes with the vibratory roller. Operate the roller at a uniform speed not exceeding 3 mph. A roller pass is defined as being one complete coverage of a given area. The material is required to be bladed before using the vibratory roller.

H. In addition to the density and moisture content requirements, each compacted lift shall be visually inspected to assure that the pulverization, disking, manipulation and compaction operations have broken the shale down into a material having a maximum particle size less than 2 inches. Test pits may be required to visually evaluate the compacted gradation. If significant amounts of coarser particles are present, additional watering, disking and compaction passes will be required to reduce the particle size of the shale.

150379a.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.

A. Construction of shale and soft rock embankments will not be measured or paid separately. All work described in this section, except added water, will be considered incidental to the price bid for Excavation, Class 12, Roadway and Borrow.

B. Water added to the site for the purpose of shale and soft rock embankment construction will be measured and paid in accordance with Articles 2107.04, B, 6 and 2107.05, B, 6, a of the Standard Specifications.