



**SPECIAL PROVISIONS
FOR
LIGHTWEIGHT FOAMED CONCRETE FILL**

**Woodbury County
IM-NHS-029-7(50)149--03-97**

**Effective Date
November 21, 2017**

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

150308.01 DESCRIPTION.

This work consists of providing and placing Lightweight Foamed Concrete Fill (LFCF) for the in-place plugging and abandonment of underground structures, at locations designated in the plans.

150308.02 MATERIALS.

Materials shall meet the following requirements:

- A.** Portland Cement and Portland Pozzolan Cement Type 1 meeting the requirements of Section 4101 of the Standard Specifications.
- B.** Air Entraining, water reducing, set retarding admixtures meeting the requirement of Section 4103 of the Standard Specifications
- C.** Pozzolans and admixtures (for accelerating, water reducing, retaining, improving the bond, etc.) may only be used if specifically designated and approved by the LFCF Manufacturer.
- D.** The foaming agent from the selected manufacturer to produce a LFCF Material, will comply with the following specifications:
 - 1.** Cast Density (after pumping) = 70 pcf maximum (Test Method ASTM C 796).
 - 2.** Unconfined Compressive Strength = 120 psi minimum at 28 days curing (Test Method ASTM C 796).
 - 3.** Coefficient of Permeability = 1×10^{-5} cm / sec at 13.8kPa (2.0 psi).

150308.03 CONSTRUCTION.

- A.** LFCF shall be a homogeneous mixture and all materials shall be approved prior to use.

- B.** The areas to be filled shall not have any standing water in it prior to placement of the LFCF. Ensure the LFCF remains above the water table at all times during construction.
- C.** Protect material before, during and after installation, and protect the work and materials of other trades. In the event of damage, immediately make replacements and repairs to the acceptance of the Engineer at no additional cost to the Contracting Authority.
- D.** If the LFCF must be placed in freezing conditions, consult the manufacturer as to what precautions are necessary to assure installation of an acceptable LFCF. LFCF shall not be placed at a temperature of less than 32°F, nor when freezing conditions are expected in less than 24 hours unless precautions are taken to maintain temperatures above freezing. Do not place LFCF on frozen ground.
- E.** Cure LFCF in accordance with the accepted installation plan.
- F.** Proportion, mix, and place LFCF using equipment approved by the manufacturer as indicated in the accepted LFCF placement plan. Once mixed, promptly convey the LFCF to the location of placement without excessive handling.
- G.** Place LFCF in lifts not exceeding 24 inches in depth, except where noted in the plans. Allow a minimum of 24 hours between subsequent lifts. Prior to verification of the minimum specified compressive strength by testing, additional lifts may be placed after the 24 hour minimum at the Contractor's risk. Remove and replace any material that does not meet the minimum specified strength within 28 days at no additional cost.
- H.** Move the discharge hose(s) sufficiently to ensure level filling through the specified fill area. Uneven filling is not permitted. The discharge hose length shall not exceed 800 feet in length.
- I.** Remove and replace any material that does not comply with the minimum specified criteria at no additional cost to the Contracting Authority.

150308.04 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.

LFCF will not be measured or paid for separately but shall be incidental to the work for the bid items associated with the plugging and filling of abandoned structures.