

**Flowable Fill
aka
“Cleveland LSM”**

Specification for Utility Trenches

Part I: Certificate of Compliance

Material must come from a plant with a current Certificate of Compliance demonstrating the ability of the mix design to meet the specified requirements. Certificates in excess of one year will not be accepted. Certificates must contain the name of supplier, date, contract number and mix design data on each delivery ticket.

Part II: Materials

All materials shall conform to the applicable requirements stated herein.

1. Cement shall be ASTM C-150 Type I.
2. **The use of Fly Ash is strictly prohibited.**
3. Fine Aggregate shall conform to ODOT Specification 703.03 Fine Aggregate for Mortar or Grout. (ODOT Construction and Materials Specifications most current edition). The use of spent foundry sand or core sand is strictly prohibited.

Part III: Performance Enhancing Admixture

An air-enhancing admixture shall be incorporated in the mix that will have the effect of lowering the water/cement ratio to between 95 and 105 lbs/cubic foot. The air entrained content for the mix shall be 30% to eliminate/minimize the excessive water and segregation. Compressive strengths shall have a range of 50 PSI to 80 PSI at 28 days will be required if additional excavation by machine or hand is required.

Approved Admixtures

Manufacturer	Product Name
a) Master Builders	Rheofill
b) Axim	Flow Air
c) W.R. Grace	DaraFill
d) Or approved equal	



Part IV: Flowable Fill Mix Design

The mix design shall be proportioned as follows:

Cement (Type I)	50 lbs/cubic yard
Sand (SSD)	2475 lbs./cubic yard
Water	25 gallons/cubic yard
Admixture (Air)	3 oz/cubic yard

Variations of the aforementioned mix design are strictly prohibited.

Part V: Application

- Flowable fill shall begin 12 inches above the top of pipe and continue in the trench to the concrete base.
- Material for pipe bedding and pipe zone to a maximum depth of 12 inches over the top of pipe shall be as specified by the utility.
- Exposed bolts and valves exposed in the trench should be wrapped with polyethylene material conforming to ODOT 748.07 (8 mil thick).
- Cover all joints in clay pipe in the trench area with polyethylene material before pouring flowable fill. Repair all observed openings in any pipe or manhole in the trench area prior to backfilling with flowable fill. Repair techniques shall be in accordance with the utility company's standard repair procedures.
- Contact the respective utility owner for repair procedures.