

LOW STRENGTH MORTAR BACKFILL

A. IN SITUATIONS WHERE UTILITIES CROSS HEAVILY TRAVELED STREETS OR IT MAY BE DIFFICULT TO GET ADEQUATE COMPACTION ON GRANULAR MATERIAL, LOW STRENGTH MORTAR BACKFILL WILL BE REQUIRED PER ODOT ITEM 613 TYPE 1 ONLY. THE CITY MAY REQUIRE THIS TYPE OF BACKFILL AT THEIR DISCRETION WITH THE COST BEING BORNE BY THE CONTRACTOR.

B. PRIOR TO INSTALLATION OF FLOWABLE FILL PRODUCTS ON SIDNEY WATER MAIN INSTALLATION PROJECTS, MIX DESIGNS AS IDENTIFIED BY THE HAMCIN MIXTURE CERTIFICATION NUMBER SHALL BE SUBMITTED FOR CITY ENGINEER APPROVAL. NO CHANGES SHALL BE MADE IN THE AMOUNTS OR SOURCES OF THE APPROVED MIX INGREDIENTS WITHOUT WRITTEN APPROVAL OF THE CITY ENGINEER. PRODUCTION INSPECTIONS AND TESTING OF THE APPROVED MIX DESIGNS MAY BE MADE BY THE CITY ENGINEER.

C. ALL MATERIAL UTILIZED IN THE PRODUCTION OF FLOWABLE FILL PRODUCTS SHALL MEET THE REQUIREMENTS OF THE CURRENT OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATION 613.02.

1. CEMENTITIOUS MATERIALS:

CEMENT MAY BE EITHER ASTM C 150, TYPE 1A OR ASTM C 150, TYPE 1 PORTLAND CEMENT.

1. FLY ASH:

FLY ASH MAY BE EITHER CLASS "C" OR CLASS "F" AND CONFORMING TO ASTM C618. CURRENT MATERIAL SAFETY DATA SHEETS (MSDS) FOR FLY ASH MATERIALS SHALL BE PROVIDED AS PART OF THE TESTING SUBMITTAL.

PROCEDURE FOR LABORATORY RESISTIVITY VALUE OF FLOWABLE FILL AFTER 24 HR. SATURATION:

1. PROPERTIES:

THE FINAL MIX SHALL HAVE THE REQUIRED STRENGTH, FILL THE VOIDS OF THE INTENDED USAGE, AND SET UP WITHIN 12 HOURS. SETUP IS DEFINED IN THE HAMCIN SPECIFICATIONS SECTION 2.2.1 OF THE PRODUCERS GUIDE AS A MINIMUM COMPRESSIVE STRENGTH OF 21 PSI.

2. DATA SUBMITTALS:

THE REQUIRED DATA SUBMITTALS FOR THE CITY ENGINEER'S APPROVAL ARE IDENTIFIED BELOW:

- A. IDENTIFICATION OF HAMCIN MIXTURE CERTIFICATION NUMBER FOR REFERENCE OF FLOWABLE FILL MIX DESIGN COMPONENTS.
- B. VERIFICATION OF MATERIAL PROPERTIES COMPLIANCE WITH THE CURRENT OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATION 613.02.
- C. CURRENT MATERIAL SAFETY DATA SHEETS (MSDS) FOR FLY ASH MATERIALS.
- D. ELECTRICAL RESISTIVITY TEST RESULTS WITH RESISTIVITY VALUE AND ASSOCIATED MOISTURE CONTENT, UNIT WEIGHT OF TEST SAMPLE, AND TEMPERATURE.
- E. TEN POINT SOIL EVALUATION RESULTS WITH OVERALL POINT RATING AND ASSOCIATED MEASUREMENTS FOR RESISTIVITY, pH, REDOX POTENTIAL, SULFIDES, AND MOISTURE.

3. INSPECTION:

THE CITY ENGINEER WILL CONDUCT RANDOM SAMPLING OF FLOWABLE FILL PRODUCTS USED ON CONSTRUCTION PROJECTS TO ASSURE COMPLIANCE. THIS TESTING WILL INCLUDE, BUT WILL NOT BE LIMITED TO, OBTAINING ELECTRICAL RESISTIVITY MEASUREMENTS OF IN-SITU FLOWABLE FILL PRODUCTS. ADDITIONALLY, THE CITY ENGINEER INSPECTION REPETITIVE RESERVE THE RIGHT TO REFUSE THE USE OF PRODUCTS THAT EXHIBIT CHARACTERISTICS IN THE FIELD THAT ARE NOT CONSISTENT WITH THE INTENT OF THE USE OF THE PRODUCT, I.E. SHRINKAGE, FLOWABILITY.

BORING/JACKING

A. MATERIALS.

CASING PIPE SHALL BE WELDED STEEL PIPE CONFORMING TO AWWA C-202. WITH BITUMINOUS OR PETROLEUM COATING.

B. INSTALLATION (CASING PIPE).

1. FURNISH PROCEDURE METHODS TO THE CITY FOR APPROVAL.
2. ALL METHODS AND PROCEDURES SHALL BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
3. ADEQUATELY SUPPORT ALL TRENCHES AND BORING/JACKING PITS.
4. INSTALL TO LINE AND GRADE SHOWN.

C. INSTALLATION (CARRIER PIPE).

1. PLACE CONDUITS IN CASING PIPE TO SAME RELATIVE POSITIONS AS ADJACENT DUCT BY USE OF SPACERS.
2. FILL THE SPACE BETWEEN CONDUITS INSIDE THE CASING PIPE WITH CLEAN SAND OR OTHER APPROVED MATERIALS AS APPROVED BY THE CITY.

STEEL CASING PIPE

A. STEEL PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.

B. JOINTS BETWEEN THE SECTIONS OF PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.

C. SIZE—A MINIMUM OF 4" GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE, EXCLUDING BELL SECTIONS.

D. A STEEL CASING PIPE WILL BE REQUIRED FOR STORM SEWER, WATER MAIN, AND SANITARY SEWER. SIZE OF THE CASING PIPE WILL NEED TO BE DESIGNED FOR EACH INDIVIDUAL INCIDENT AND APPROVED BY THE PUBLIC WORKS DIRECTOR.

WATERMAIN SIZE (INCHES)	DIAMETER NOMINAL (INCHES)	NOMINAL THICKNESS (INCHES)
	10 AND UNDER	0.188
	12 & 14	0.250
8	16	0.281
	18	0.312
12	20 & 22	0.344
16	24	0.375
	26	0.406
	28	0.438
20	30	0.469
	32	0.500
21	34 & 36	0.532
	38	0.562
	40	0.594
	42	0.625
	44 & 46	0.657
	48	0.688
	50	0.719
	52	0.750
	54	0.781
	56 & 58	0.812
	60	0.844
	62	0.875
	64	0.906
	66 & 68	0.938
	70	0.969
	72	1.000



LOW STRENGTH MORTAR BACKFILL AND BORING/JACKING

REVISIONS:
07-22-13

DATE APPROVED:
06/03/2020

PAGE No.
500-3