



DEPARTMENT OF PUBLIC WORKS & UTILITIES  
ENGINEERING DIVISION

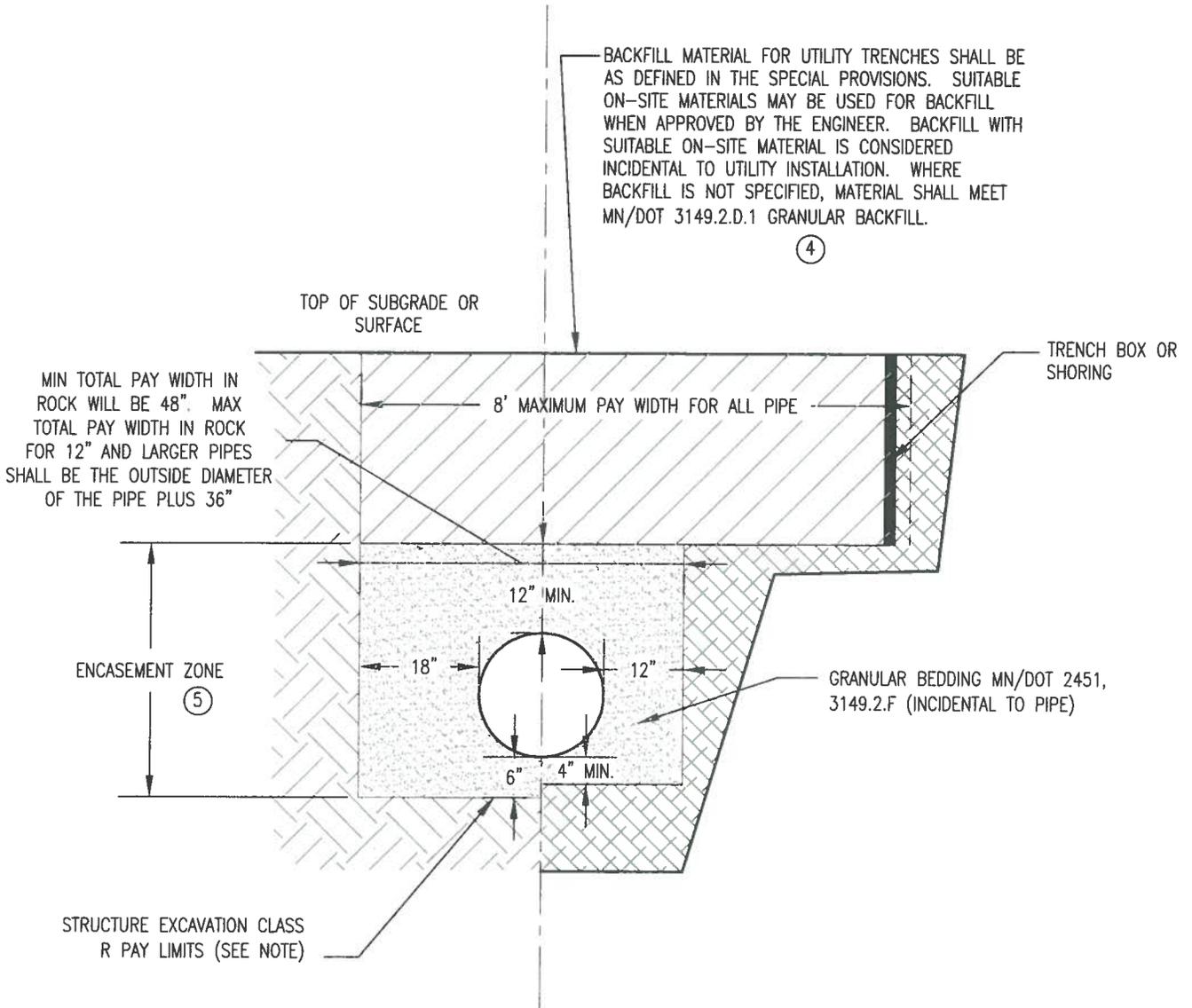
APPENDIX D  
STANDARD DETAIL DRAWINGS

### EXCAVATION DETAILS

- EX-1 DUCTILE IRON, PE WATERMAIN, PRESSURE SEWER, & FORCEMAIN BEDDING
- EX-2 ALL STEEL & 6" AND LARGER PE GAS MAIN BEDDING
- EX-3 PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING
- EX-4 CONCRETE STORM SEWER BEDDING

ROCK SECTION

UNDISTURBED GROUND SECTION



NOTES:

1. TRENCH STABILIZATION MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
2. A MIN. OF 1 CU. YD. OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
3. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
4. ABOVE THE PIPE ENCASEMENT ZONE, COMPACT BACKFILL MATERIALS TO MEET 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE TOP OF SUBGRADE; AND 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY

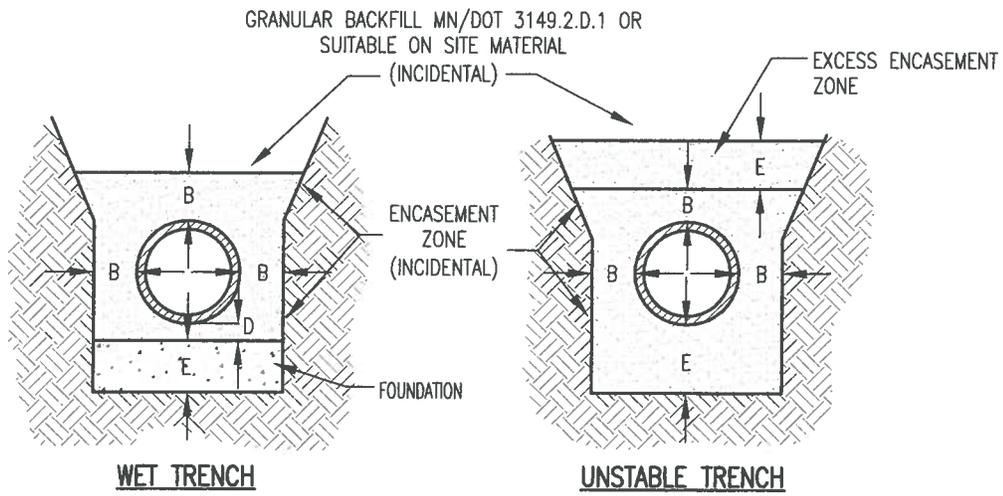
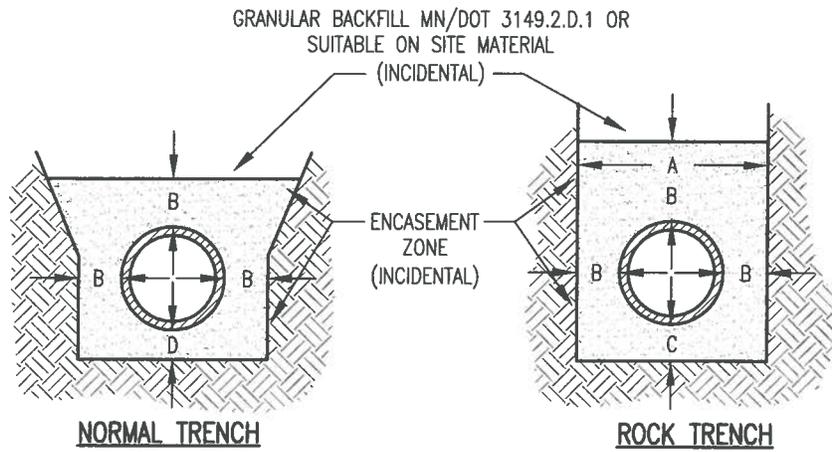
DUCTILE IRON, PE WATERMAIN, PRESSURE SEWER, & FORCEMAIN BEDDING

EX-1

REVISED/APPROVED 2/19/2015

CITY OF DULUTH STANDARD DETAIL  
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



1. DIMENSIONS:
  - A. MAXIMUM PAY WIDTH - O.D. PIPE +24"
  - B. MINIMUM - 6"
  - C. 6" BELOW PIPE
  - D. 4" BELOW PIPE
  - E. DETERMINED BY THE ENGINEER
2. ENCASEMENT MATERIAL TO BE MN/DOT 2451, 3149.2.F GRANULAR BEDDING (INCIDENTAL TO PIPE)
3. FOUNDATION MATERIAL SHALL BE GRADED AS FOLLOWS:

SIEVE SIZE	FOUNDATION
2"	100
1"	85-100
3/4"	30-60
3/8"	0-10

ALL STEEL & 6" AND LARGER PE GAS MAIN BEDDING DETAIL

EX-2

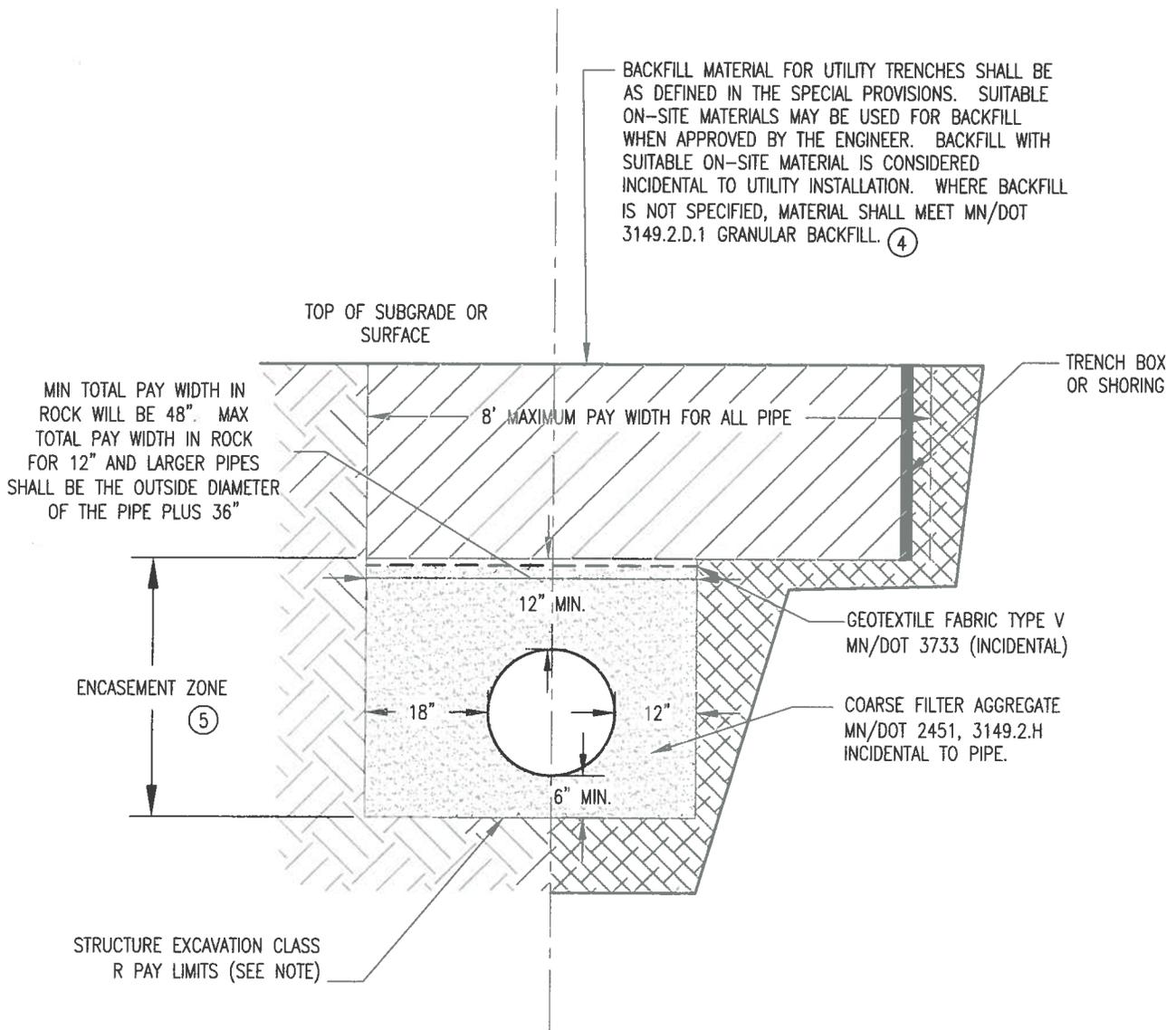
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PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING DETAIL

EX-3

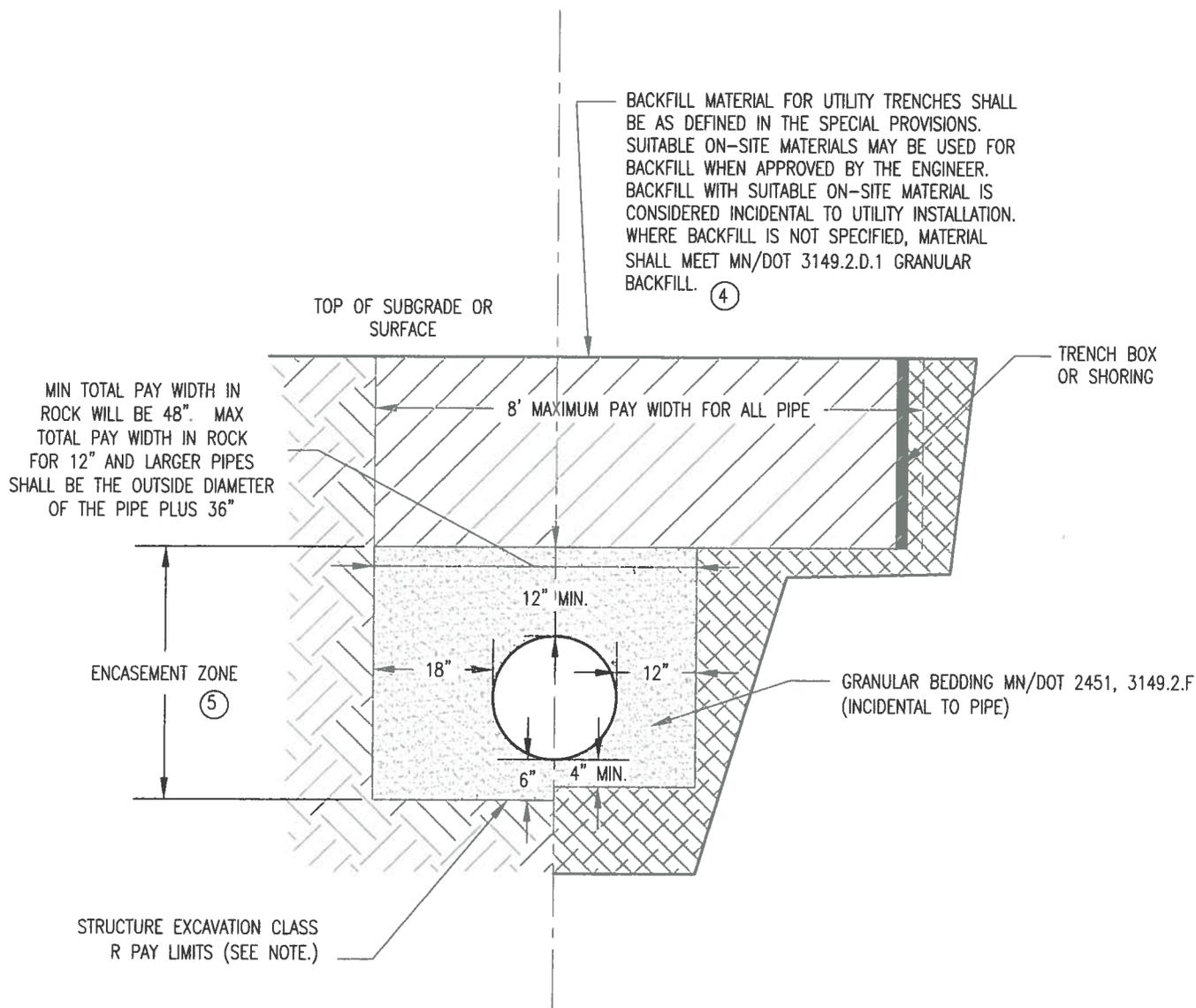
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CONCRETE STORM SEWER BEDDING

EX-4

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