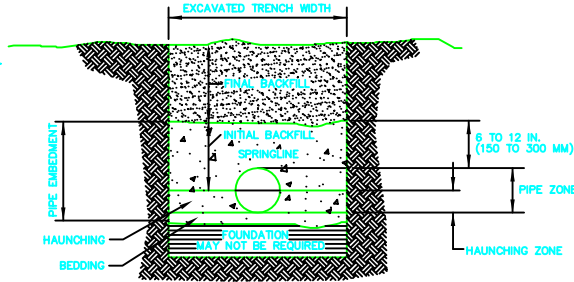


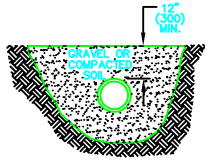
GRANULAR FOUNDATION TRENCH

**CLASS B**

GRANULAR FOUNDATION EMBANKMENT



TRENCH CROSS SECTION SHOWING TERMINOLOGY



OPEN DITCH INSTALLATION



GRANULAR FOUNDATION TRENCH

**CLASS C**

GRANULAR FOUNDATION EMBANKMENT

HIGH DENSITY CORRUGATED POLYETHYLENE PIPE  
HEIGHT OF COVER  
H-20 AND E-80 LIVE LOADS

| NOMINAL DIAMETER<br>IN. (MM) | MINIMUM COVER<br>IN. & (MM) |          | MAXIMUM COVER<br>FT. (M) |
|------------------------------|-----------------------------|----------|--------------------------|
|                              | H-20                        | E-80     |                          |
| 12 (300)                     | 12 (300)                    | 24 (600) | 58 (18)                  |
| 15 (375)                     | 12 (300)                    | 24 (600) | 59 (18)                  |
| 18 (450)                     | 12 (300)                    | 24 (600) | 62 (19)                  |
| 24 (600)                     | 12 (300)                    | 24 (600) | 61 (19)                  |
| 30 (750)                     | 12 (300)                    | 24 (600) | 61 (19)                  |
| 36 (900)                     | 12 (300)                    | 24 (600) | 61 (19)                  |

MULTIPLE INSTALLATION OF  
POLYETHYLENE PIPES

| DIAMETER OF PIPE<br>IN. (MM) | CLEAR DISTANCES<br>BETWEEN PIPES |        |
|------------------------------|----------------------------------|--------|
|                              | FT.                              | (M)    |
| 18 (450)                     | 1' 2"                            | (0.36) |
| 24 (600)                     | 1' 5"                            | (0.44) |
| 30 (750)                     | 1' 8"                            | (0.52) |
| 36 (900)                     | 1' 11"                           | (0.60) |

STRUCTURAL DESIGN CALCULATIONS BASED UPON LOAD FACTOR  
DESIGN METHODOLOGY PER AASHTO.

CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

| CLASS | TYPE   | SOIL GROUP<br>SYMBOL<br>D 2487 | DESCRIPTION  | PERCENTAGE PASSING SIEVE SIZES |                                  |                          |
|-------|--|--------------------------------|--|--------------------------------|----------------------------------|--------------------------|
|       |  |                                |  | 1 1/2 IN.<br>(40 MM)           | NO. 4<br>(4.75 MM)               | NO. 200<br>(0.075<br>MM) |
| IA    | MANUFACTURED AGGREGATES<br>OPEN-GRADED, CLEAN.                 | NONE                           | ANGULAR, CRUSHED STONE OR<br>ROCK, CRUSHED GRAVEL,<br>BROKEN CORAL, CRUSHED SLAG,<br>CINDERS OR SHELLS; LARGE VOID<br>CONTENT, CONTAIN LITTLE OR NO<br>FINES.  | 100 %                          | ≤10 %                            | <5 %                     |
| IB    | MANUFACTURED, PROCESSED<br>AGGREGATES; DENSE-<br>GRADED, CLEAN | NONE                           | ANGULAR, CRUSHED STONE (OR<br>OTHER CLASS IA MATERIALS)<br>AND STONE/SAND MIXTURES<br>WITH GRADATIONS SELECTED TO<br>MINIMIZE MIGRATION OF ADJA-<br>CENT SOILS; CONTAIN LITTLE OR<br>NO FINES (SEE XI.B.). | 100 %                          | ≤50 %                            | <5 %                     |
| II    | COARSE-GRAINED SOILS, CLEAN                                    | GW                             | WELL-GRADED GRAVELS AND<br>GRAVEL-SAND MIXTURES; LITTLE<br>OR NO FINES.  | 100 %                          | <50 %<br>"COARSE<br>FRACTION"    | <5 %                     |
|       |  | GP                             | POORLY-GRADED GRAVELS AND<br>GRAVEL-SAND MIXTURES; LITTLE<br>OR NO FINES.  |                                |                                  |                          |
|       |  | SW                             | WELL-GRADED SANDS AND GRAV-<br>ELY SANDS; LITTLE OR NO FINES.  |                                |                                  |                          |
|       |  | SP                             | POORLY-GRADED SANDS AND<br>GRAVEL SANDS; LITTLE OR NO<br>FINES.  |                                |                                  |                          |
|       | COARSE-GRAINED SOILS, BOR-<br>DERLINE CLEAN TO W/FINES         | E.G. GW-GC,<br>SP-SM.          | SANDS AND GRAVELS WHICH ARE<br>BORDERLINE BETWEEN CLEAN<br>AND WITH FINES.   | 100 %                          | VARIES                           | 5 % TO<br>12 %           |
| III   | COARSE-GRAINED SOILS, WITH<br>FINES                            | GM                             | SILTY GRAVELS, GRAVEL-SAND SILT<br>MIXTURES.   | 100 %                          | <50 % OF<br>"COARSE<br>FRACTION" | 12 % TO<br>50 %          |
|       |  | GC                             | CLAYEY GRAVELS, GRAVEL-SAND-<br>CLAY MIXTURES.   |                                |                                  |                          |
|       |  | SM                             | SILTY SANDS, SAND-SILT<br>MIXTURES.  |                                |                                  |                          |
|       |  | SC                             | CLAYEY SANDS, SAND-CLAY MIX-<br>TURES.   |                                |                                  |                          |

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Jason Blum, Director of Engineering Services  
Jason Blum, Civil Engineer

| REVISIONS |             |
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| Number    | Description |
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Project Number:  
Project Location:  
Sheet Title:  
STANDARD HDPE 12" TO 36"  
CORRUGATED DRAINAGE PIPE  
TRENCH AND BACKFILL DETAILS  
Project Title:  
DD-13 SHT. 2 OF 2



Date: 2/24/95  
Scale: N.T.S.  
File: G:\DATA\SPCS\0013.DWG  
Drawn By: TOR  
Designed By: TOR  
Approved By: RH  
Sheet:  
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