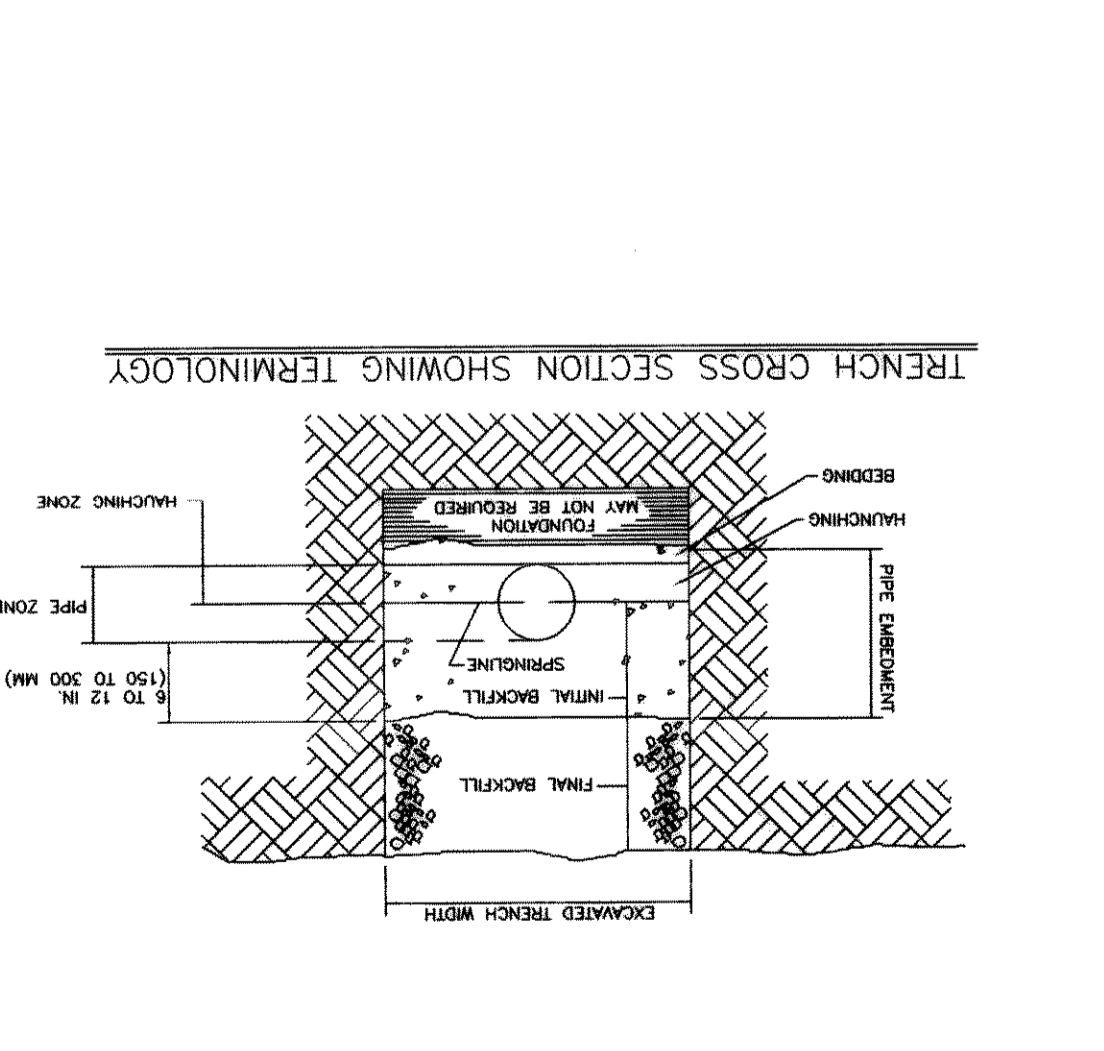


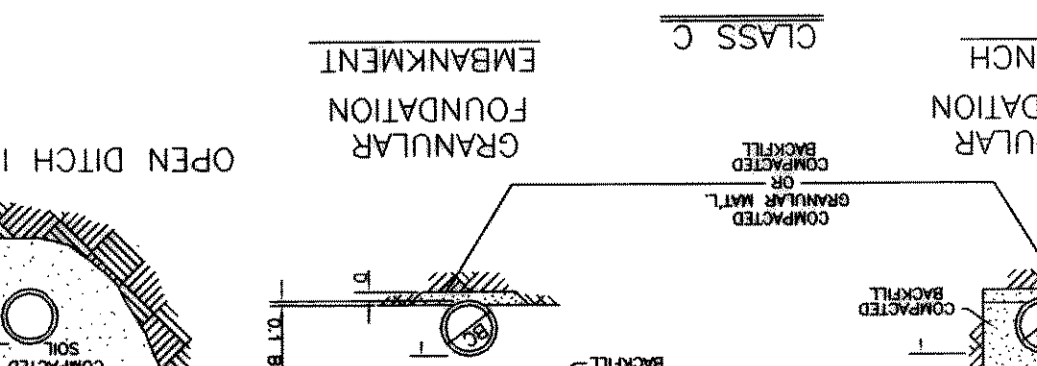
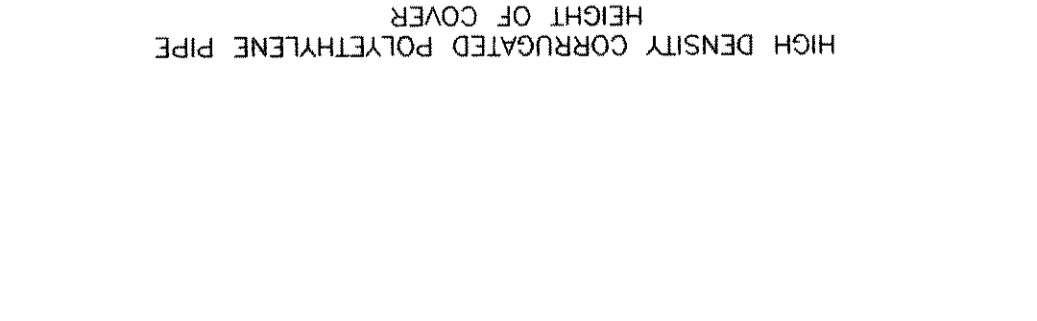
RECOMMENDATIONS FOR INSTALLATION AND USE OF SOILS AND AGGREGATES FOR FOUNDATION, EMBEDMENT AND BACKFILL

SOIL CLASS	CLASS IA	CLASS IB	CLASS II	CLASS III
GENERAL RECOMMENDATIONS	DO NOT USE WHERE CONDITIONS AND RESTRICTIONS	DO NOT USE WHERE CONDITIONS AND RESTRICTIONS	DO NOT USE WHERE WATER CONDITIONS IN TRENCH MAY CAUSE INSTABILITY	DO NOT USE WHERE WATER CONDITIONS IN TRENCH MAY CAUSE INSTABILITY
FOUNDATION	SUITABLE AS FOUNDATION AND FOR REPLACING OVER-EXCAVATED AND UNSTABLE TRENCH BOTTOM AS RESTRICTED	SUITABLE AS FOUNDATION AND FOR REPLACING OVER-EXCAVATED AND UNSTABLE TRENCH BOTTOM AS RESTRICTED	SUITABLE AS RESTRICTED FOUNDATION	SUITABLE AS RESTRICTED FOUNDATION
HAUNCHING	SUITABLE AS RESTRICTED IN MAXIMUM LAYERS	SUITABLE AS RESTRICTED IN MAXIMUM LAYERS	SUITABLE AS RESTRICTED IN MAXIMUM LAYERS	SUITABLE AS RESTRICTED IN MAXIMUM LAYERS
INTIAL BACKFILL	SUITABLE AS RESTRICTED TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	SUITABLE AS RESTRICTED TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	SUITABLE AS RESTRICTED TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	SUITABLE AS RESTRICTED TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.
EMBEDMENT	PLACE AND WORK BY HAND TO INSURE ALL EXCAVATED AREAS ARE FILLED. FOR BRITORY COMPACTORS, MINIMUM OF 8 IN. COMPACT TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	PLACE AND WORK BY HAND TO INSURE ALL EXCAVATED AREAS ARE FILLED. FOR BRITORY COMPACTORS, MINIMUM OF 8 IN. COMPACT TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	PLACE AND WORK BY HAND TO INSURE ALL EXCAVATED AREAS ARE FILLED. FOR BRITORY COMPACTORS, MINIMUM OF 8 IN. COMPACT TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.	PLACE AND WORK BY HAND TO INSURE ALL EXCAVATED AREAS ARE FILLED. FOR BRITORY COMPACTORS, MINIMUM OF 8 IN. COMPACT TO A MINIMUM OF 6 IN. ABOVE PIPE CROWN.
FINAL BACKFILL	COMPACT AS REQUIRED BY THE ENGINEER.	COMPACT AS REQUIRED BY THE ENGINEER.	COMPACT AS REQUIRED BY THE ENGINEER.	COMPACT AS REQUIRED BY THE ENGINEER.



STRUCTURAL DESIGN CALCULATIONS BASED UPON LOAD FACTOR

PIPE DIA. (IN.)	PIPE DIA. (MM)	MINIMUM COVER (IN.)	MINIMUM COVER (MM)	MAXIMUM COVER (IN.)	MAXIMUM COVER (MM)
12	300	12	300	24	600
15	375	12	300	24	600
18	450	12	300	24	600
24	600	12	300	24	600
30	750	12	300	24	600
36	900	12	300	24	600
42	1050	12	300	24	600
48	1200	12	300	24	600



AREA DRAIN DETAILS

- GENERAL NOTES:
- MATERIALS: UNLESS OTHERWISE SPECIFIED ON THE PLANS CONFORM TO AASHTO M-294, LATEST EDITION.
 - RESINS: CORRUGATED POLYETHYLENE PIPE SHALL BE MANUFACTURED FROM HIGH DENSITY POLYETHYLENE WITH AN INHERENT RESIN CONTENT OF 28.0% TO 32.0% FOR THE CELL CLASSIFICATION 324420C.
 - COUPLING BANDS: EXCEPT AS OTHERWISE REQUIRED HEREIN, COUPLING BANDS AND OTHER HARDWARE FOR CORRUGATED POLYETHYLENE PIPE SHALL DEMONSTRATE THAT THEY MEET THE SOIL STRENGTH REQUIREMENTS OF AASHTO SECTION 26.4.2.4 "STANDARD" SPECIFICATIONS FOR HIGHWAY BRIDGES.
 - COUPLING BANDS SHALL LAP EQUALLY ON EACH OF THE PIPES BEING CONNECTED TO FORM A TIGHTLY CLOSED JOINT AFTER INSTALLATION.
 - THE CORRUPTIONS IN THE BAND SHALL INDEX THE CORRUPTIONS IN THE PIPE ENDS TO ENSURE THE FIRST OR SECOND CORRUPTION FROM THE END OF EACH PIPE WHEN INFILTRATION OF EXFILTRATION IS A CONCERN. THE MATERIAL SHALL BE REQUIRED TO HAVE GASKETS, THE GASKET MATERIAL MAY BE REQUIRED TO HAVE EXPANDED RUBBER OR NEOPRENE.

WHEN USING MECHANICAL COMPACTORS AVOID CONTACT WITH PIPE WHEN COMPACTING OVER PIPE CROWN MAINTAIN A MINIMUM OF 6 IN. COVER WHEN USING SMALL MECHANICAL COMPACTORS. WHEN USING LARGER COMPACTORS MAINTAIN MINIMUM CLEARANCES AS REQUIRED BY THE ENGINEER.

DESIGNATION OF TYPE: THE TYPES OF PIPE WILL BE INDICATED BY THE FOLLOWING DESCRIPTIONS:

TYPE C: THIS PIPE WILL HAVE A FULL CIRCULAR CROSS-SECTION, WITH A CORRUGATED SURFACE BOTH INSIDE AND OUTSIDE.

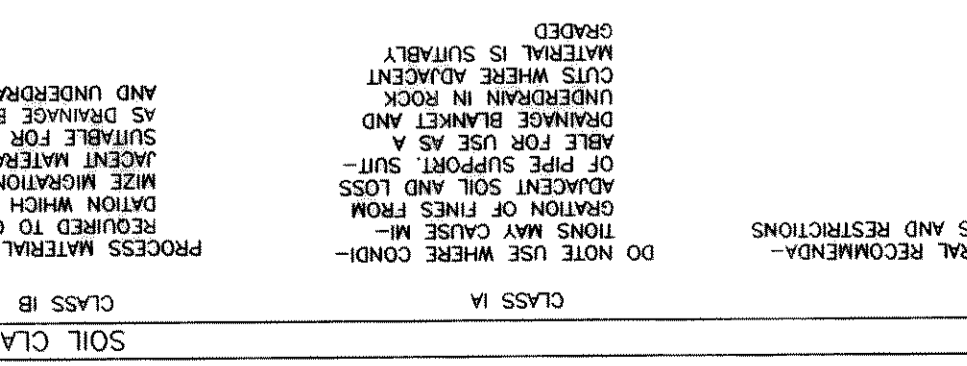
TYPE S: THIS PIPE WILL HAVE A FULL CIRCULAR CROSS-SECTION, WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINER.

TYPE D: THIS PIPE SHALL CONSIST OF AN ESSENTIALLY SMOOTH WATERWAY BRACED CIRCUMFERENTIALLY WITH CIRCULAR RIBS WHICH ARE FORMED SIMULTANEOUSLY WITH A SMOOTH COARSE-GRAINED SOILS, BOR-OC, SANDS AND GRAVELS WHICH ARE DEFINED CLEAN TO FINES.

INSTALLATION: CORRUGATED POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH AASHTO D-2321, LATEST EDITION, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS."

TRENCH WIDTH BASED ON OUTSIDE DIAMETER

PIPE (INSIDE) DIAMETER	TRENCH WIDTH	IN. (MM)	FT. (M)
15 (375)	3.0 (76)	3.0 (76)	1.0 (0.36)
18 (450)	3.2 (81)	3.2 (81)	1.0 (0.36)
24 (600)	3.9 (99)	3.9 (99)	1.2 (0.44)
30 (750)	4.8 (122)	4.8 (122)	1.5 (0.52)
36 (900)	5.4 (137)	5.4 (137)	1.7 (0.60)
42 (1050)	6.9 (175)	6.9 (175)	2.2 (0.88)
48 (1200)	7.4 (188)	7.4 (188)	2.5 (0.76)



ADS OR HANCOR PIPE INSTALLATION DETAILS FOR STORM DRAIN LINES

MULTIPLE INSTALLATION OF POLYETHYLENE PIPES

CLASS	TYPE	DESCRIPTION	PERCENTAGE PASSING SIEVE SIZES	NO. 4 (4.75 MM)	NO. 10 (2.0 MM)	NO. 20 (0.85 MM)
IA	MANUFACTURED, DENSE-ANGULAR, CRUSHED GRAVEL	MANUFACTURED, DENSE-ANGULAR, CRUSHED GRAVEL, BROKEN COALS, CRUSHED ROCK, CRUSHED GRAVEL, SANDS, GRAVELS AND OTHER MATERIALS, CONTAIN LITTLE OR NO FINES.	< 5 %	100 %	100 %	100 %
IB	MANUFACTURED, DENSE-ANGULAR, CRUSHED GRAVEL	MANUFACTURED, DENSE-ANGULAR, CRUSHED GRAVEL, BROKEN COALS, CRUSHED ROCK, CRUSHED GRAVEL, SANDS, GRAVELS AND OTHER MATERIALS, CONTAIN LITTLE OR NO FINES.	< 5 %	100 %	100 %	100 %
II	COARSE-GRAINED SOILS, CLEAN	WELL-GRADED SANDS AND GRAVELS, GRAVELS AND SANDS, LITTLE OR NO FINES.	< 5 %	100 %	100 %	100 %
III	COARSE-GRAINED SOILS, WITH FINES	SILT, CLAY, GRAVELS, GRAVEL-SAND MIXTURES, SAND-SILT MIXTURES, SAND-CLAY MIXTURES, CLAY SANDS, SAND-CLAY MIXTURES.	< 5 %	100 %	100 %	100 %

