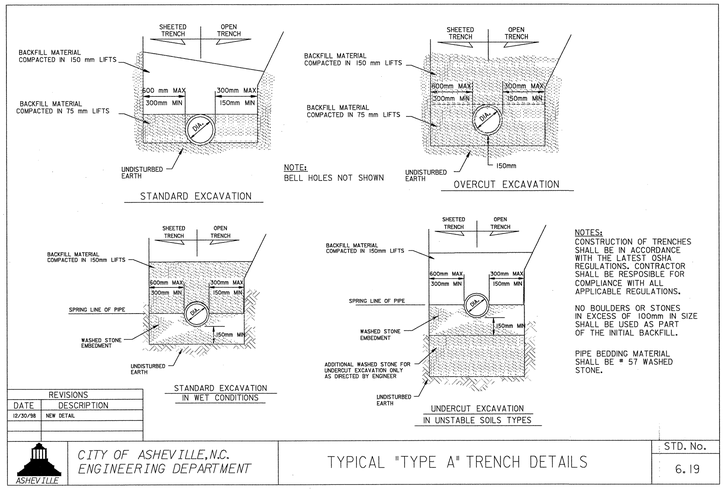


NOTES:
CONSTRUCTION OF TRENCHES SHALL BE IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS. CONTRACTOR SHALL BE RESPOSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REGULATIONS.

NO BOULDERS OR STONES IN EXCESS OF 100mm IN SIZE SHALL BE USED AS PART OF THE INITIAL BACKFILL.

PIPE BEDDING MATERIAL SHALL BE # 57 WASHED STONE.

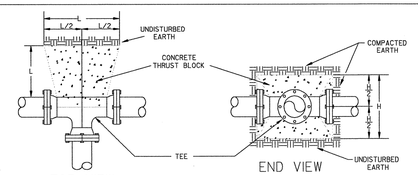
REVISIONS	
DATE	DESCRIPTION
12/30/98	NEW DETAIL

CITY OF ASHEVILLE, N.C.
ENGINEERING DEPARTMENT

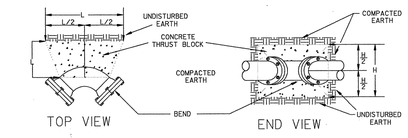
TYPICAL "TYPE A" TRENCH DETAILS

STD. No. 6.19

101



TYPICAL THRUST BLOCK FOR TEES
NTS



TYPICAL THRUST BLOCK FOR BENDS
NTS

NOTES:

1. ALL FITTINGS MUST BE RESTRAINED WITH MECH. JOINT RETAINER GLANDS IN ADDITION TO THRUST BLOCKS. 600 mm PIPE AND LARGER SHALL BE "RESTRAINED JOINT PIPE." MECH. JOINT, RETAINER GLANDS, AND THRUST BLOCKS SHALL NOT BE USED UNLESS APPROVED BY THE ENGINEER.
2. DIMENSION TABLE GIVEN IS A GUIDE ONLY. ENGINEER SHALL BE RESPONSIBLE TO CALCULATE THRUST BLOCK DIMENSIONS BASED ON ACTUAL SOIL AND OPERATING PRESSURE CONDITIONS.
3. FITTING JOINTS SHALL BE KEPT FREE OF CONCRETE. A LAYER OF POLYETHYTLINE PLASTIC SHALL BE PLACED BETWEEN THE FITTING AND THE CONCRETE.
4. PRE-CAST THRUST BLOCKS ARE NOT ACCEPTABLE.
5. CONCRETE SHALL HAVE 27.6 MPa COMPRESSIVE STRENGTH.

REVISIONS	
DATE	DESCRIPTION
08/99	
09/00	27.6 MPa CONCRETE SPECIFIED

CITY OF ASHEVILLE, N.C.
ENGINEERING DEPARTMENT

THRUST BLOCKS FOR FITTINGS

STD. No. 6.13

108

PROJECT REFERENCE NO.	SHEET NO.
R-2813C	UC-19
R /W SHEET NO.	

CONST.REV.

R /W REV.

Kimley-Horn and Associates, Inc.
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10952 4/16/2004 KEVIN F. CARTER

UTILITY CONSTRUCTION

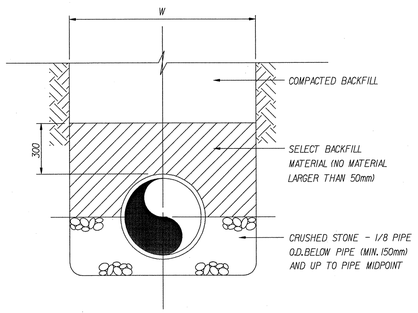
NOTES:

1. *CONCRETE THRUST BLOCKS ARCH/ENCASEMENTS ETC. SHALL BE FORMED USING PLYWOOD OR SANDBAGS. TO PROVIDE REQUIRED SHAPE.*

CONCRETE THRUST BLOCK SCHEDULE*									
PIPE SIZE (mm)	BEND								DESIGN PRESSURE (MPa)
	90º/TEE		45º		22 1/2º		5 5/8º & 11 1/4º		
	H	L	H	L	H	L	H	L	
150	.670	1.370	.490	8.380	.365	.700	.245	.520	2.41
200	.884	1.770	.640	13.100	.460	.950	.335	.670	2.41
300	1.310	2.590	.950	1.920	.670	1.370	.490	.975	2.41
400	1.705	3.410	1.250	2.530	.885	1.800	.640	1.280	2.41
600	2.520	5.090	1.860	3.720	1.340	2.650	.945	1.890	2.41
750	3.140	6.310	2.315	4.630	1.650	3.290	1.160	2.350	2.41
900	3.780	7.525	2.770	5.550	1.980	3.960	1.400	2.800	2.41
1050	4.390	8.750	3.230	6.430	2.290	4.600	1.615	3.260	2.41
1200	5.000	10.000	3.690	7.350	2.620	5.240	1.860	3.720	2.41
1300	5.610	11.250	4.150	8.260	2.950	5.910	2.100	4.175	2.41

* BASED ON AVERAGE SOIL PASSIVE BEARING STRENGTH OF 95.764 KPa USING SF OF 1.5
* H AND L DISTANCES ARE IN METERS

110

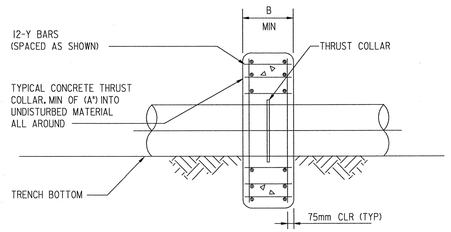


TYPE B

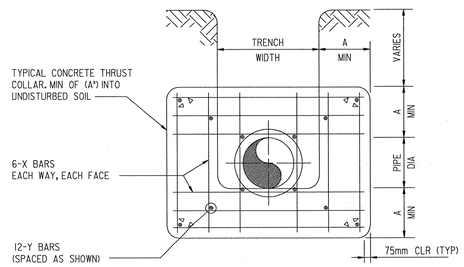
102

TRENCH EXCAVATION LIMITS		
INTERNAL DIAMETER OF PIPE	W WIDTH OF TRENCH	
	MAX	W=MIN
100-150	1125	600
200-250	1125	650
300	1125	O.D.+600mm
350-400	1250	O.D.+600mm
450	1300	O.D.+600mm
500-525	1400	O.D.+600mm
600	1475	O.D.+600mm
650	1725	O.D.+600mm
750	1975	O.D.+600mm
900	2200	O.D.+600mm
1050	2450	O.D.+600mm
1200	2625	O.D.+600mm
1350	2800	O.D.+600mm
1500	2925	O.D.+600mm
1800	3300	O.D.+600mm
1950	3500	O.D.+600mm
2100	3600	O.D.+600mm
2250	3750	O.D.+600mm
2400	3900	O.D.+600mm
2700	4200	O.D.+600mm

W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.



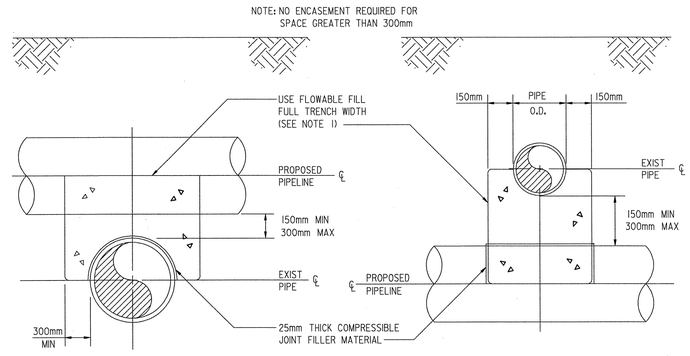
ELEVATION



THRUST COLLAR

PIPE SIZE	X BARS	Y BARS	A	B
150-900mm	#5	#5	400mm	480mm
1050mm& >	#6	#6	500mm	530mm

107



PROPOSED PIPELINE OVER EXIST PIPE

PROPOSED PIPELINE UNDER EXIST PIPE

TYPICAL PIPE SUPPORT
(SEE NOTE 1)

109

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