

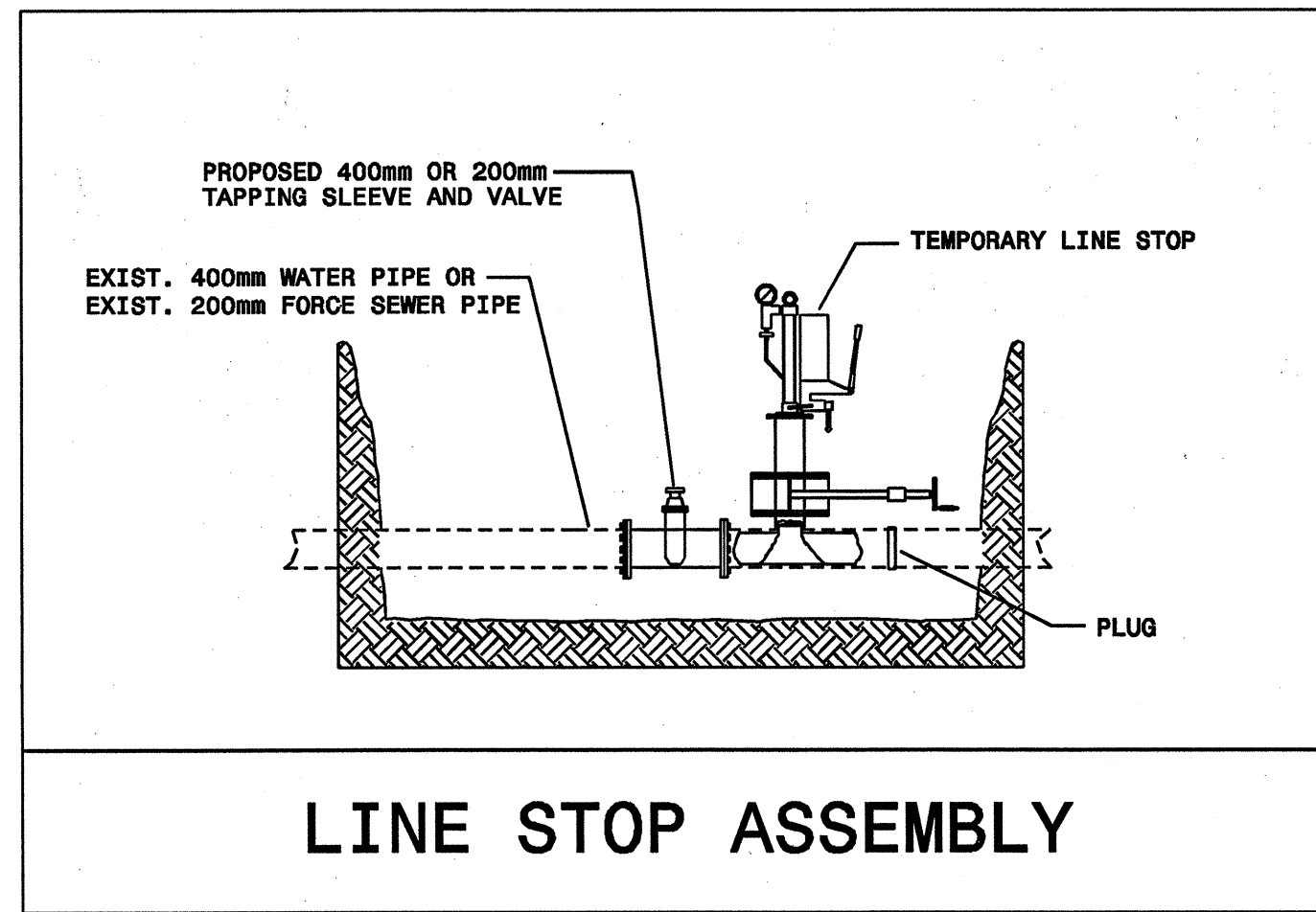
REVISIONS

PROJECT REFERENCE NO. **R-0977A** SHEET NO. **UC-14**  
 R/W SHEET NO.  
**Municipal Engineering Services**  
 P.O. BOX 278 MORRISVILLE, N.C. 27555  
 P.O. BOX 249 ROANoke, N.C. 24060  
 P.O. BOX 1712-2001 RALEIGH, N.C. 27617  
 NOT TO SCALE  
 CONST. REV.  
 R/W REV.  
 NORTH CAROLINA SEAL  
 JIMMY D. WOODIE  
 12/07/2004  
 UTILITY CONSTRUCTION DRAWINGS  
 I. REVISED SHEET NO. 12-06-04 LCH

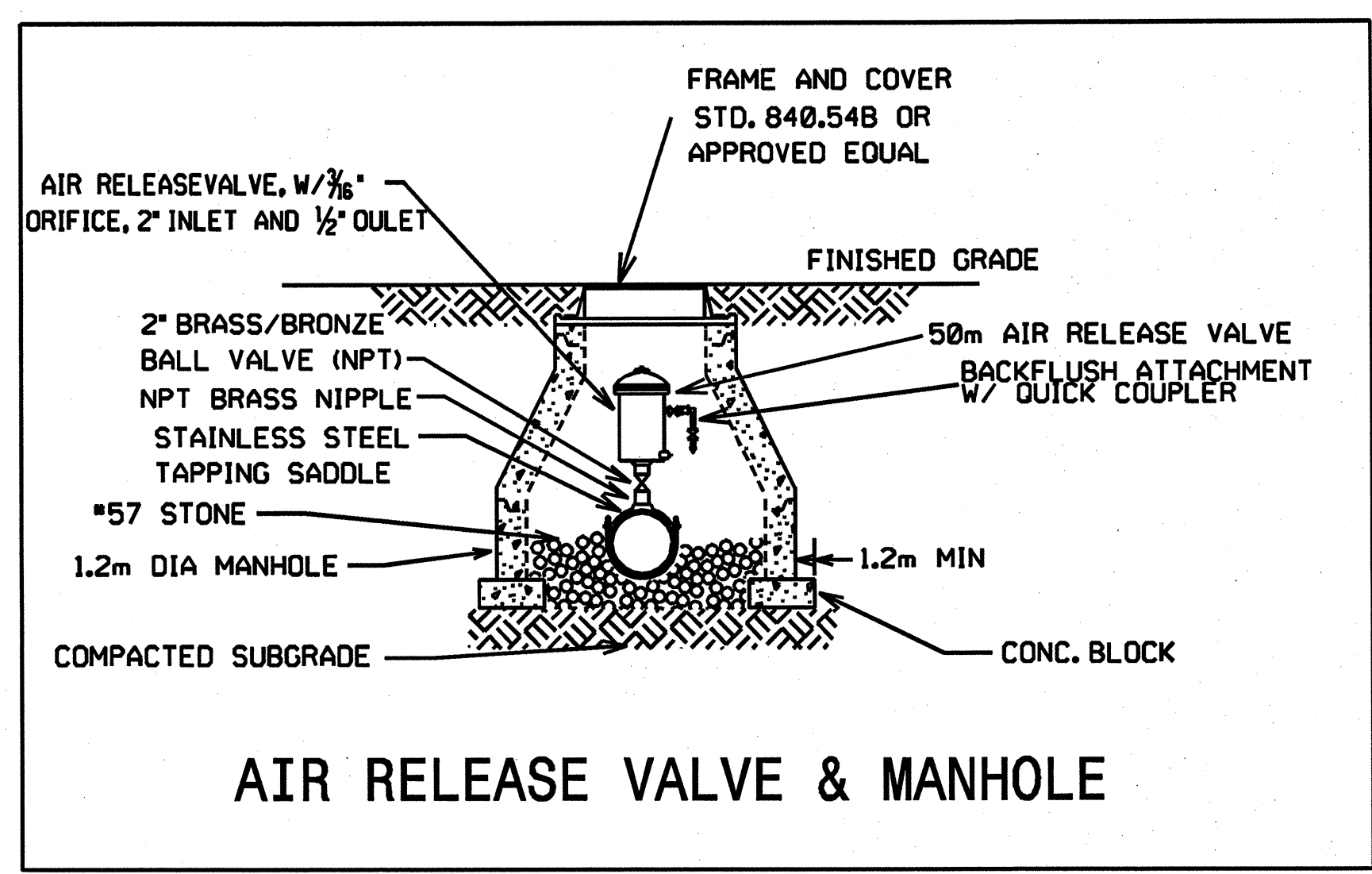
MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (mm)	TRENCH WIDTH (mm)	NOMINAL PIPE SIZE (mm)	TRENCH WIDTH (mm)
100	700	500	1100
150	750	600	1200
200	800	750	1350
250	850	900	1500
300	900	1050	1650
350	950	1200	1800
400	1000	1350	1950
450	1050		

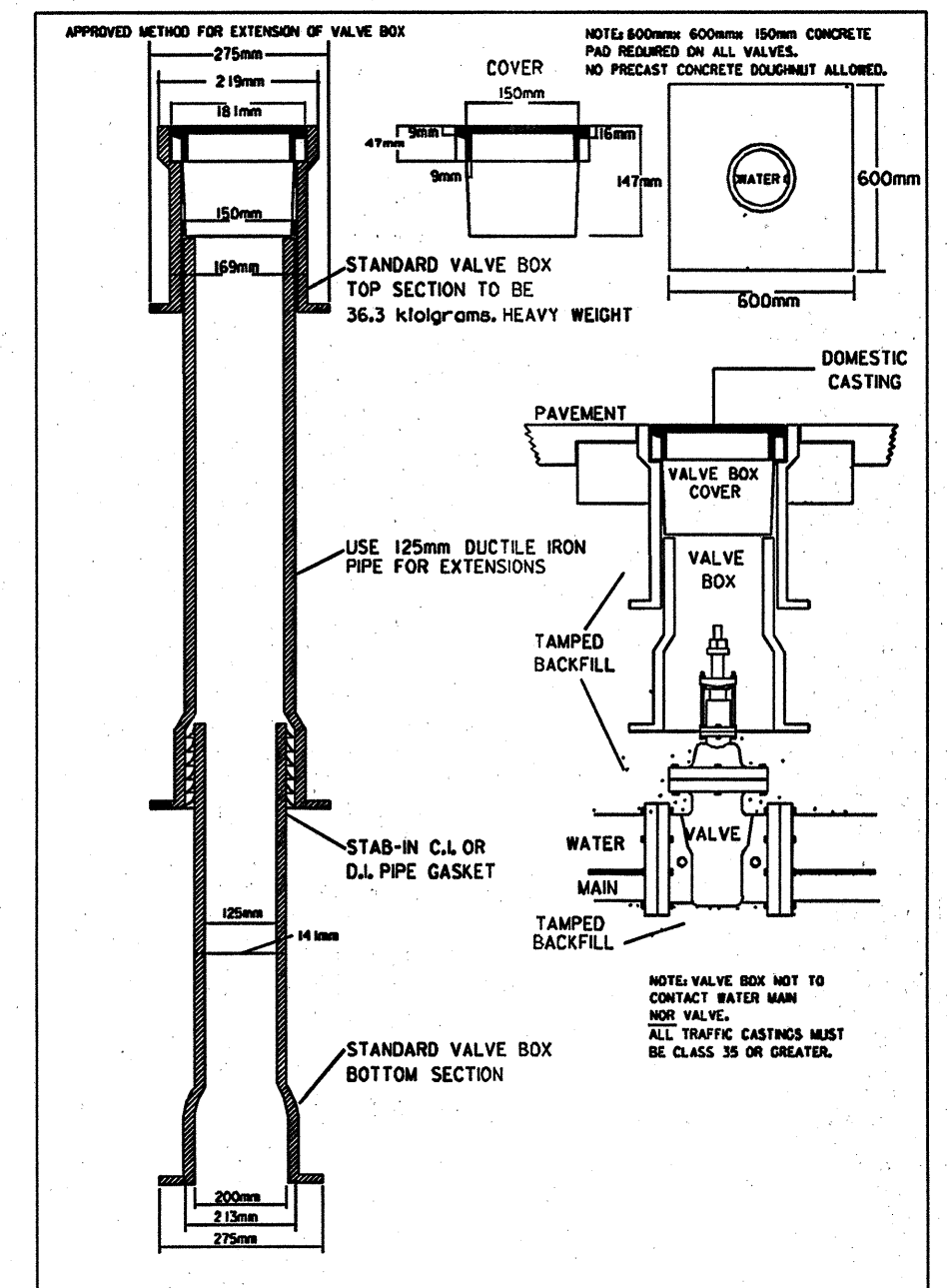
TRENCH WIDTH DETAIL



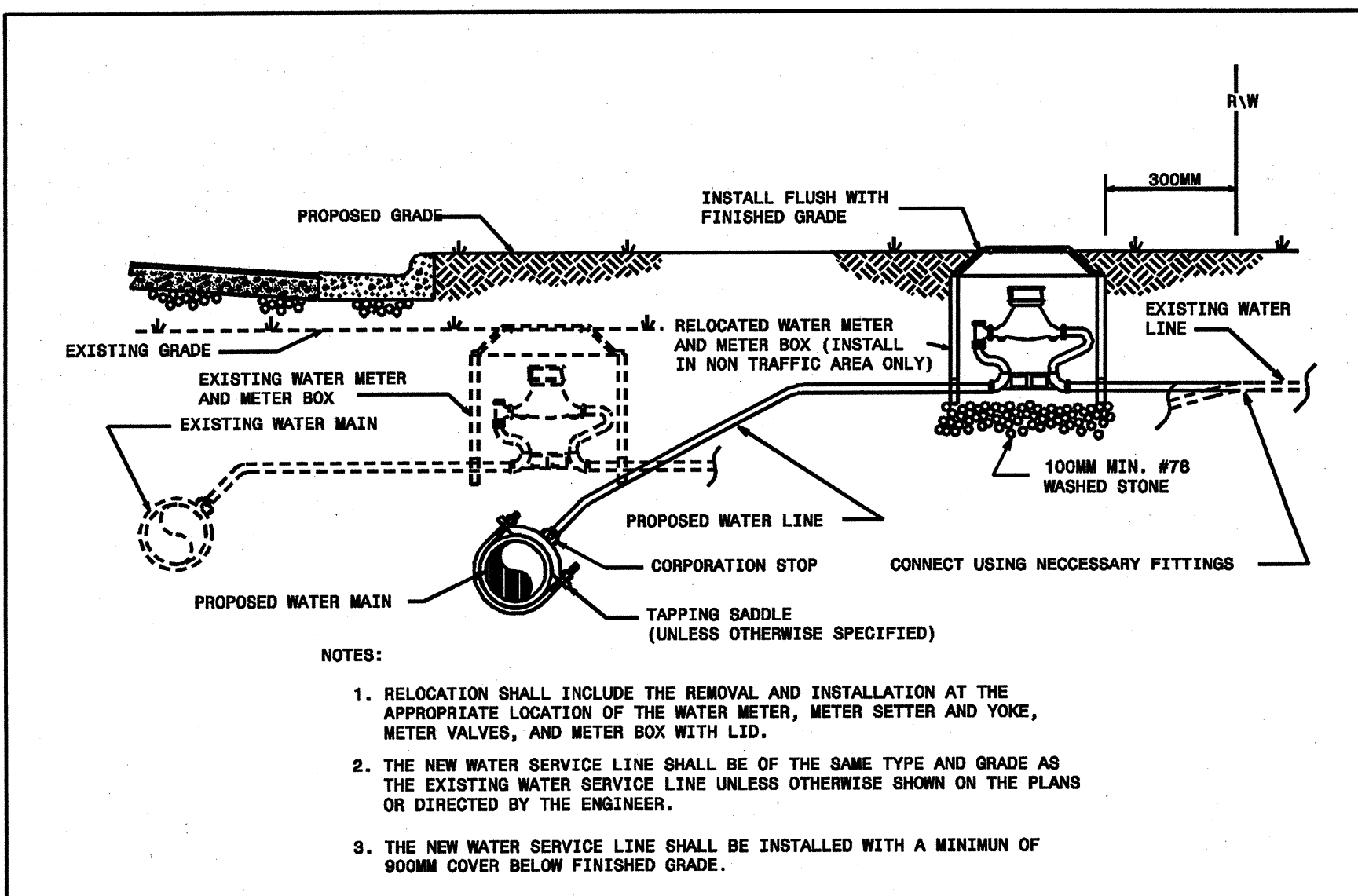
LINE STOP ASSEMBLY



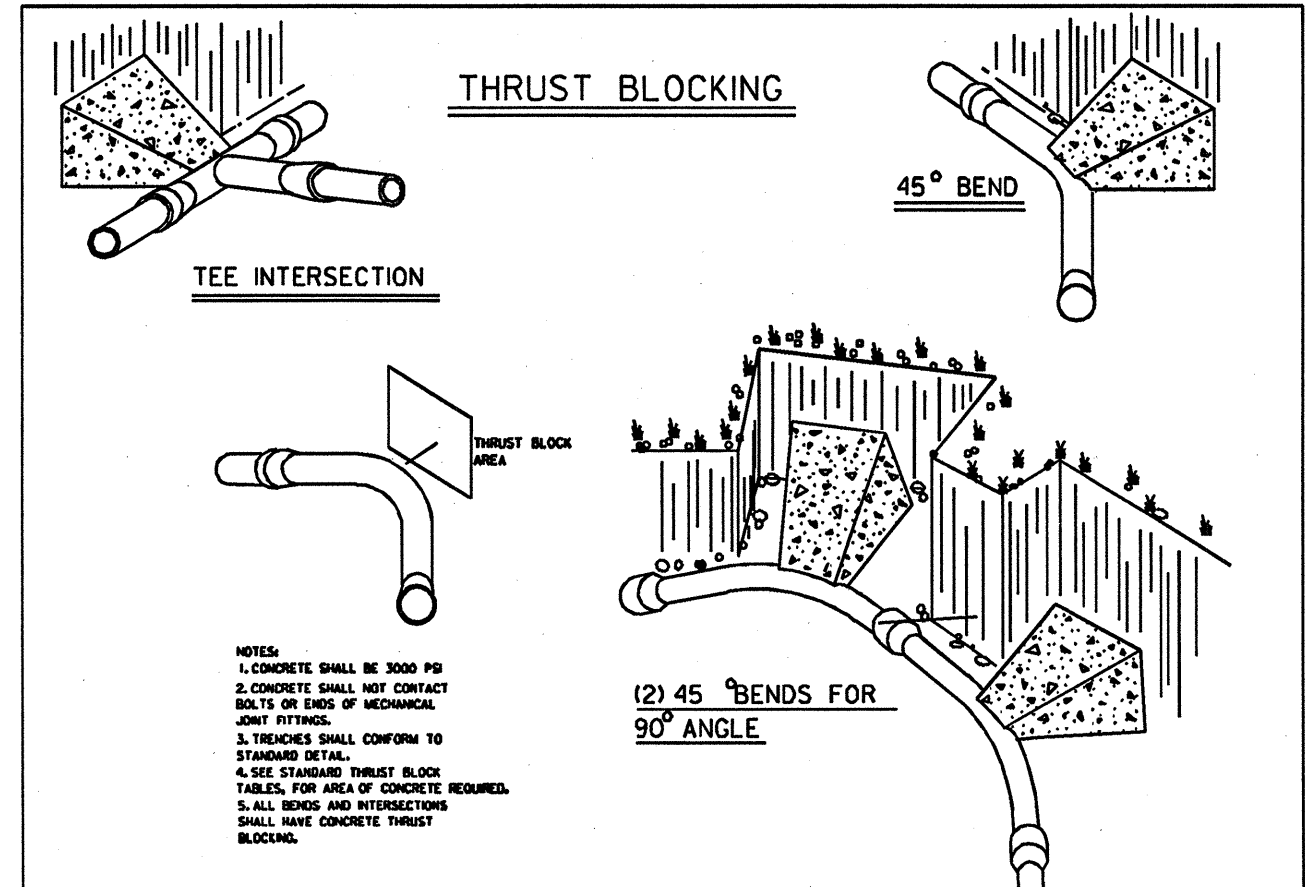
AIR RELEASE VALVE & MANHOLE



GATE VALVE DETAIL



WATER METER RELOCATION DETAIL

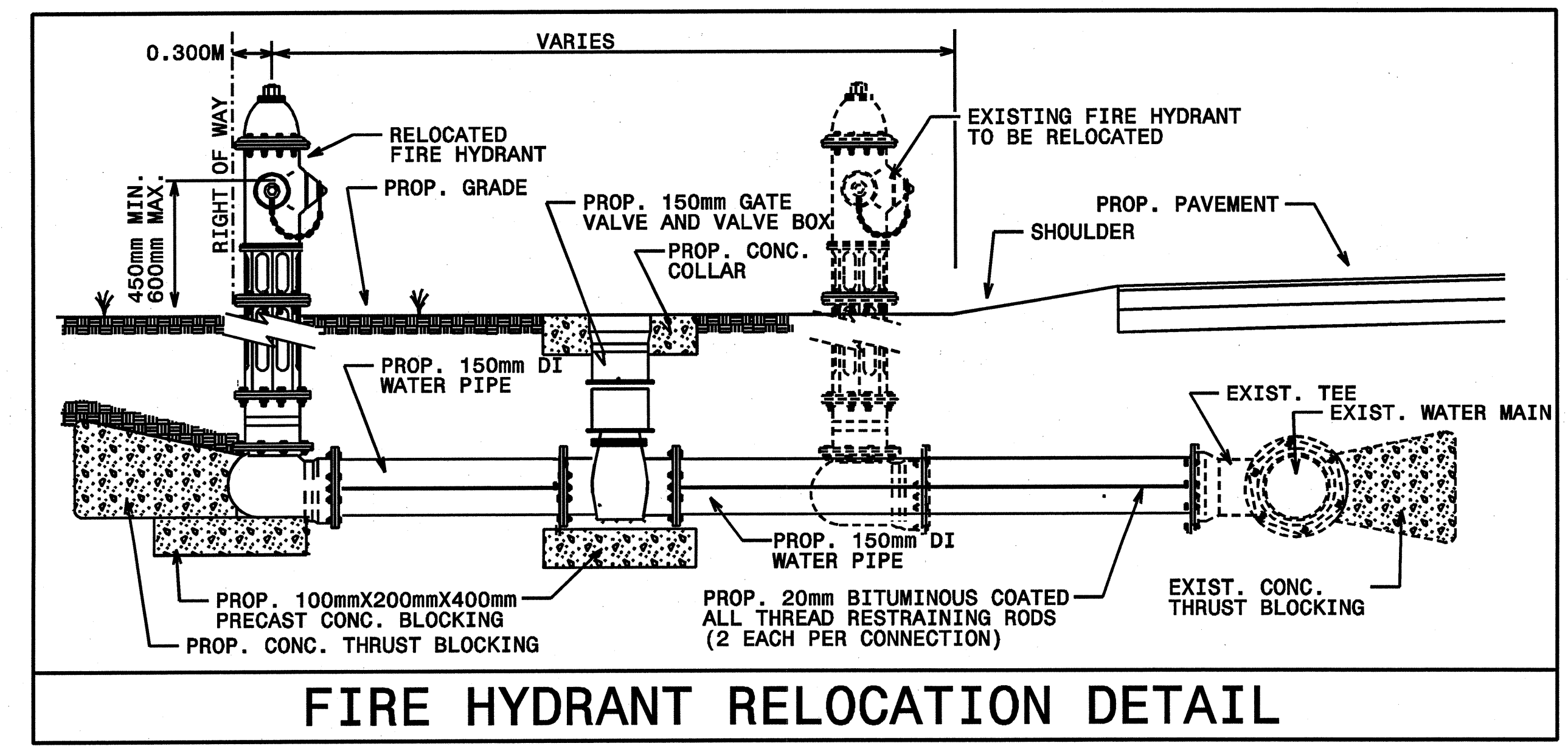


THRUST BLOCKING DETAIL

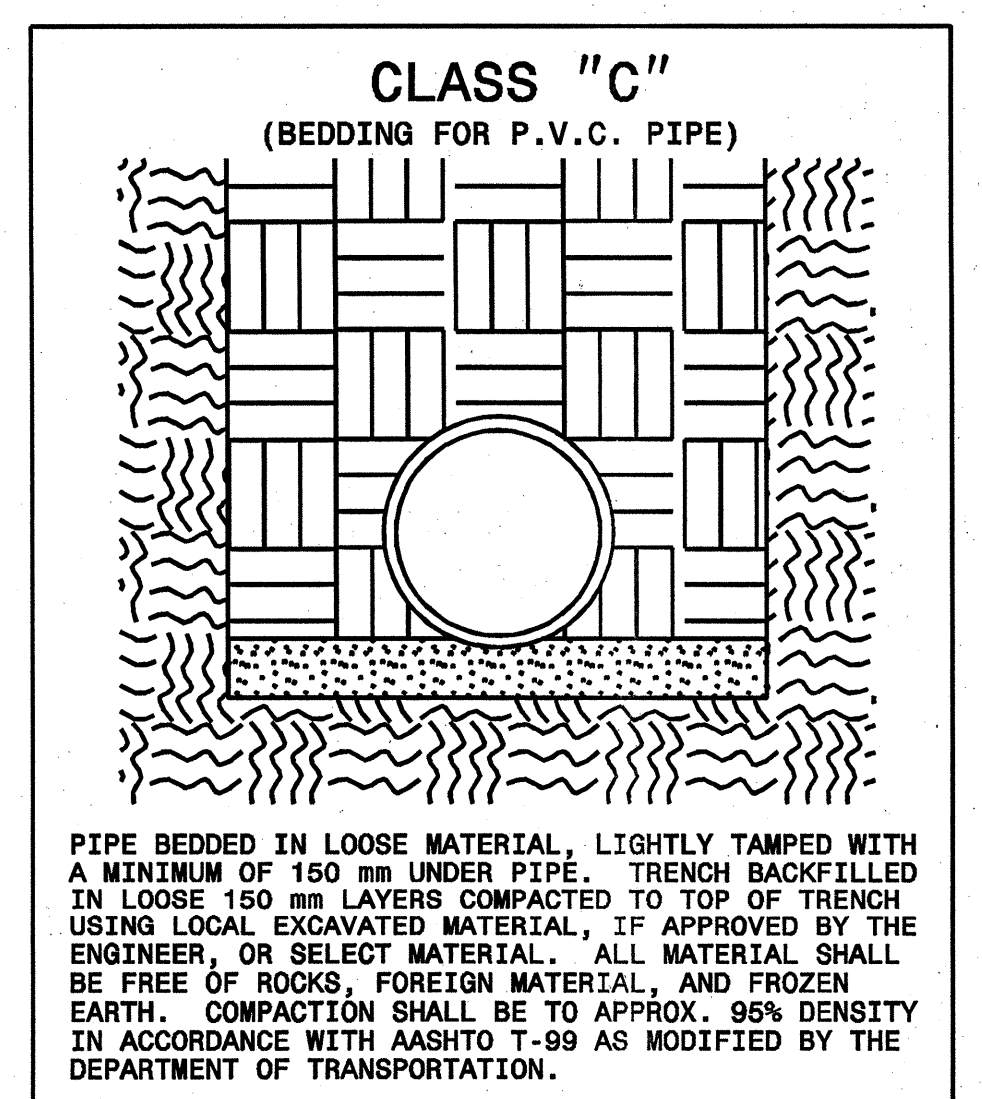
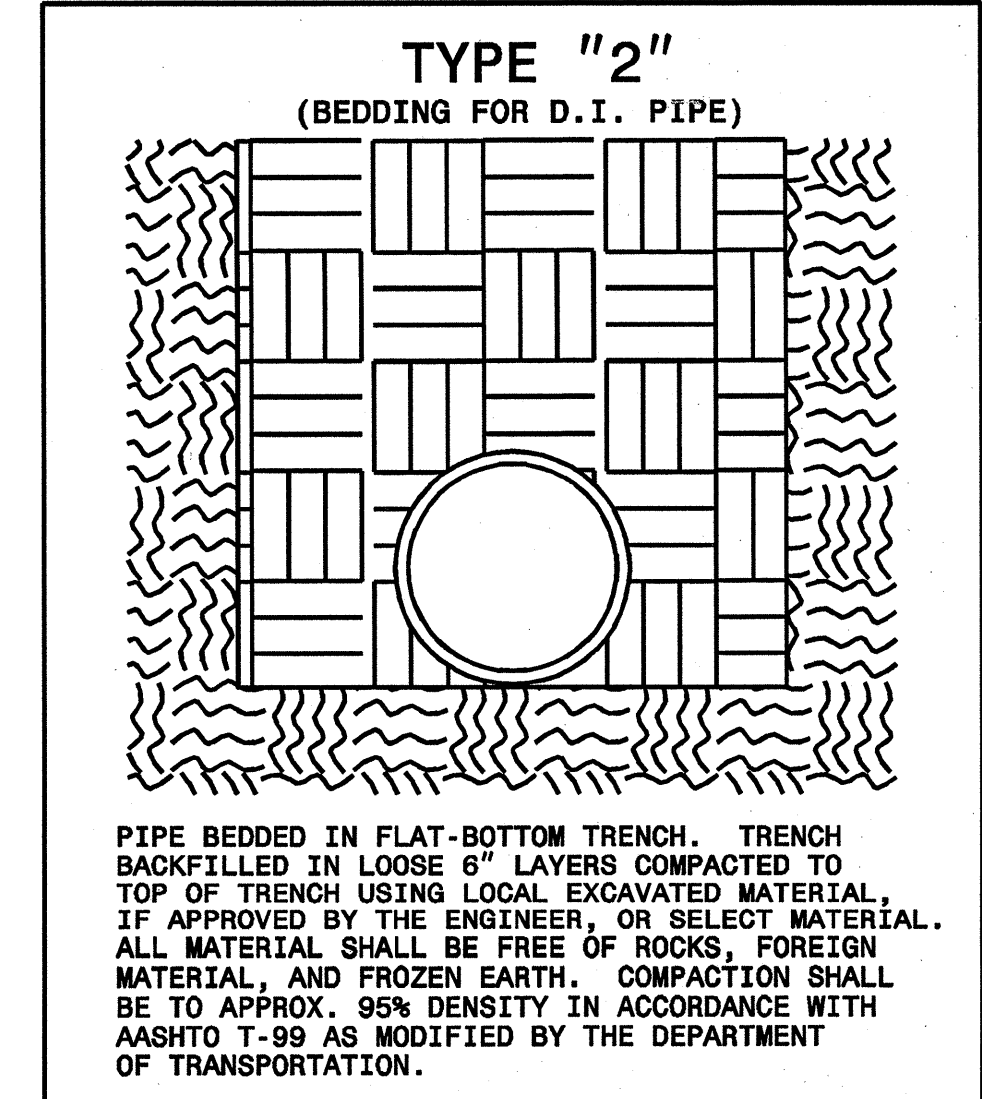
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS  
 BASED ON TEST PRESSURE OF 1.38MPa AND SAFETY FACTOR OF 1.5

SIZE AND DEGREE OF PIPE BEND	STATIC THRUST IN POUNDS	BEARING AREA (A <sub>r</sub> ) IN SF						
		SOFT CLAY (P/SF)	SLT (P/SF)	GRAVEL OR COURSE SAND (P/SF)	SANDY SLT (P/SF)	SAND (P/SF)	SANDY CLAY (P/SF)	HARD CLAY (P/SF)
150mm PIPE								
11 1/4"	1,462	2	1	1	1	1	0	0
22 1/2"	2,911	4	3	3	3	3	1	1
45°	5,710	9	6	5	3	2	1	1
90°	10,550	16	11	10	5	4	3	2
PLUG & BRANCH	7,460	11	7	7	4	3	2	1
200mm PIPE								
11 1/4"	2,521	4	3	2	1	1	1	0
22 1/2"	5,018	8	5	5	3	2	1	1
45°	9,843	15	10	9	5	4	2	2
90°	18,187	27	18	17	9	7	5	3
PLUG & BRANCH	12,860	19	13	12	6	5	3	2
250mm PIPE								
11 1/4"	3,791	6	4	4	2	1	1	1
22 1/2"	7,546	11	8	7	4	3	2	1
45°	14,802	22	15	14	7	6	4	2
90°	27,351	41	27	26	14	10	7	5
PLUG & BRANCH	19,340	29	19	18	10	7	5	3
400mm PIPE								
11 1/4"	11,707	18	12	11	6	4	3	2
22 1/2"	23,302	35	23	22	12	9	6	4
45°	45,708	69	46	43	23	17	11	8
90°	84,457	127	84	79	42	32	21	14
PLUG & BRANCH	59,720	90	60	56	30	22	15	10

THRUST BLOCKING TABLE



FIRE HYDRANT RELOCATION DETAIL



TRENCH DETAILS