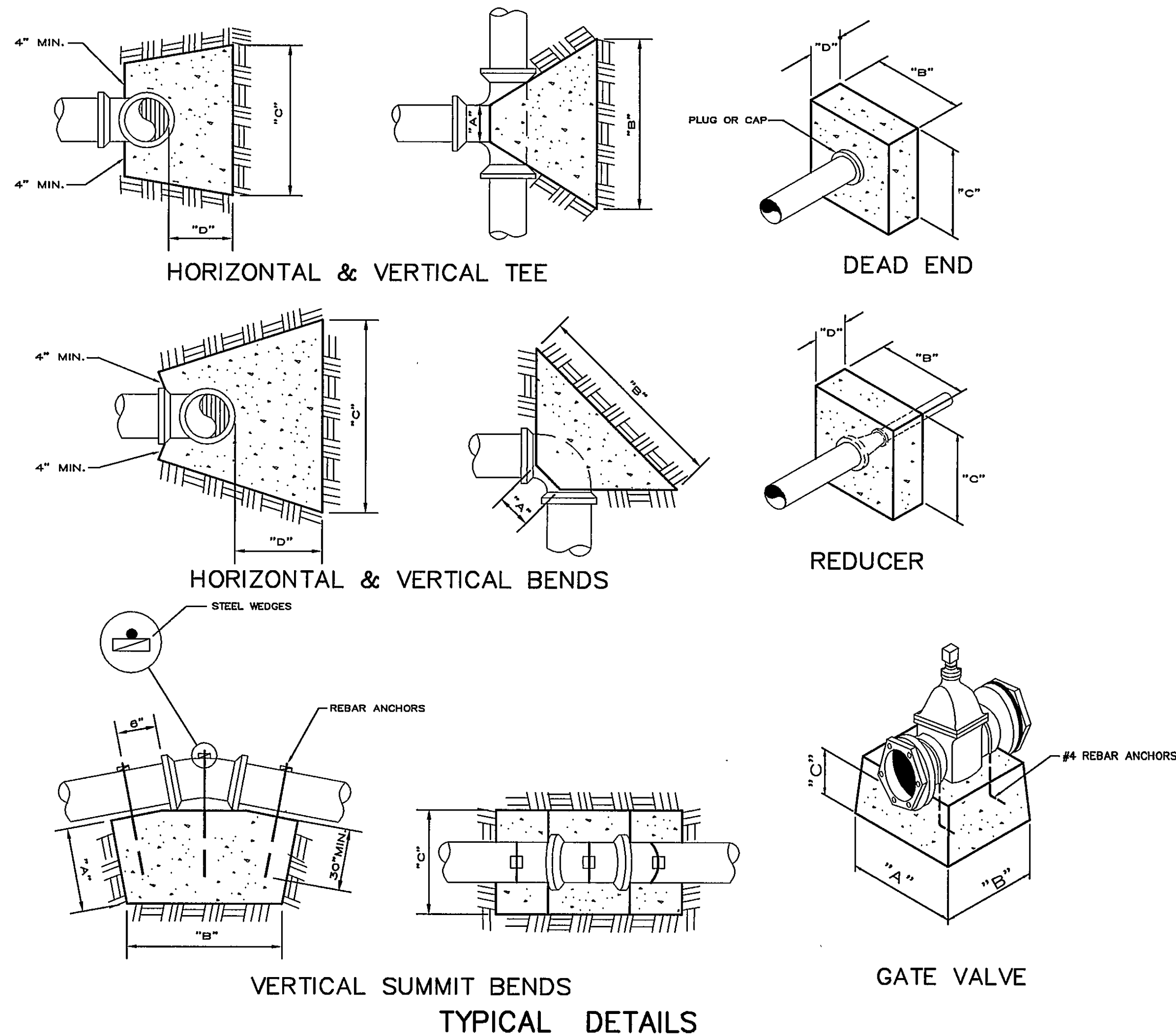




CONSTRUCTION DATA

WORKING PRESSURE : 150 P.S.I.												
PIPE SIZE	TEES & DEADENDS				90° BENDS				45° BENDS			
	A	B	C	D	A	B	C	D	A	B	C	D
6"	12"	2'-6"	1'-6"	8"	12"	2'-8"	2'-0"	12"	8"	2'-0"	1'-6"	10"
8"	1'-2"	3'-6"	2'-6"	1'-6"	1'-2"	4'-10"	2'-5"	2'-3"	1'-2"	2'-0"	1'-6"	10"
12"	1'-6"	5'-4"	3'-10"	1'-6"	1'-6"	5'-4"	4'-4"	2'-3"	1'-6"	4'-2"	4'-0"	1'-6"
16"	1'-6"	6'-0"	4'-6"	2'-0"	1'-6"	6'-10"	5'-8"	2'-10"	1'-6"	5'-2"	4'-0"	1'-8"
18"	1'-10"	6'-0"	5'-8"	2'-6"	1'-10"	7'-8"	6'-4"	3'-0"	1'-10"	5'-10"	4'-6"	2'-0"

CONSTRUCTION DATA

WORKING PRESSURE : 200 P.S.I.												
PIPE SIZE	TEES & DEADENDS				90° BENDS				45° BENDS			
	A	B	C	D	A	B	C	D	A	B	C	D
6"	12"	2'-8"	1'-8"	12"	12"	2'-10"	2'-4"	1'-6"	6"	2'-4"	1'-6"	12"
8"	1'-2"	3'-6"	2'-6"	1'-6"	1'-2"	4'-10"	2'-5"	2'-3"	1'-2"	3'-4"	2'-0"	1'-6"
12"	1'-6"	5'-6"	4'-0"	2'-0"	1'-6"	6'-0"	5'-0"	2'-0"	1'-6"	4'-0"	2'-6"	1'-6"
16"	1'-6"	6'-8"	5'-6"	2'-0"	1'-6"	7'-10"	6'-5"	2'-10"	1'-6"	4'-10"	3'-0"	1'-6"
18"	1'-10"	7'-8"	6'-0"	2'-6"	1'-10"	9'-2"	7'-0"	3'-0"	1'-10"	6'-6"	5'-4"	2'-0"

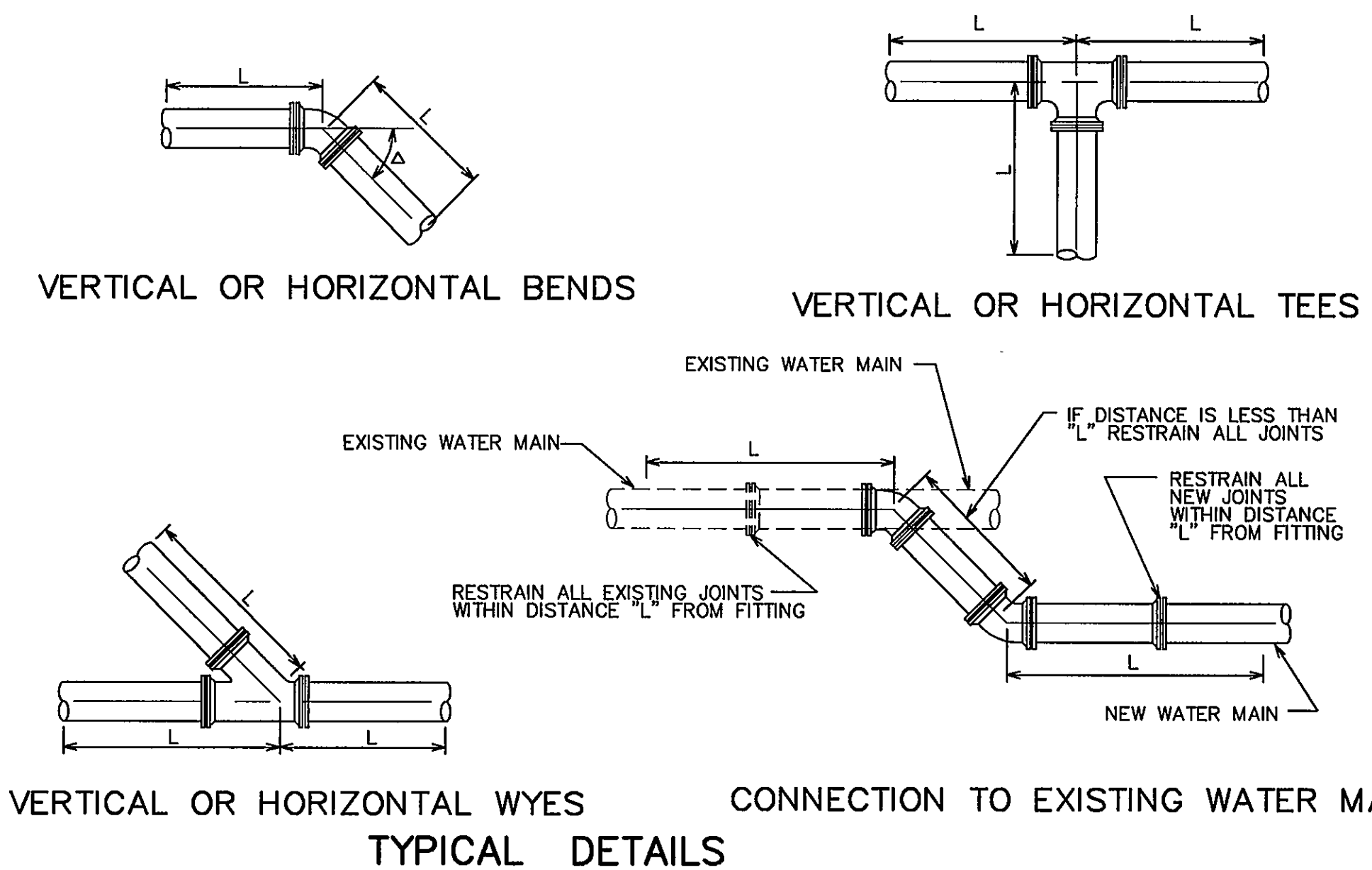
VERTICAL SUMMIT BENDS THRUST BLOCK DATA ALL WORKING PRESSURES				
PIPE SIZE	11 1/4°			REBARS
	A	B	C	
6"	2'-10"	2'-10"	2'-4"	3 - NO. 4
8"	4'-0"	4'-0"	2'-4"	3 - NO. 6
12"	5'-0"	5'-0"	4'-6"	4 - NO. 8
16"	5'-0"	5'-0"	4'-6"	4 - NO. 8
18"	6'-3"	6'-3"	5'-6"	5 - NO. 8

TYPICAL DETAILS AND CONSTRUCTION DATA — CONCRETE THRUST BLOCKS

NOT TO SCALE

NOTE:

THRUST BLOCKS ARE DESIGNED FOR A WORKING PRESSURE AS SHOWN IN THE TABLES AND AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF. IF PRESSURES AND SOIL BEARING CAPACITIES DO NOT FALL WITHIN THESE LIMITS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO INSTALLATION OF THRUST BLOCKS.



TYPICAL DETAILS

CONSTRUCTION DATA

WORKING PRESSURE : 150 P.S.I.								
PIPE SIZE (in)	L = MINIMUM LENGTH OF RESTRAINED PIPE (ft)							
	Δ=90°		Δ=45°		Δ=22.5°		Δ=11.25°	
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
6	38	42	16	17	8	8	4	4
8	52	57	21	24	10	11	5	6
12	72	85	30	35	14	17	7	8
16	92	111	38	46	24	18	9	11
18	101	123	42	51	27	20	10	12

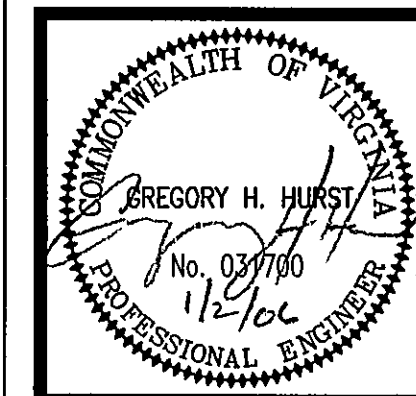
WORKING PRESSURE : 200 P.S.I.								
PIPE SIZE (in)	L = MINIMUM LENGTH OF RESTRAINED PIPE (ft)							
	Δ=90°		Δ=45°		Δ=22.5°		Δ=11.25°	
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
6	51	56	21	23	10	11	5	6
8	69	76	29	31	14	15	7	7
12	96	113	40	47	19	23	9	11
16	123	148	51	61	24	29	12	14
18	135	164	56	68	27	33	13	16

NOTE:

- THE RESTRAINED LENGTH OF WATER MAIN IS BASED ON THE FOLLOWING: A WORKING PRESSURE AS SHOWN IN THE TABLES, 3'-0" OF PIPE COVER, AND A SOIL TYPE CLASSIFICATION OF "MH".
- PLUGS SHALL BE RESTRAINED BASED ON THE RESTRAINED LENGTH FOR 90° VERTICAL BENDS.
- VALVES, TEES, AND WYES SHALL BE RESTRAINED BASED ON THE RESTRAINED LENGTH FOR 45° HORIZONTAL BENDS.
- EXISTING WATER MAIN ADJACENT TO PROPOSED BENDS, WYES, VALVES, TEES, AND PLUGS SHALL BE UNCOVERED AND THE EXISTING JOINTS SHALL BE RESTRAINED FOR THE LENGTH INDICATED. IF THE EXISTING WATER MAIN WILL NOT ACCEPT THE MECHANICAL JOINT RESTRAINING MECHANISM, THE EXISTING WATER MAIN SHALL BE REPLACED WITH DUCTILE IRON WATER MAIN FOR THE LENGTH INDICATED. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL NOT BE USED ON EXISTING POLYVINYLCHLORIDE (PVC) PIPE.

TYPICAL DETAILS AND CONSTRUCTION DATA — MECHANICAL JOINT RESTRAINING DEVICES

NOT TO SCALE



Thompson + Litton
Engineers
Architects
Planners

STATE ROUTE 122/BURNT CHIMNEY/SMITH MOUNTAIN LAKE
WATER DISTRIBUTION SYSTEM PROJECT
PHASE I
FOR THE
FRANKLIN COUNTY BOARD OF SUPERVISORS
TYPICAL DETAILS — RESTRAINING DEVICES

No.	Date	Revision
1	07/31/03	REVIEW DOCUMENTS ISSUED
2	01/27/04	FINAL DOCUMENTS ISSUED
3	04/04/04	BID DOCUMENTS ISSUED
4	12/02/05	RECORD DOCUMENTS ISSUED

Designed:
Drawn:
Checked:
Date: JULY, 2003

Project No.
7363-03

Sheet No.
23