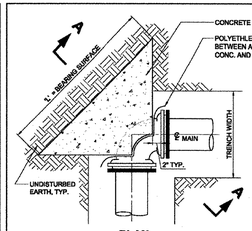
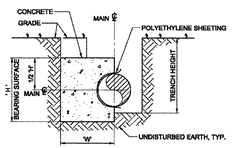


PLAN



SECTION A-A

MAIN BEND	SIZE	DIMENSION (FT.) 'H'	'L'	'W'	CONC. VOLUME (C. Y.)	THRUST (FT. LBS.)
22 1/2°	4	1.75	0.75	1.00	0.02	1,765
	6	2.08	1.08	1.00	0.06	3,847
	8	2.75	1.75	1.50	0.11	6,275
	10	3.92	1.83	1.00	0.15	9,430
	12	4.08	2.42	1.50	0.36	13,348
	16	4.42	3.92	2.00	0.96	23,158

MAIN BEND	SIZE	DIMENSION (FT.) 'H'	'L'	'W'	CONC. VOLUME (C. Y.)	THRUST (FT. LBS.)
45°	4	1.75	1.73	1.00	0.09	3,482
	6	2.08	2.58	1.00	0.16	7,155
	8	2.75	2.75	1.50	0.35	12,306
	10	3.92	3.92	2.00	0.59	18,516
	12	4.08	4.08	2.50	1.00	26,185
	16	4.42	4.42	3.00	2.09	45,469

MAIN BEND	SIZE	DIMENSION (FT.) 'H'	'L'	'W'	CONC. VOLUME (C. Y.)	THRUST (FT. LBS.)
90°	4	1.75	1.83	1.25	0.12	6,366
	6	2.58	2.58	1.42	0.29	13,500
	8	2.75	4.17	1.42	0.39	22,143
	10	3.92	4.42	1.92	1.18	34,213
	12	4.08	5.92	2.50	1.89	48,383
	16	4.42	9.00	3.00	2.81	84,071

MAIN BEND	SIZE	DIMENSION (FT.) 'H'	'L'	'W'	CONC. VOLUME (C. Y.)	THRUST (FT. LBS.)
TEE & PLUG	4	1.75	1.30	1.25	0.09	4,624
	6	2.58	1.82	1.42	0.20	9,348
	8	2.75	2.92	1.42	0.41	16,062
	10	3.92	3.08	1.92	0.81	24,192
	12	4.08	4.17	2.50	1.56	34,213
	16	4.42	6.67	3.67	4.22	59,447

NOTE: SIZE IN TABLE DENOTES NOMINAL PIPE SIZE IN INCHES

NOTES:

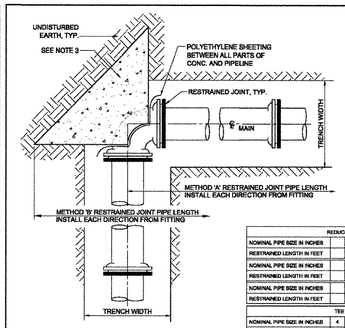
1. PRIOR TO DIGGING THE UTILITIES PROTECTION CENTER INC. SHALL BE NOTIFIED BY CALLING 811
2. SOIL PREPARATION SHALL BE APPROVED BY OWNER PRIOR TO POURING CONCRETE
3. REFER TO TYPICAL HORIZONTAL THRUST RESTRAINT DRAWING FOR ADDITIONAL DETAILS

DESIGN CRITERIA:

1. THRUST RESTRAINT DIMENSIONS ARE BASED ON PRESSURE CLASS DUCTILE IRON PIPE WITH BITUMASTIC EXTERIOR COATING, MINIMUM SOIL BEARING PRESSURE OF 2,000 PSF, A COHESIVE GRANULAR SOIL, TEST PRESSURE OF 250 PSI, WITH A SAFETY FACTOR OF 1.5

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: GCDWR DRAWN BY: CSL CHECKED BY: STD. COMMITTEE APPROVED BY: SCALE: NONE	**TYPICAL HORIZONTAL THRUST BLOCK**	DRAWING NO. **W18**



PLAN

REDUCER							
NOMINAL PIPE SIZE IN INCHES		6x4	8x6	10x8	12x10	14x12	16x14
RESTRAINED LENGTH IN FEET		29	31	30	31	31	32
NOMINAL PIPE SIZE IN INCHES			8x4	10x6	12x8	14x10	16x12
RESTRAINED LENGTH IN FEET			65	56	57	58	59
NOMINAL PIPE SIZE IN INCHES				10x4	12x6	14x8	16x10
RESTRAINED LENGTH IN FEET				73	76	80	83
TEE							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	40	67	74	90	107	123	139
DEAD END OR CLOSED VALVE							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	40	67	74	90	107	123	139
90 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	34	34	44	54	64	73	82
45 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	10	14	18	22	26	30	34
22 1/2 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	5	7	9	11	13	15	18

NOTES:

1. SOIL PREPARATION SHALL BE APPROVED BY OWNER PRIOR TO POURING CONCRETE
2. REFER TO TYPICAL HORIZONTAL THRUST BLOCK DRAWING FOR DETAILS
3. INSTALL THRUST BLOCK ONLY WHEN METHOD 'B' PIPE RESTRAINT IS UTILIZED
4. FOR PIPE SIZES LARGER THEN 16" CONTRACTOR SHALL CONTACT OWNER FOR RESTRAINED JOINT LENGTHS

DESIGN CRITERIA:

1. THRUST RESTRAINT DIMENSIONS ARE BASED ON PRESSURE CLASS DUCTILE IRON PIPE WITH BITUMASTIC EXTERIOR COATING, (WITHOUT POLYWRAP), MINIMUM SOIL BEARING PRESSURE OF 2,000 PSF, A COHESIVE GRANULAR SOIL, TEST PRESSURE OF 250 PSI, 4 FEET OF UNSATURATED SOIL COVER, AWWA TYPE 3 PIPE BEDDING CONDITION, WITH A SAFETY FACTOR OF 1.5

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: GCDWR DRAWN BY: CSL CHECKED BY: STD. COMMITTEE APPROVED BY: SCALE: NONE	**TYPICAL HORIZONTAL THRUST RESTRAINT**	DRAWING NO. **W19**

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES
684 WINDER HIGHWAY
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REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

UTILITY RELOCATION PLANS

CONSTRUCTION DETAILS

DRAWING No. 44-32