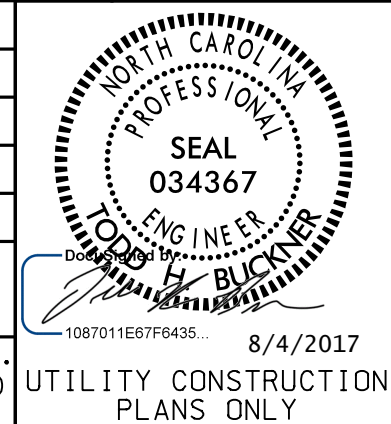


# PROJECT TYPICAL DETAILS

DOCUMENT NOT CONSIDERED FINAL  
UNTIL ALL SIGNATURES ARE COMPLETED

PROJECT REFERENCE NO. U-5935 SHEET NO. UC-3E

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
APPROVED BY:  
REVISED:  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151  
8/4/2017  
UTILITY CONSTRUCTION PLANS ONLY



**Michael Baker Engineering, Inc.**  
8000 Regency Pkwy  
Suite 600  
Cary, NC 27518  
NC License: F-1084

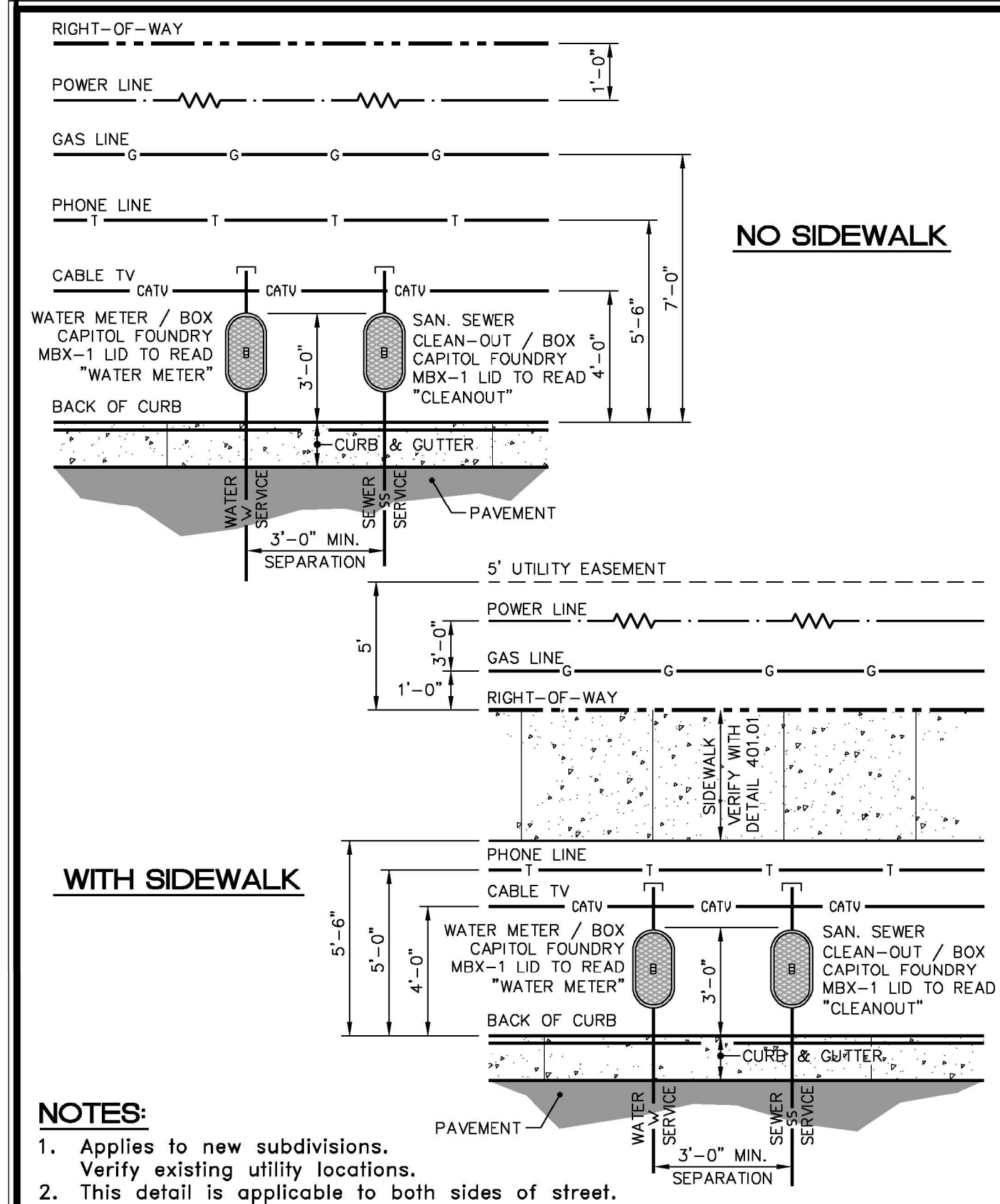
## UTILITY CONSTRUCTION

05/14/99  
Details Provided by APPIAN Consulting Engineers - www.applanengineers.com

05/06/2010 - 10:12:00 AM Details Provided by APPIAN Consulting Engineers - www.applanengineers.com

05/06/2010 - 12:20:10 PM Details Provided by APPIAN Consulting Engineers - www.applanengineers.com

05/06/2010 - 12:19:27 PM



Public Services Departments  
1800 Herring Avenue, / P.O. Box 10  
Wilson, North Carolina 27684

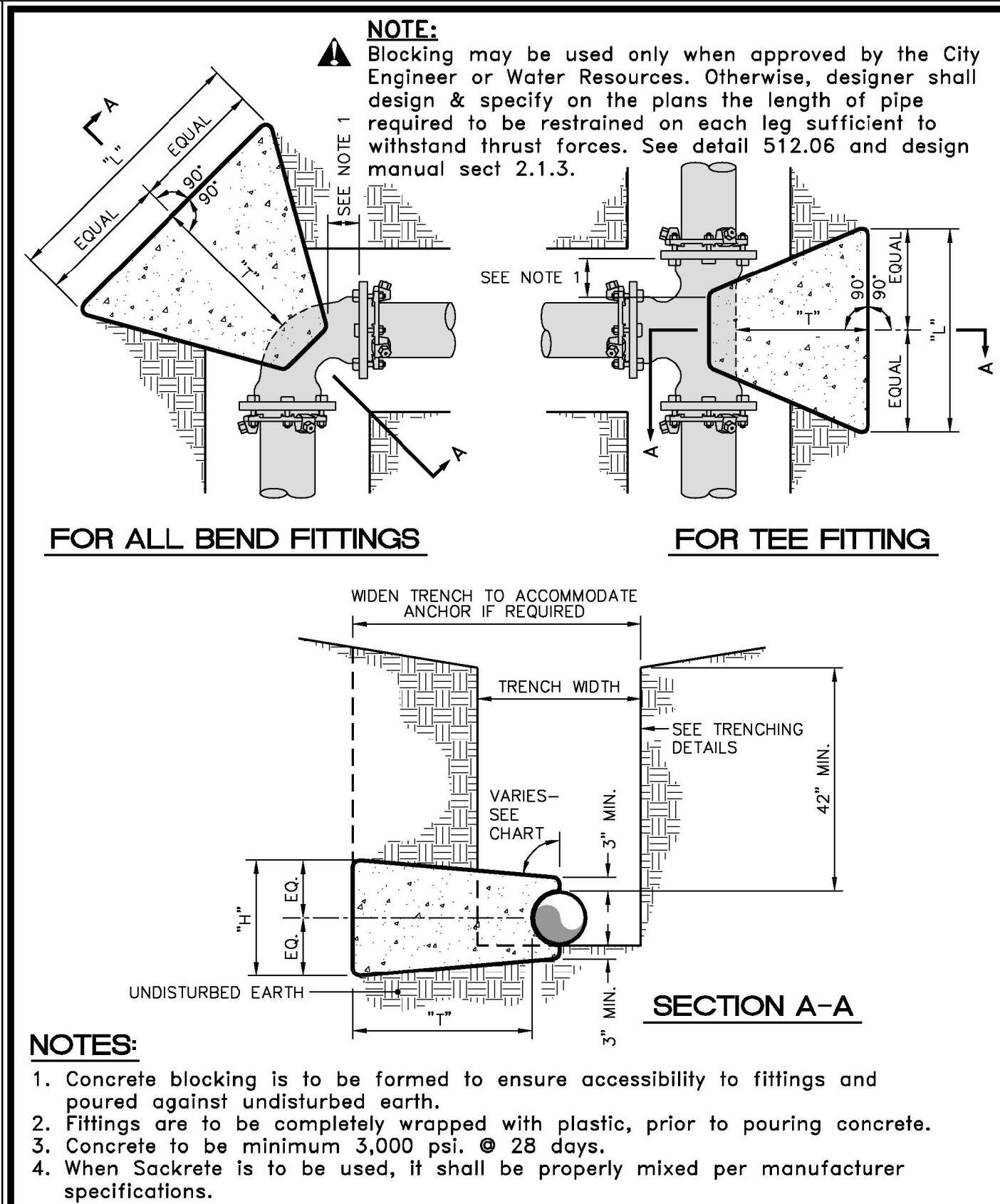
**CITY of WILSON, N.C.**  
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Voice (252) 399-2465  
FAX (252) 399-2463  
www.wilsonnc.org

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SHEET # 1 of 1

DETAIL # 2  
C07.01

**TYPICAL RESIDENTIAL UTILITY LOCATIONS**



Public Services Departments  
1800 Herring Avenue, / P.O. Box 10  
Wilson, North Carolina 27684

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SHEET # 1 of 2

DETAIL # 2  
512.01

**BLOCKING DETAIL for HORIZONTAL BENDS AND TEE**

**TEST PRESSURE = 150 P.S.I.**

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
<4 INCHES	11 1/4"	---	---	---	---
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.00	1.00	2.50	0.09
4 INCHES	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.00	1.00	2.50	0.09
	90"	1.50	1.50	2.50	0.15
6 INCHES	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
	45"	1.50	1.50	2.50	0.15
	90"	2.00	2.00	3.00	0.28
8 INCHES	11 1/4"	2.00	2.00	2.50	0.23
	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.25
	90"	3.00	2.00	3.00	0.39
12 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	2.00	2.00	3.00	0.28
	45"	3.00	3.00	3.50	0.84
	90"	4.50	3.00	3.50	0.94
16 INCHES	11 1/4"	3.00	2.50	3.00	0.59
	22 1/2"	4.50	3.00	3.50	1.17
	45"	6.75	4.00	3.50	2.30
	90"	8.00	6.00	3.50	4.05
24 INCHES	11 1/4"	3.00	2.50	3.00	0.59
	22 1/2"	4.50	3.00	3.50	1.17
	45"	6.75	4.00	3.50	2.30
	90"	8.00	6.00	3.50	4.05

**CHART NOTES:**

- If blocking excavation is in lightly compacted fill areas, or in areas where boulders or stumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.
- Blocking sizes shown in these tables assume the following:
  - Blocking is constructed in residual soils as shown in detail
  - Soil bearing pressure = 2000 psf
  - Velocity of flow = 15 fps
- This detail not applicable to reducing bends.
- Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes computation. Therefore, blocking size is conservative.

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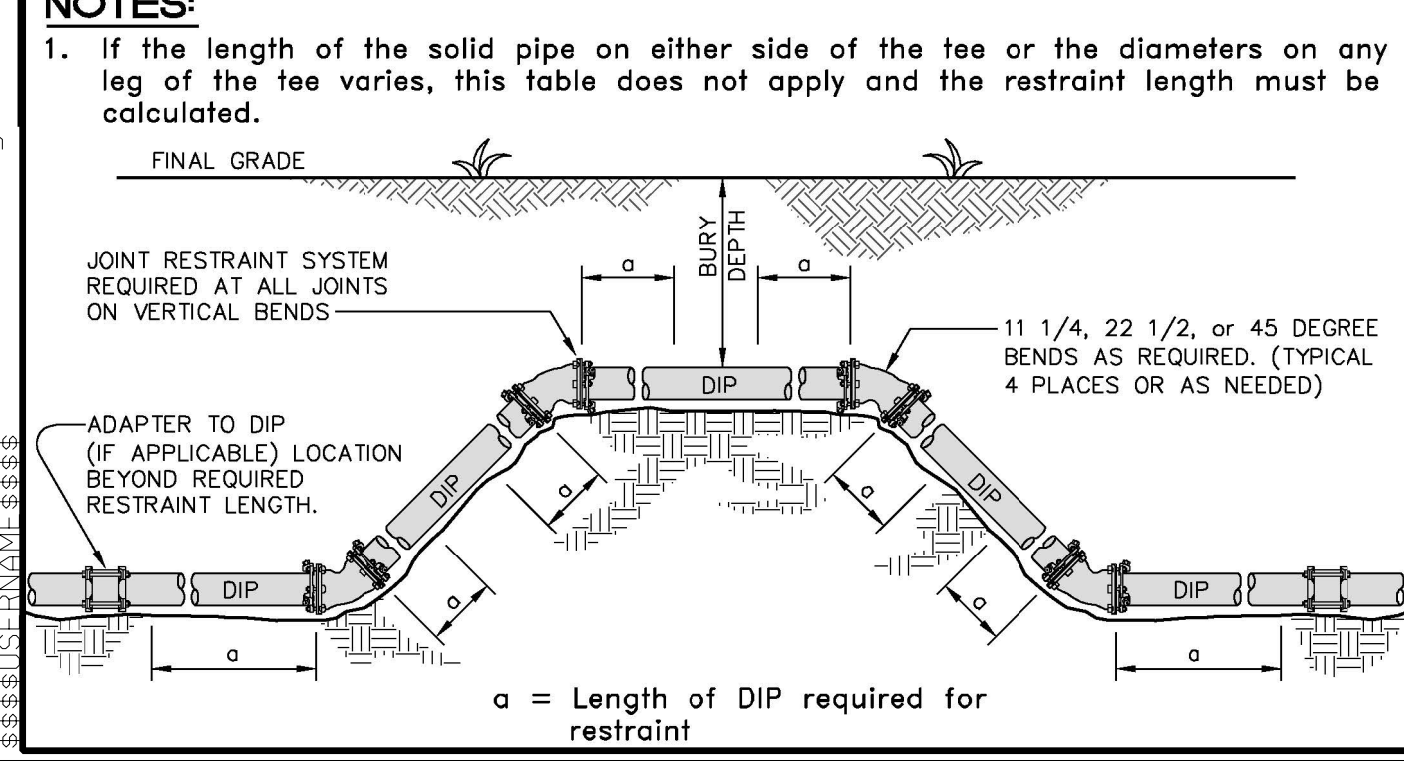
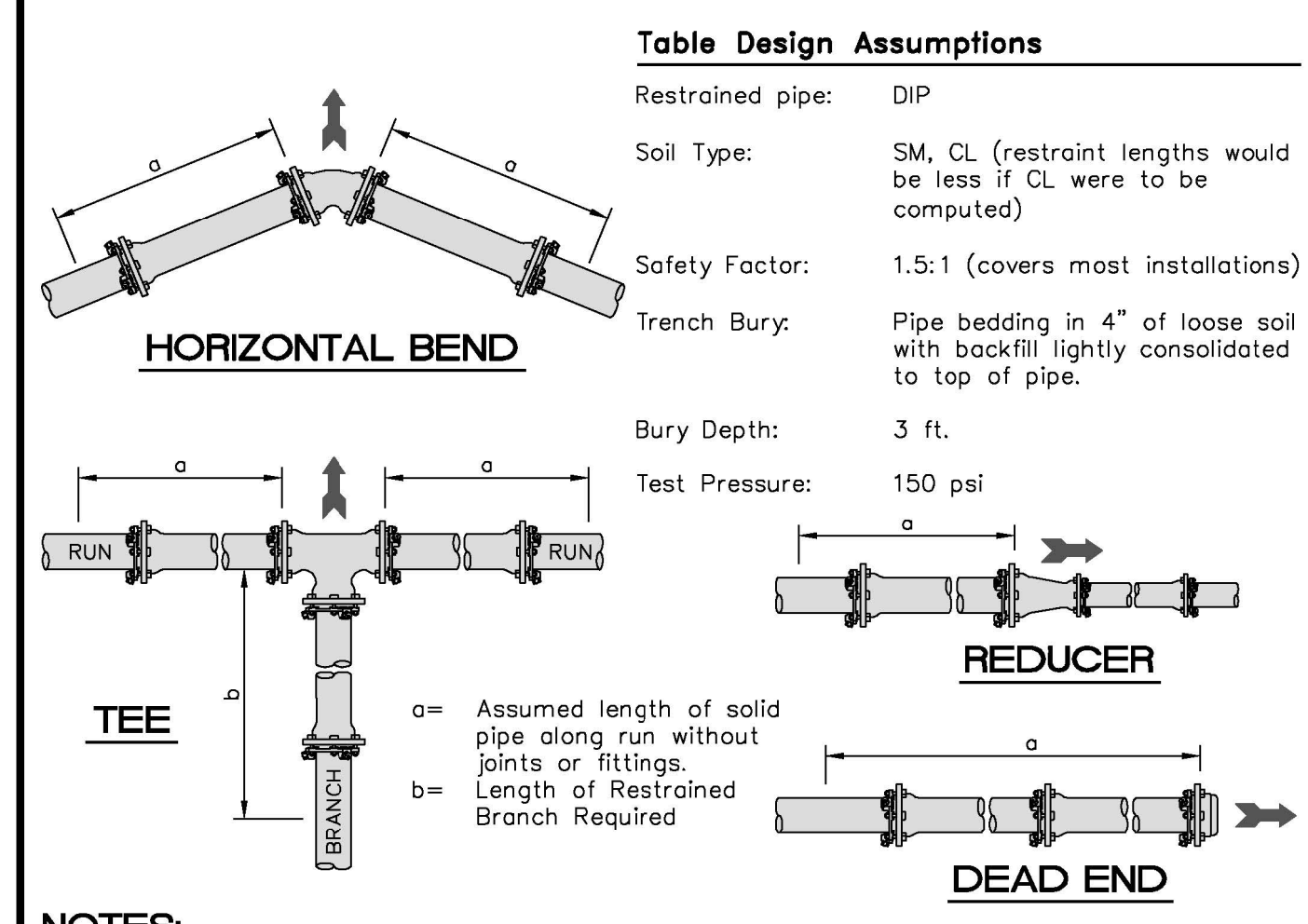
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SHEET # 2 of 2

DETAIL # 2  
512.01

**BLOCKING DETAIL for HORIZONTAL BENDS AND TEE**

Restraint Length Chart (for Fittings)

Nominal Size	Tee			Horizontal Bend		Vertical Bend		Reducer	Dead End/Valve
	a	b (branch)	a	a (Top Bend)	a (Bottom Bend)	a	a		
6"	31'	28'	12"	11 1/4'	22 1/2'	45'	45'	6"	63'
8"	5'	10'	19'	46'	34'	8'	8'	84'	116'
12"	65'	1'	33'	83'	7'	13'	27'	64'	48'



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