

HORIZONTAL THRUST BLOCK
AT PIPE BEND

STANDARD SPECIFICATION REFERENCE
502.4

DATE
OCT. '04

STANDARD DRAWING NO.
4010B

I.D. (IN.)	C (FT.)	EARTH			ROCK			I.D. (IN.)	C (FT.)	EARTH			ROCK		
		THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	THRUST (TONS)	A (FT.)			B (FT.)	VOL. (C.Y.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)
4.6,8	1.0	1.0	1.5	0.1	1.0	0.1	4.6,8	0.8	2.0	1.5	1.5	0.1	1.0	0.1	
10,12	0.8	2.2	1.5	1.5	0.1	1.0	10,12	1.1	4.4	2.0	2.5	0.3	1.5	0.1	
16,18	0.8	5.0	2.0	2.5	0.3	1.5	16,18	1.8	9.9	3.0	3.5	0.6	2.0	0.3	
20	0.9	6.2	2.0	3.5	0.4	1.5	20	1.8	12.3	3.5	3.5	0.7	2.0	0.3	
24	1.1	8.9	3.0	3.5	0.5	1.5	24	2.2	17.7	4.0	4.5	1.0	3.0	0.5	
30	1.4	10.4	3.0	3.5	0.6	2.0	30	2.7	20.7	5.0	4.5	1.5	3.0	0.4	
36	1.7	15.0	3.5	4.5	0.9	2.0	36	3.3	29.8	5.5	5.5	2.3	4.0	1.3	
42	1.9	20.4	4.5	5.0	1.5	2.5	42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	
48	2.2	26.6	4.5	6.0	2.0	2.5	48	4.4	52.9	8.0	7.0	5.7	4.5	8.0	
54	2.5	33.7	6.0	6.0	3.0	3.0	54	4.9	67.0	9.0	8.0	8.0	6.0	4.1	
60	2.7	41.6	6.0	7.0	3.8	3.0	60	5.5	82.7	9.5	9.0	10.6	6.0	5.3	
66	3.0	50.3	6.5	8.0	5.1	3.5	66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	
72	3.3	59.9	7.5	8.0	6.3	4.0	72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	
78	3.6	70.2	8.0	9.0	8.1	4.0	78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	
84	3.8	81.5	8.5	10.0	10.3	4.5	84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	
90	4.1	93.5	9.5	10.0	12.2	5.0	90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4	217.7	15.0	14.5	41.2	10.0	11.0	

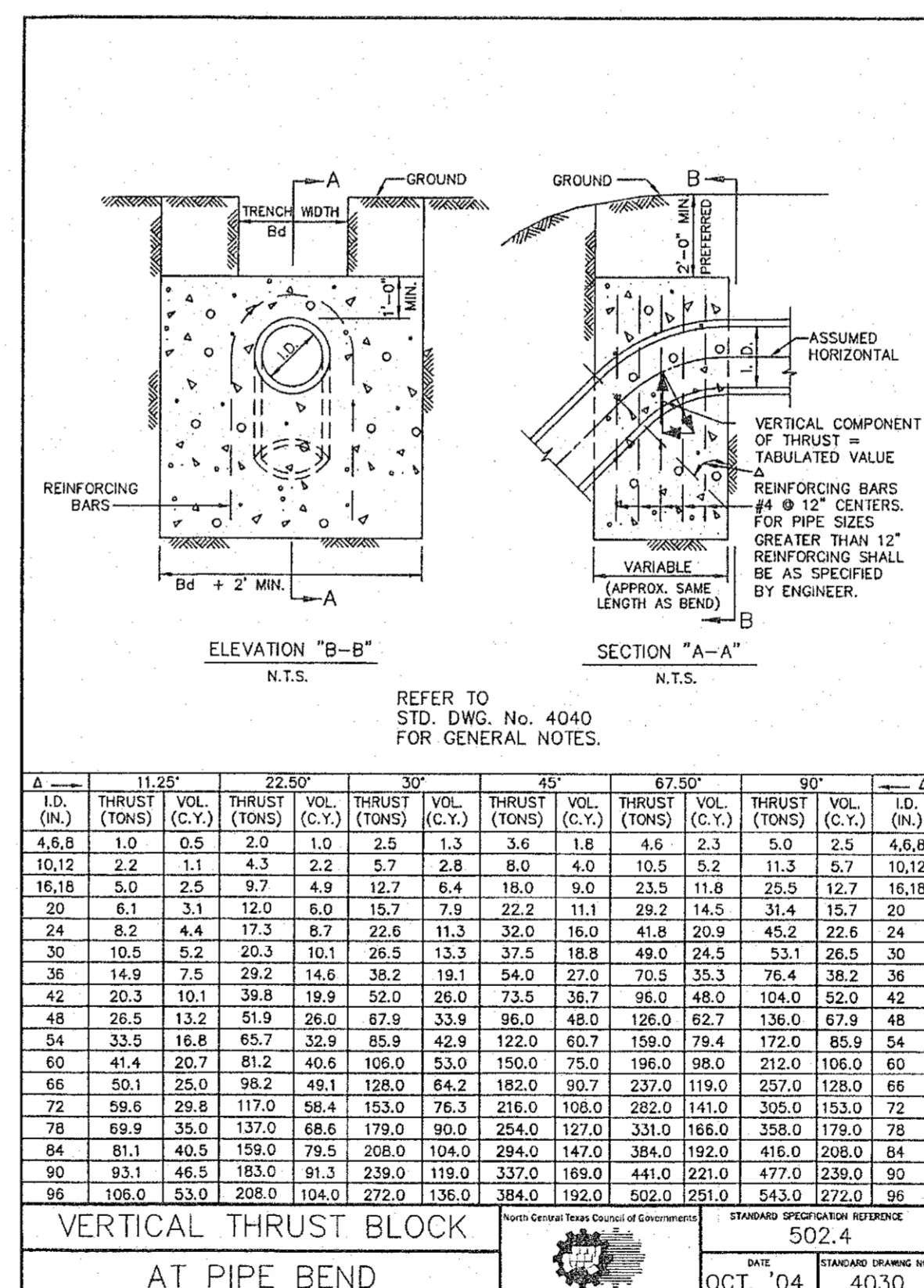
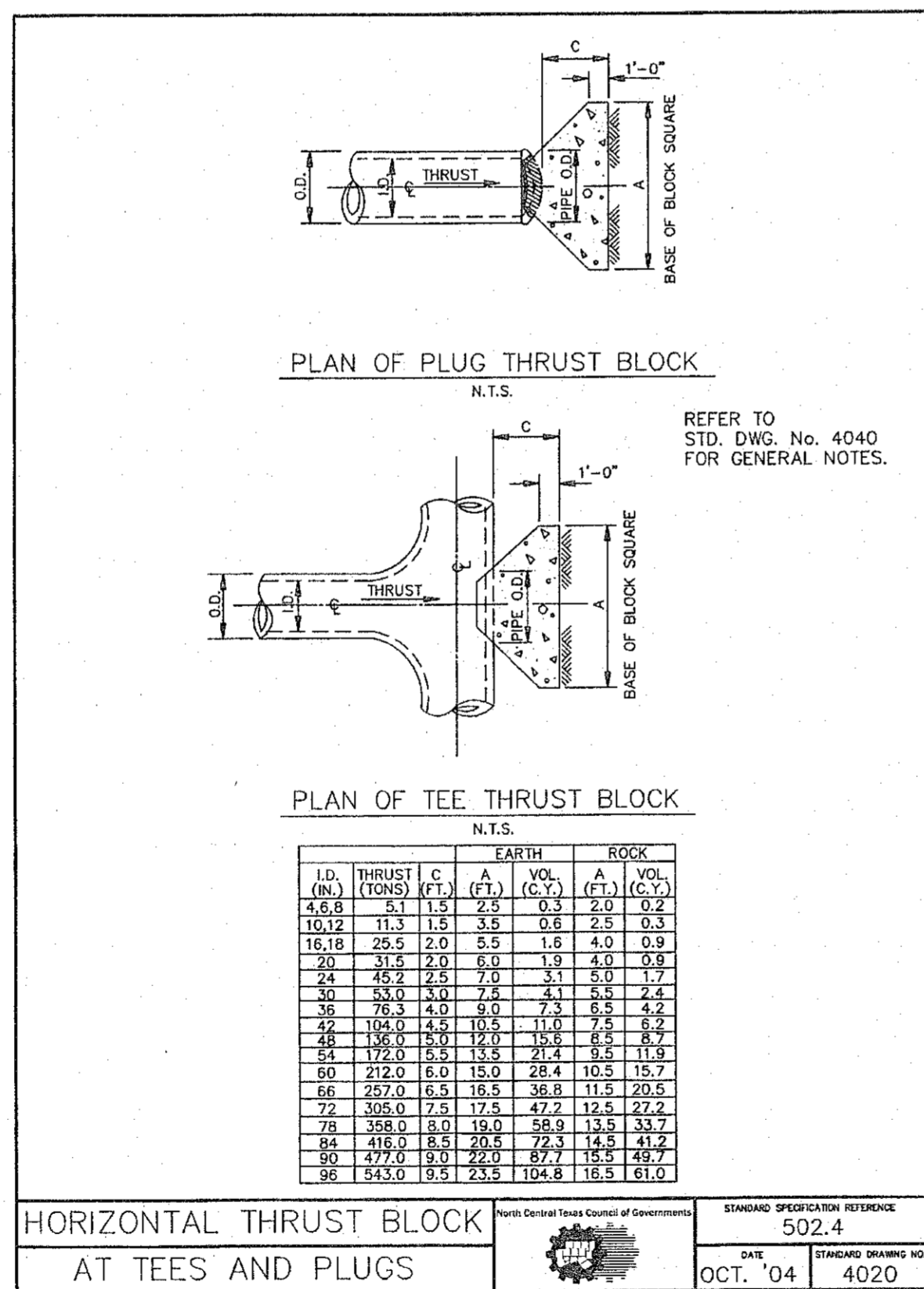
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STANDARD DRAWING NO.
4010C

I.D. (IN.)	C (FT.)	EARTH			ROCK			I.D. (IN.)	C (FT.)	EARTH			ROCK			
		THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	THRUST (TONS)	A (FT.)			B (FT.)	VOL. (C.Y.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	
4.6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2	4.6,8	2.7	7.1	6.0	1.6	0.4	2.0	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4	10,12	4.0	16.0	6.5	2.8	1.0	3.8	2.5
16,18	4.7	28.3	7.5	4.0	1.9	5.5	3.0	0.9	16,18	6.0	36.0	9.0	4.0	2.4	4.8	1.0
20	5.2	34.9	9.0	4.0	2.5	5.5	3.5	1.2	20	6.6	44.4	10.0	4.8	3.1	6.0	4.0
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6	24	7.9	64.0	14.8	4.8	6.0	8.0	4.0
30	7.8	58.9	12.0	5.0	4.8	7.0	4.0	2.2	30	9.9	78.0	16.0	6.0	6.7	10.0	4.0
36	9.4	84.9	14.5	6.0	6.2	8.5	4.5	3.8	36	11.9	108.0	18.0	6.0	11.4	12.0	4.8
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	4.3	42	13.9	147.0	21.0	7.0	13.8	14.0	8.8
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2	48	16.9	192.0	24.0	8.0	26.2	16.0	6.0
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9	54	17.9	243.0	27.0	9.0	36.9	18.0	7.0
60	15.6	235.8	24.0	10.0	35.6	16.0	7.5	17.6	60	19.9	298.8	30.0	10.0	80.3	20.0	7.8
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0	66	21.9	362.8	33.0	11.0	86.2	22.0	8.8
72	18.7	339.6	28.5	12.0	57.8	19.0	9.0	28.2	72	23.8	431.8	36.0	12.0	86.6	24.0	9.0
78	20.2	398.5	31.0	13.0	71.7	21.0	9.5	37.4	78	25.7	505.7	39.0	13.0	108.2	26.0	10.0
84	21.8	462.1	33.5	14.0	84.7	22.0	10.5	48.5	84	27.6	587.7	42.0	14.0	134.4	28.0	10.8
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2	90	29.6	674.6	46.0	15.0	164.9	30.0	11.8
96	24.9	603.6	38.0	16.0	138.9	26.5	12.0	70.0	96	31.6	767.8	48.0	16.0	199.0	32.0	12.0



GENERAL NOTES FOR ALL THRUST BLOCKS:

- CONCRETE FOR BLOCKING SHALL BE CLASS "B".
- ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
- VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
- WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
- POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
- DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
- THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
- USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
- CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

THRUST BLOCK
GENERAL NOTES

STANDARD SPECIFICATION REFERENCE
502.4

DATE
OCT. '04

STANDARD DRAWING NO.
4040

1 NCTCOG THRUST BLOCK DETAILS

Not to Scale

PROPERTY OWNER: KOHL'S ILLINOIS, INC. 156W1000 RIDGEWOOD DRIVE MEMPHIS FALLS, WISCONSIN 53051 ERIC BORKENHAGEN (262) 709-1000

OWNER: CBOCS TEXAS LIMITED PARTNERSHIP P.O. BOX 781 LEBANON, TENNESSEE 37088-0781 TELEPHONE: (615) 444-5533

PLANS PREPARED BY: JAMES A. CRAIG, P.E. DESIGN AND ENGINEERING, INC. 1645 WESGATE CIRCLE BRENTWOOD, TENNESSEE 37027 (615) 370-1111

CRACKER BARREL
OLD COUNTRY STORE, INC.
845 E. INTERSTATE 30
FRONTAGE RD.
ROCKWALL, TEXAS 75087
BLOCK A, LOT 1
CASE NUMBER: SP2018-028

RECORD STANDARD DETAILS
RSD-6
PROTO 116-11P

CRACKER BARREL PROJECT NUMBER: CB 164 ROCKWALL, TX -03
OLD COUNTRY STORE, INC.
845 EAST INTERSTATE 30
ROCKWALL, TEXAS 75087
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1645 Westgate Circle
Brentwood, TN 37027
615-370-1779
615-370-9108
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DESIGN AND ENGINEERING, INC.
STRUCTURAL AND CIVIL ENGINEERS

DATE: 12-18-11
PROJECT NO.: 11-1645
REVISIONS