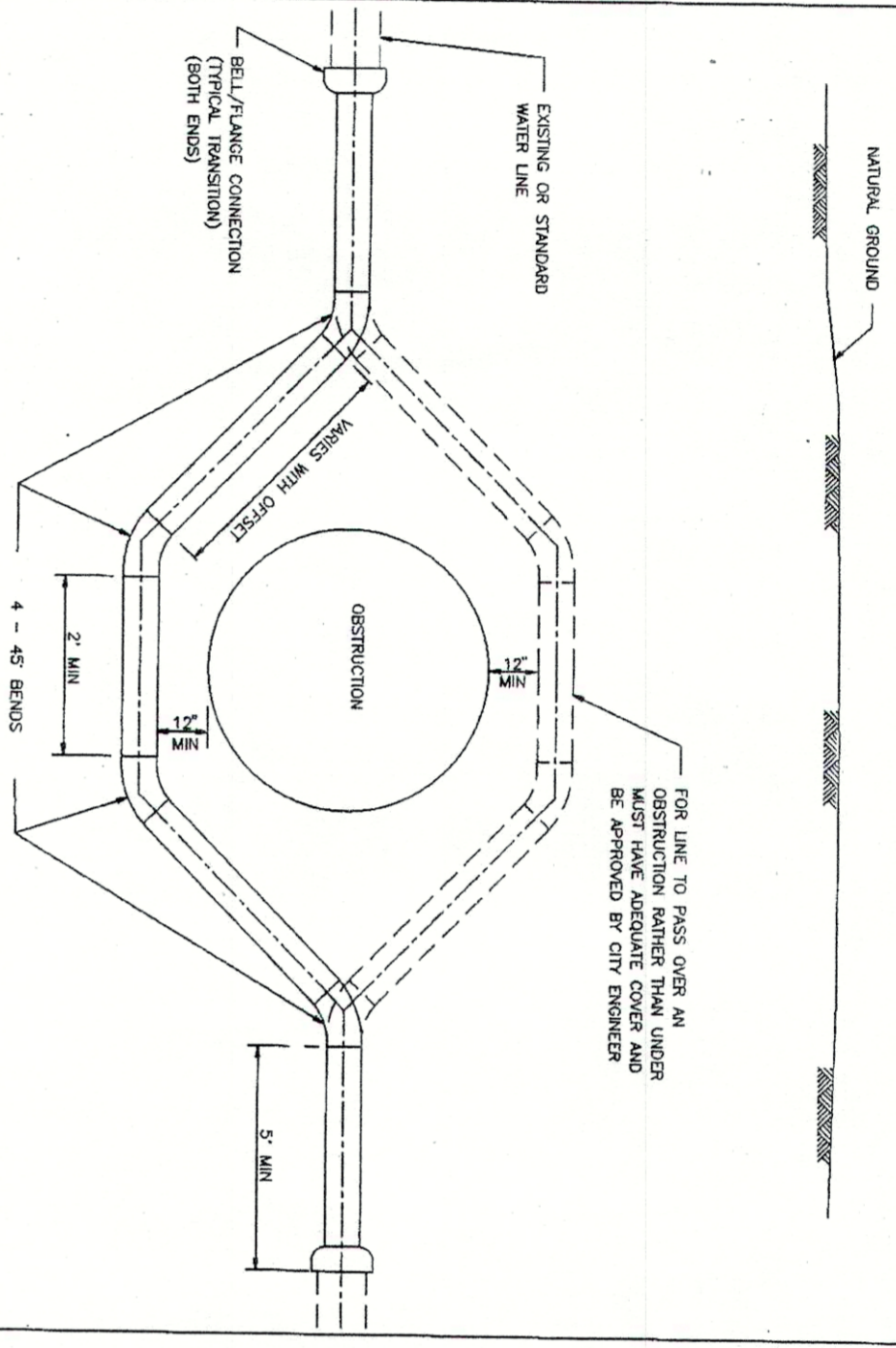


**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER DISTRIBUTION MAINS  
 BENCH MARK FOR OPEN CUT TRENCHES  
 (NOT TO SCALE)

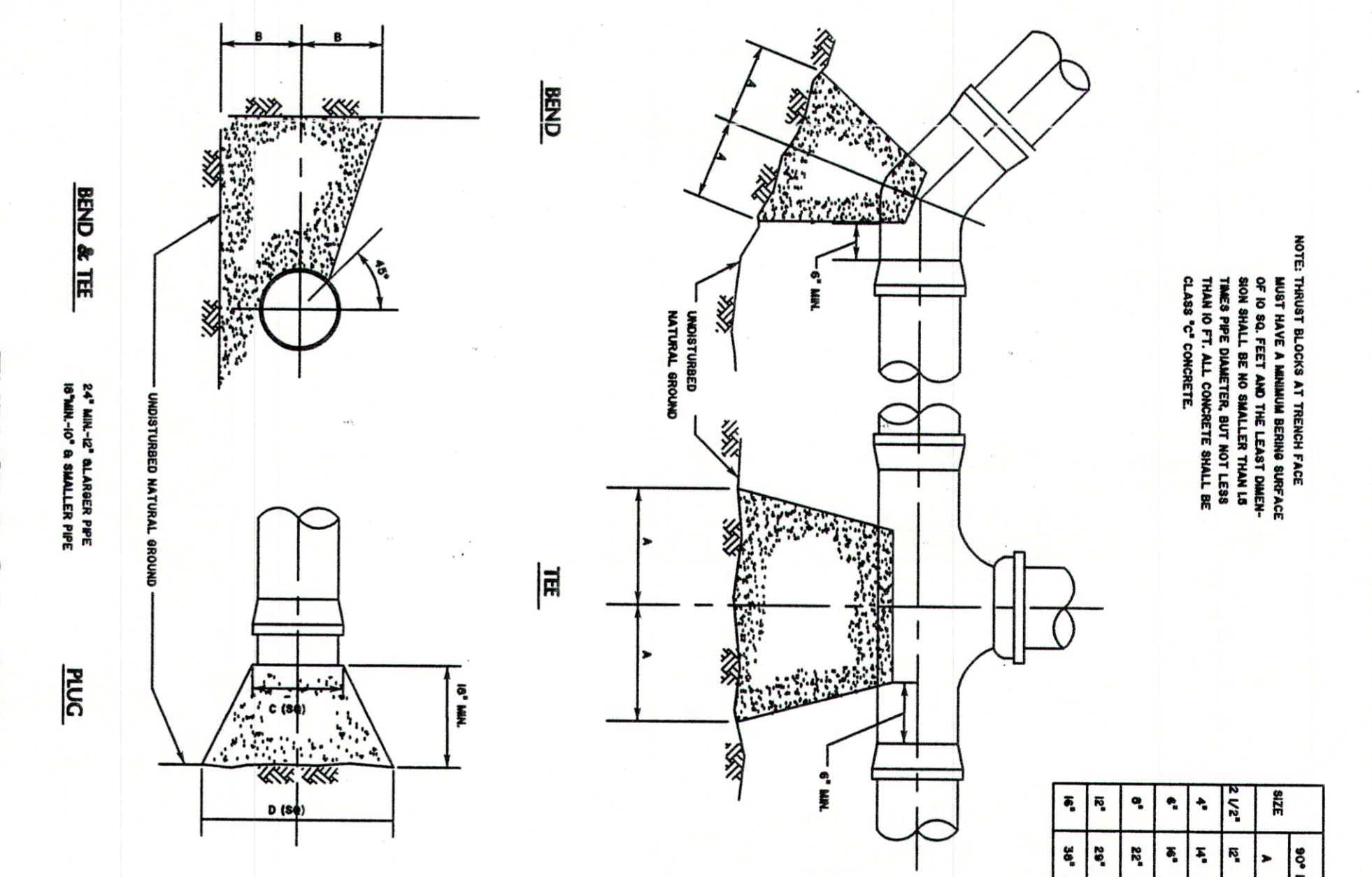
DESIGNED BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: OCT-01-2002 DWG NO. 02317-04



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TYPICAL PIPE OFFSET SECTION FOR WATER MAINS  
 (NOT TO SCALE)

DESIGNED BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: OCT-01-2002 DWG NO. 02317-01

**NOTE:**  
 1. MATERIALS AND CONDITIONS TO BE USED SHALL BE AS SPECIFIED IN STANDARD SPECIFICATIONS.  
 2. RESTRAIN EXISTING PIPING BEHIND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TYPICAL PIPE OFFSET SECTION FOR WATER MAINS  
 (NOT TO SCALE)

DESIGNED BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: OCT-01-2002 DWG NO. 02317-01

**NOTE:**  
 THRUST BLOCKS AT TRENCH FACE OF 10 TO 20 FEET AND THE LEAST CONCRETE SHALL BE NO SMALLER THAN 18" X 18" X 18" BUT NOT LESS THAN 20" X 20" X 20". CLASS "C" CONCRETE.

SIZE	18" BEND	24" BEND	30" BEND	36" BEND	42" BEND	48" BEND	60" BEND	72" BEND	90" BEND	TEES	FLUGS
12"	A	B	A	B	A	B	A	B	C	D	
15"											
18"											
24"											
30"											
36"											
42"											
48"											
60"											
72"											
90"											



**Carter Burgess**  
 Consultants in Planning, Engineering, Architecture  
 Construction Management and Related Services  
 5000 West Loop South, Suite 2000  
 Houston, Texas 77056-3842

**CITY OF HOUSTON**  
 GARDEN OAKS COURT PARTIAL REPLAT AND  
 EXTENSION NO. 1 SITE IMPROVEMENTS  
 WATERLINE  
 DETAILS

SCALE: NONE  
 PROJ. NO. 030784.0501.000  
 DESIGNED: N.L.R.  
 DRAWN: N.L.R.  
 APPROVED: C.J.M.  
 DATE: JULY, 2006  
 SHEET: 14 of 15