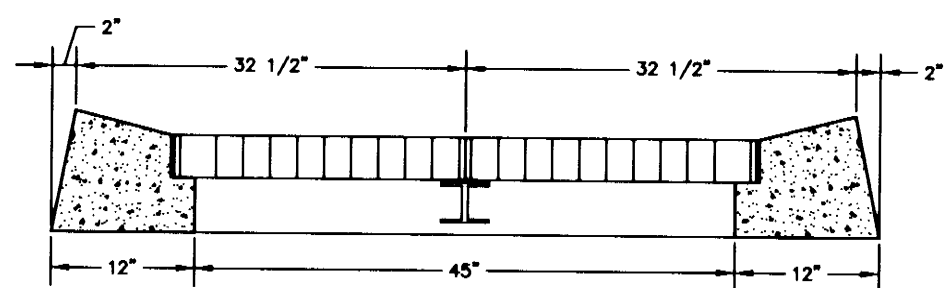
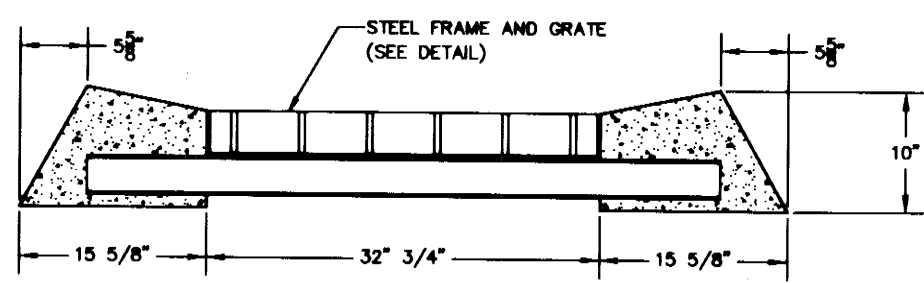
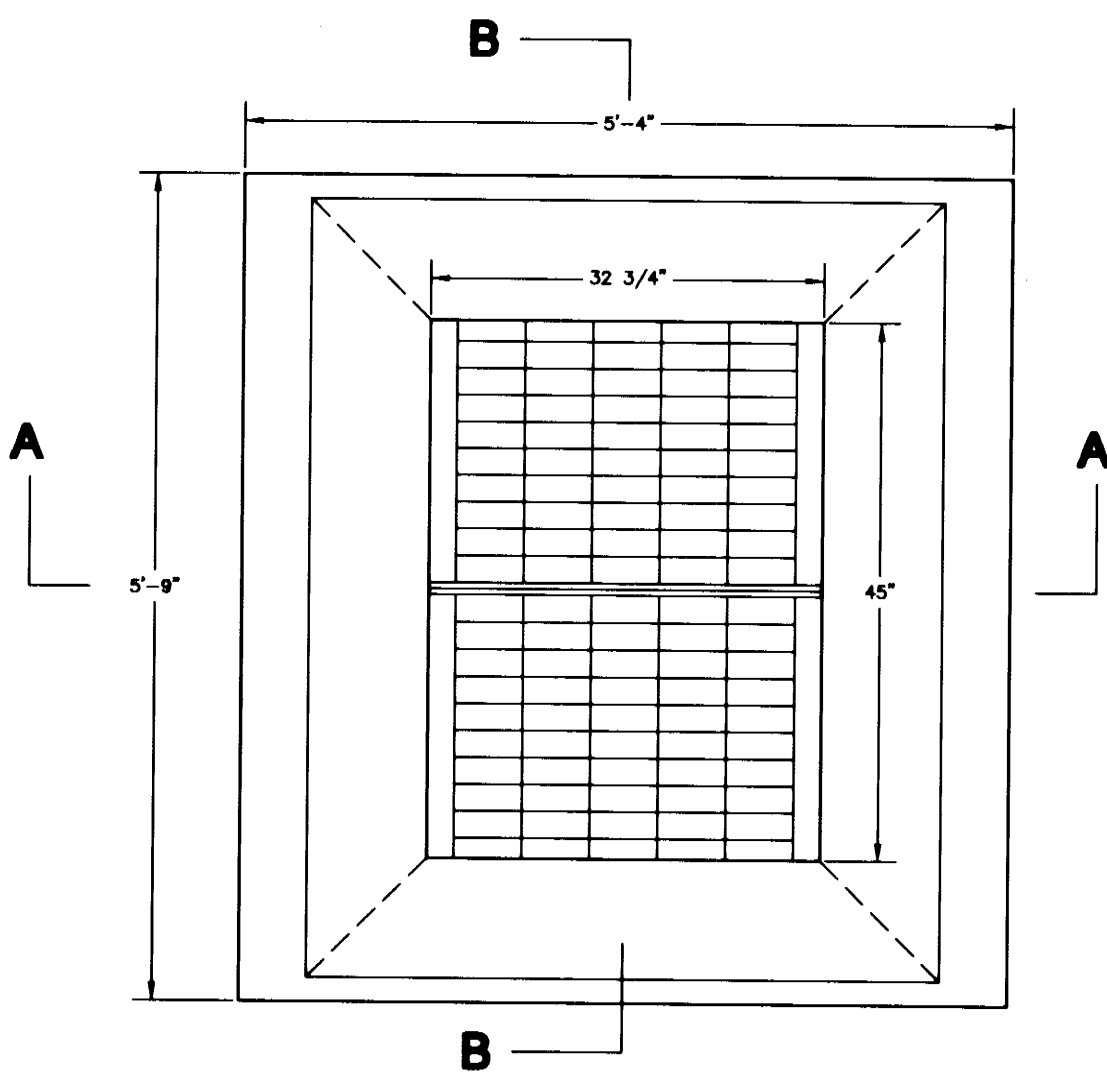


- NOTES:
1. CONCRETE - 4000 P.S.I., 28 DAYS
  2. REINFORCEMENT - ASTM A-615, GRADE 60

## SINGLE GRATE WITH CONCRETE COLLAR ONLINE WITH CURB

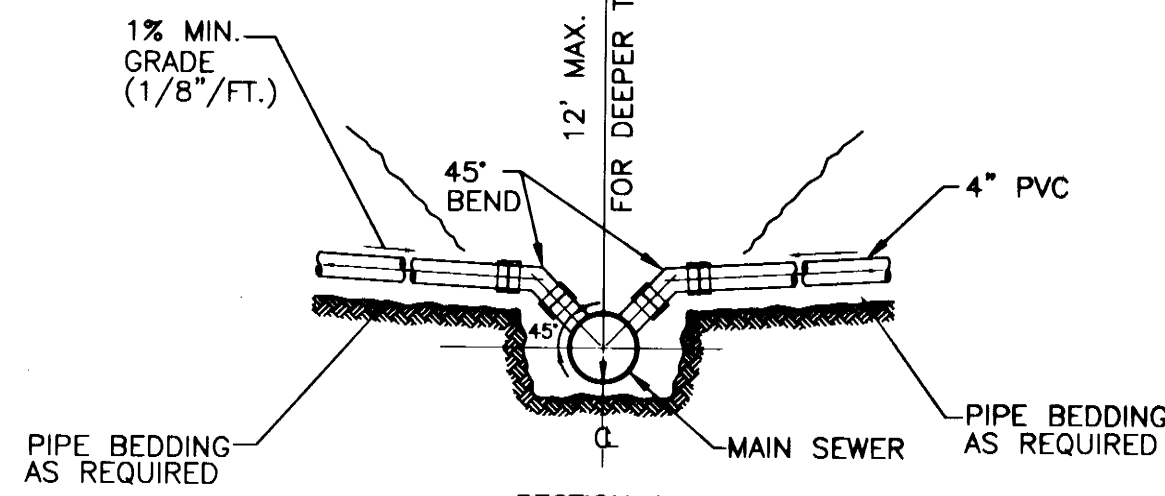
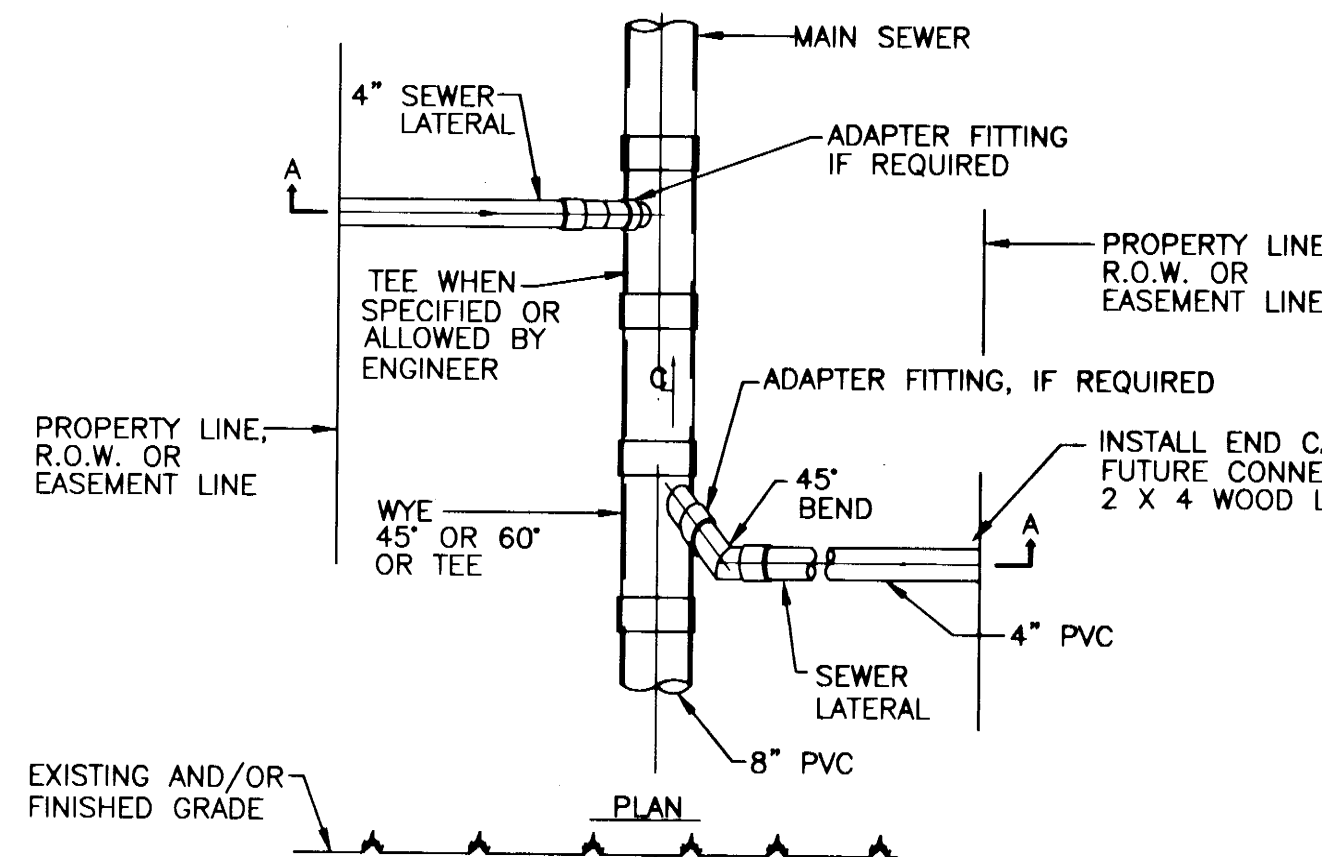
NTS



VIEW - BB

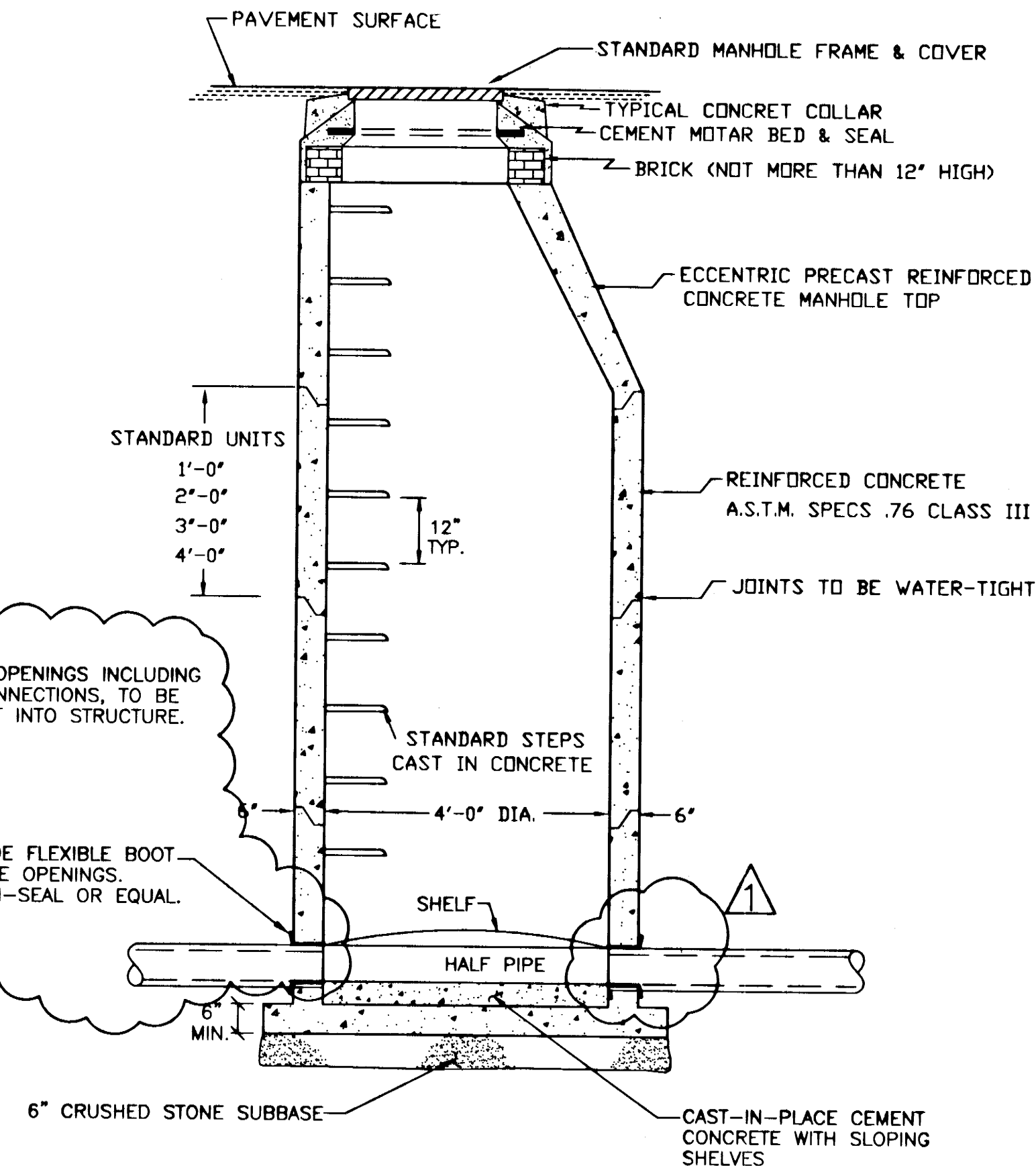
## DOUBLE GRATE WITH CONCRETE COLLAR

NTS



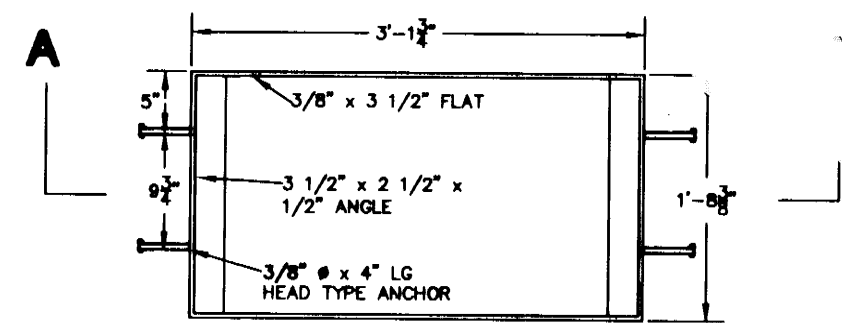
## STANDARD SEWER SERVICE CONNECTIONS

NTS

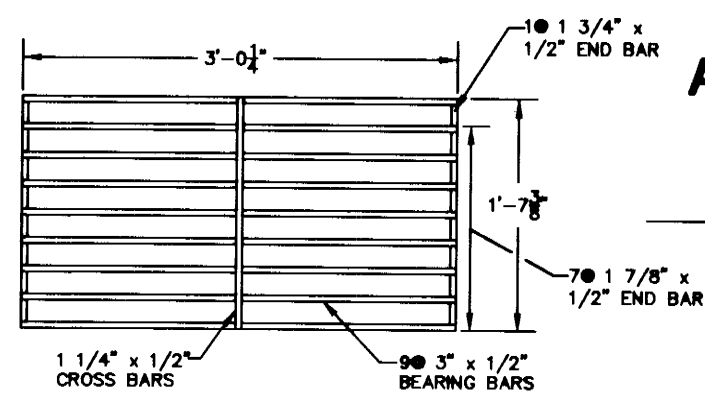


## SANITARY SEWER MANHOLE DETAIL

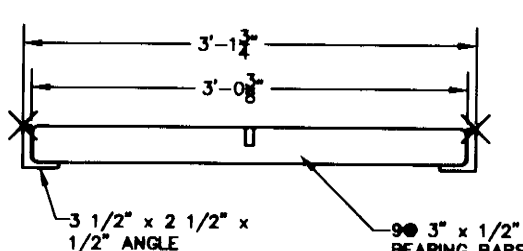
NTS



## PLAN OF FRAME



## PLAN OF GRATE



## VIEW - AA

## STEEL FRAME AND GRATE

NTS

## THRUST BLOCK NOTES

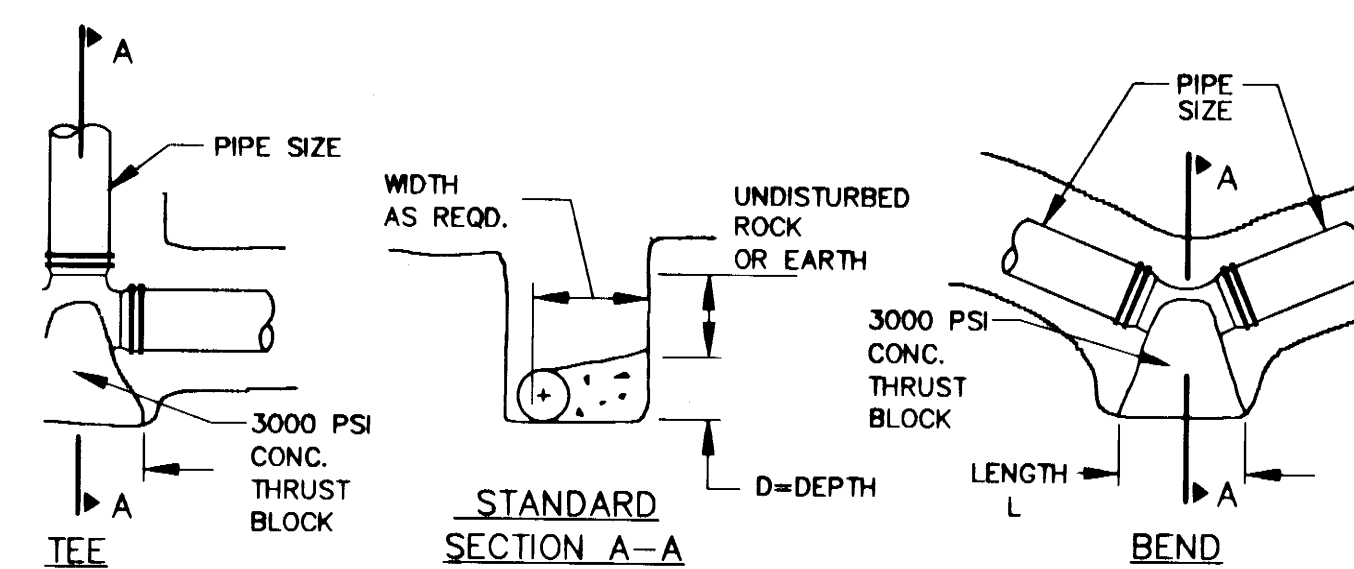
1. FOR REQUIRED BEARING AREA DIMENSIONS D & L SEE TABLE. DIMENSIONS OF D & L OTHER THAN THOSE SHOWN IN THE TABLE MAY BE USED PROVIDED THEY YIELD A BEARING AREA EQUAL TO OR LARGER THAN THAT REQUIRED.
2. CONCRETE NOT TO OVERLAP ANY JOINT.
3. CONCRETE TO BE PLACED SO AS NOT TO INTERFERE WITH REMOVING OR INSTALLING ANY OF THE JOINTING HARDWARE.
4. APPROXIMATE VOLUME OF CONCRETE THRUST BLOCK:  
$$V = \frac{LD(W+ID) - ID^3}{81}$$

WHERE:

V = VOLUME IN CUBIC YARDS  
L = LENGTH OF BLOCK IN FEET  
D = DEPTH OF BLOCK IN FEET  
W = WIDTH OF BLOCK IN FEET  
ID = INSIDE DIAMETER OF PIPE IN FEET

5. VALUES FOR TEE ALSO APPLY TO END PLUGS, CAPS, AND TAPPING SLEEVES.
6. REQUIRED BEARING AREAS ARE DUE TO THRUSTS CAUSED BY 150 PSI WORKING PRESSURE PLUS 50%(75 PSI) SURGE ALLOWANCE RESULTING IN 225 PSI TOTAL INTERNAL PRESSURE. NORMAL PIPE DIAMETER USED.
7. REQUIRED BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING CAPACITY OF 2000 LBS. PER SQUARE FOOT FOR SAND. DUE TO OTHER SOIL CONDITIONS ENCOUNTERED, BEARING AREAS MAY BE MODIFIED BY THE ENGINEER.
8. IN MUCK, PEAT, OR RECENTLY PLACED FILL ALL THRUST SHALL BE RESISTED BY PILES OR TIE RODS TO SOLID FOUNDATIONS, OR BY REMOVAL OF SUCH UNSTABLE MATERIAL AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS, ALL AS REQUIRED BY THE ENGINEER.

REQUIRED BEARING AREAS & DIMENSIONS FOR CONCRETE THRUST BLOCKS										
PIPE SIZE (IN.)	TEE(See Note 5)		90°(1/4)BEND		45°(1/8)BEND		22-1/2°(1/16)BEND		1-1/4°(1/32)BEND	
	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L
8	5.7	2.0 x 3.0	8.0	2.0 x 4.0	4.3	2.0 x 2.5	2.2	1.5 x 1.5	1.1	1.0 x 1.5



## THRUST BLOCK DETAILS

NTS

APPROVED BY EAST LONGMEADOW PLANNING BOARD

DATE: Dec 11, 2000

CHAIRMAN: [Signature]

SHEET TITLE:		DETAIL SHEET No. 1	
PROJECT AND LOCATION:		NOTTINGHAM MEADOWS PARKER STREET EAST LONGMEADOW, MA	
PREPARED FOR:		APPLE LAND DEVELOPMENT, INC. 296 NORTH MAIN STREET EAST LONGMEADOW, MA	
CIVIL ENGINEERS		BAYSTATE ENVIRONMENTAL CONSULTANTS INC.	
296 North Main Street		East Longmeadow, MA 01028	
DEC PROJECT No. 99-1104		SHEET No. 12	
SCALE AS NOTED		DATE 4/2000	
DESIGNED BY P.A.D.		CHECKED BY M.L.P.	
12 of 13 SHEETS		SD-255	