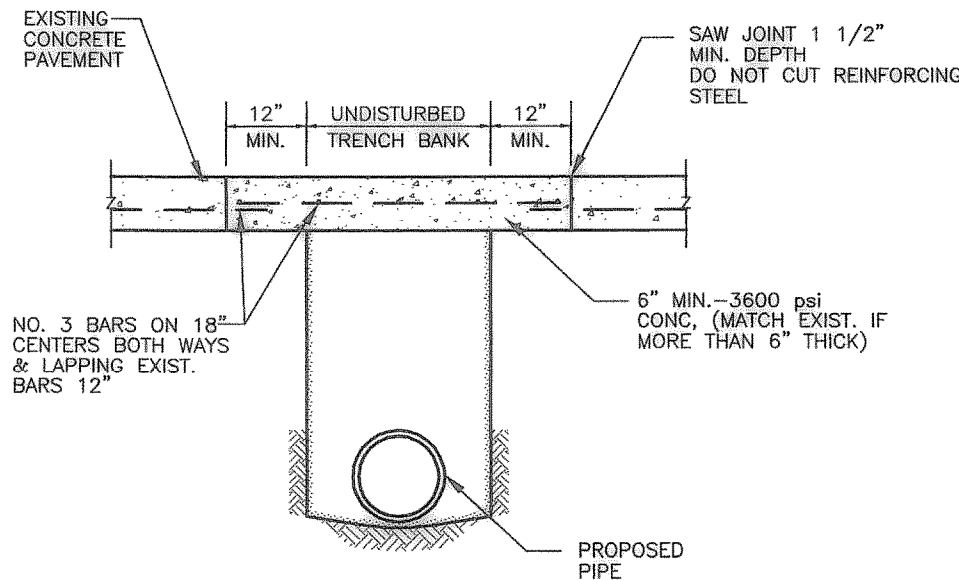
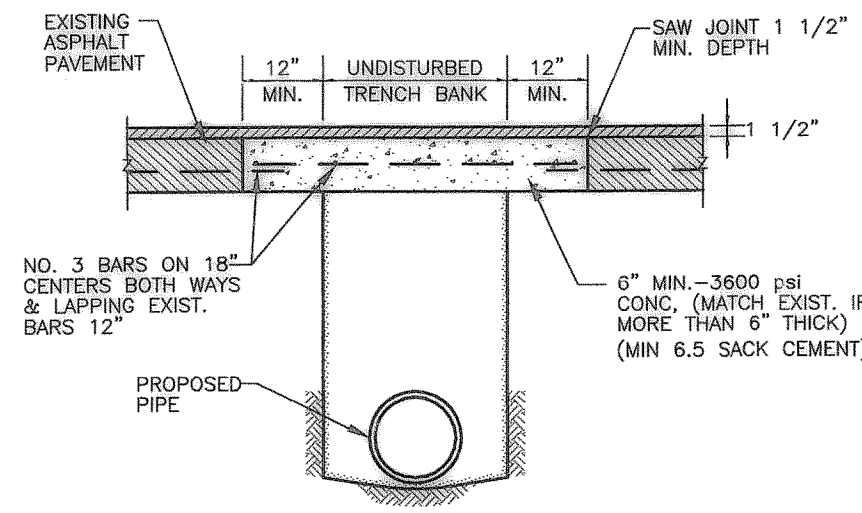
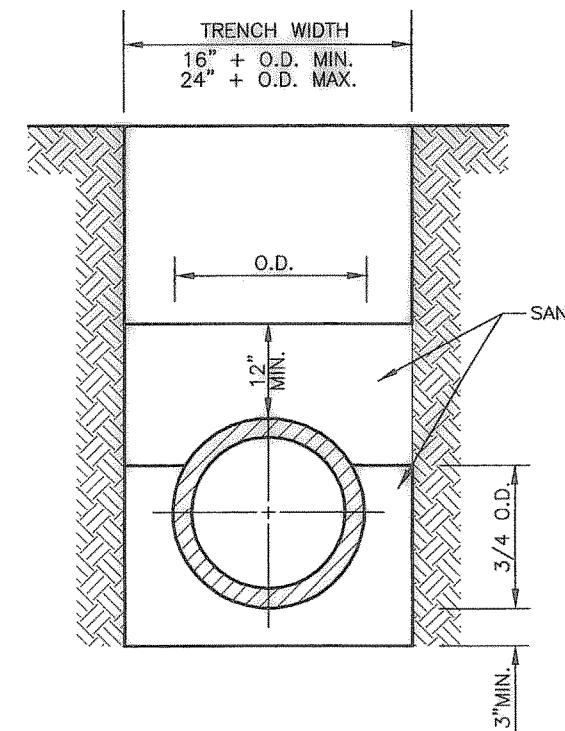




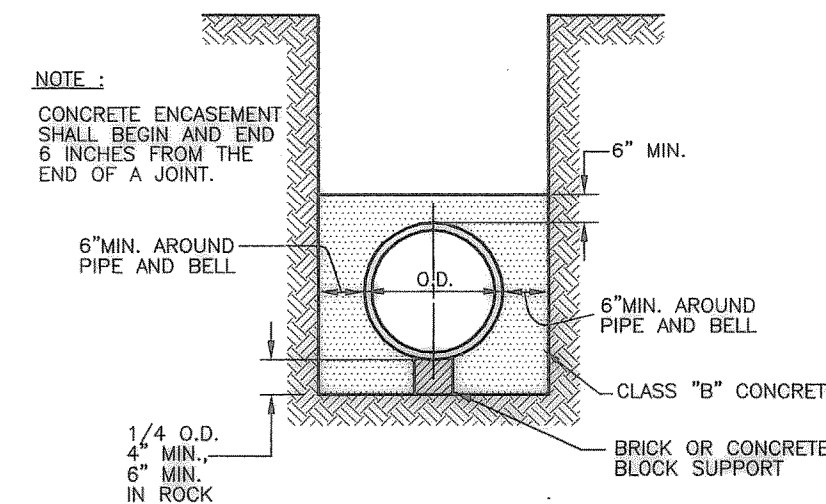
**CONCRETE STREET
OR DRIVEWAY REPAIR**
N.T.S.



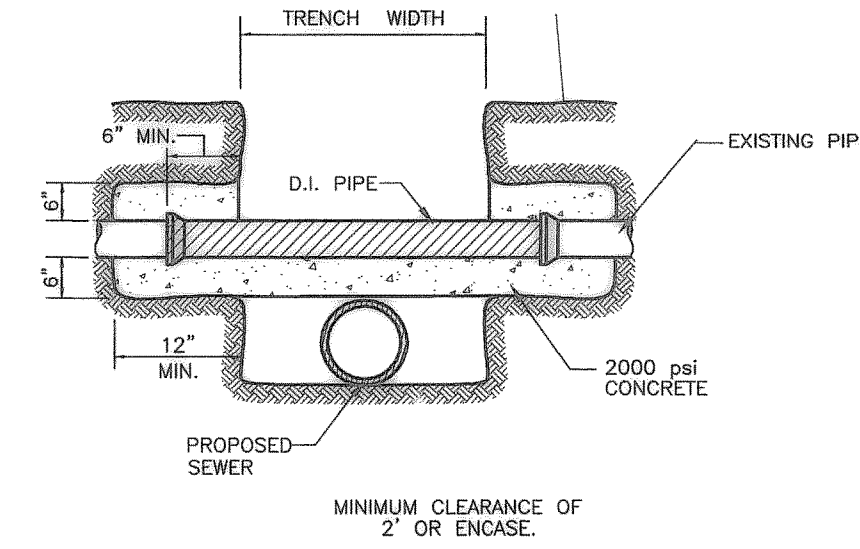
**ASPHALT STREET
OR DRIVEWAY REPAIR**
N.T.S.



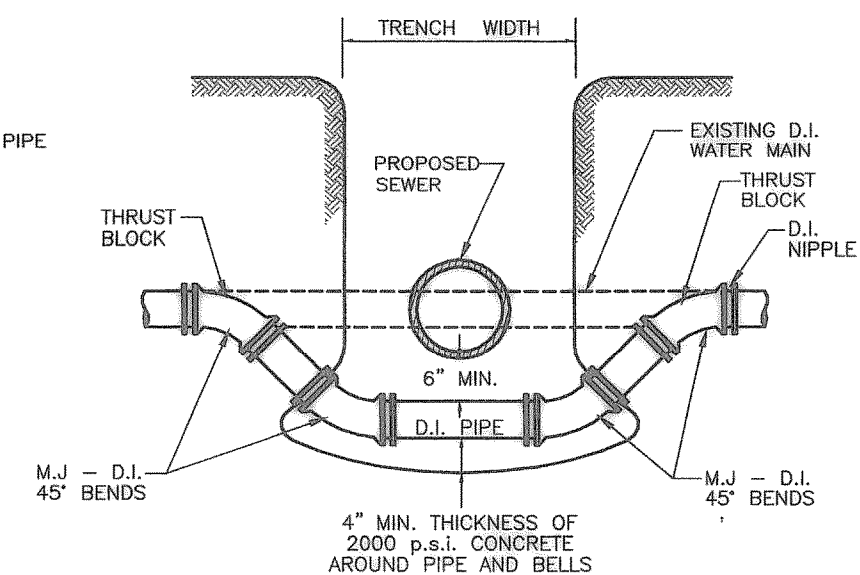
**TYPICAL BACKFILL WATER MAIN
P.V.C. WATER PIPE**
N.T.S.



CLASS "G" EMBEDMENT
N.T.S.



**DETAIL OF
UTILITY SUPPORT**
N.T.S.

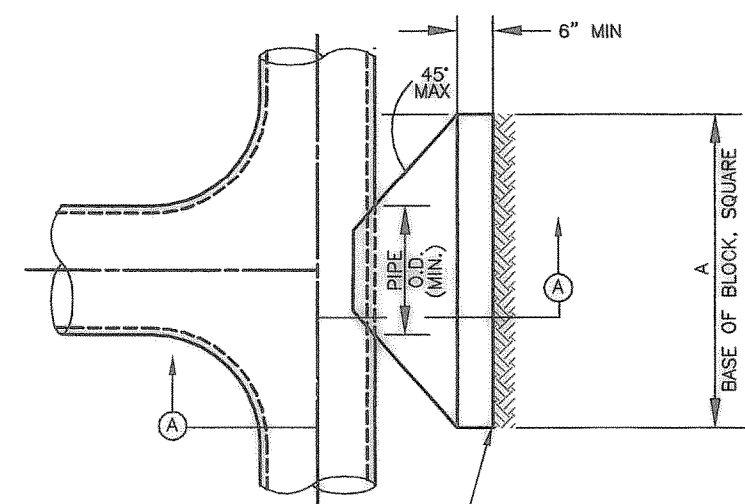


**DETAIL FOR
WATER MAIN LOWERING**
N.T.S.

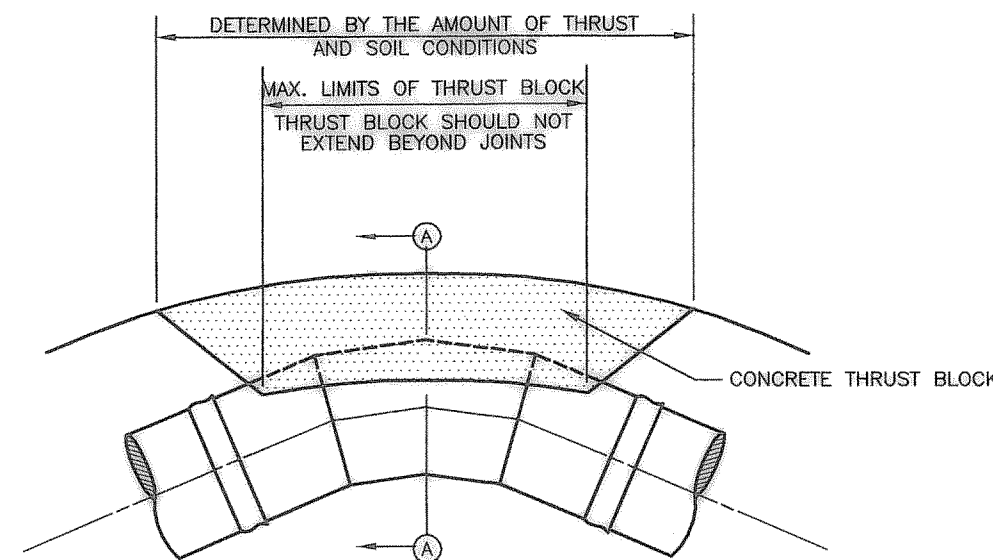
GENERAL DATA FOR BLOCKING STANDARD FITTINGS							
PIPE SIZE	MINIMUM SURFACE AREA OF CONCRETE BLOCK AGAINST UNDISTURBED EARTH (S.F.)						
	PLUG	TEE	90° BEND	45° BEND	22 1/2° BEND	1 1/4° BEND	
6"	2.50	2.5	3.00	2.00	1.00	1.00	
8"	4.00	4.00	5.50	3.00	1.50	1.00	
10"	6.00	6.00	8.50	5.00	2.50	1.50	
12"	9.00	9.00	12.5	7.00	3.50	2.00	
14"	12.0	12.0	16.5	9.00	5.00	2.50	
16"	15.5	15.5	22.0	12.0	6.00	3.00	
18"	19.5	19.5	27.5	15.0	8.00	4.00	
20"	24.0	24.0	34.5	19.0	10.0	5.00	

GENERAL NOTES :

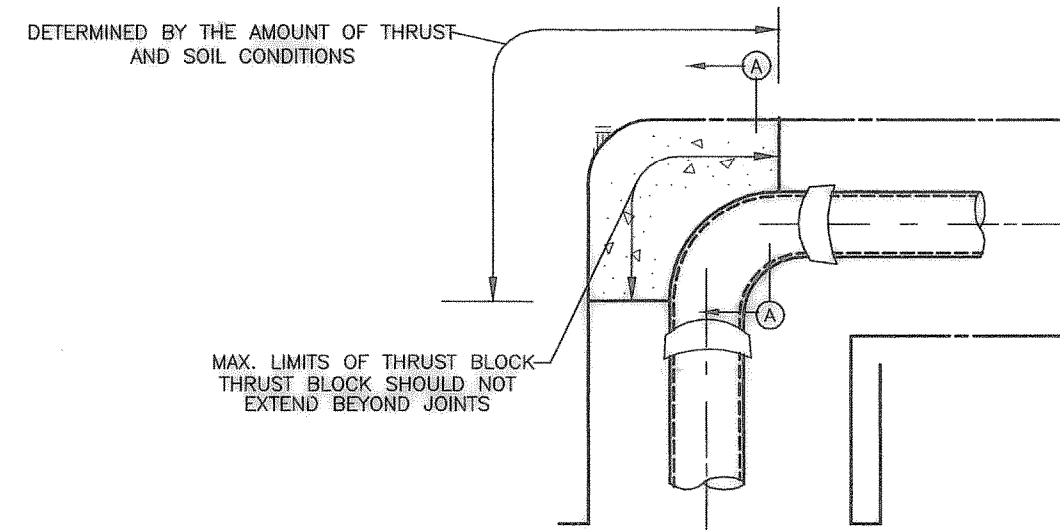
1. ALL CALCULATIONS ARE BASED ON TOTAL INTERNAL PRESSURE OF 150 P.S.I.
2. ALLOWABLE SOIL BEARING PRESSURES MUST BE AT LEAST ONE TON PER SQUARE FOOT FOR THE THRUST BLOCKS SHOWN. IN SOILS OF LESSER CAPACITY, INCREASE SIZE AND BEARING AREA PROPORTIONATELY. VOLUMES OF VERTICAL BEND THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED AND THE CORRESPONDING WEIGHT OF THE CONCRETE (AT 4000#/C.Y.) EQUALS THE VERTICAL COMPONENT OF THRUST ON THE VERTICAL BEND. ALL BEARING SURFACES OF THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. CONCRETE FOR BLOCKING SHALL BE 2,000 P.S.I. CONCRETE.
4. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER, BUT SHALL NOT BE LESS THAN THE DIMENSIONS SHOWN HERE.
5. ALL ANCHOR FITTINGS TO BE CONCRETE THRUST BLOCKED. ALL DUCTILE OR CAST IRON FITTINGS AND OR PIPE TO BE POLYWRAPPED.



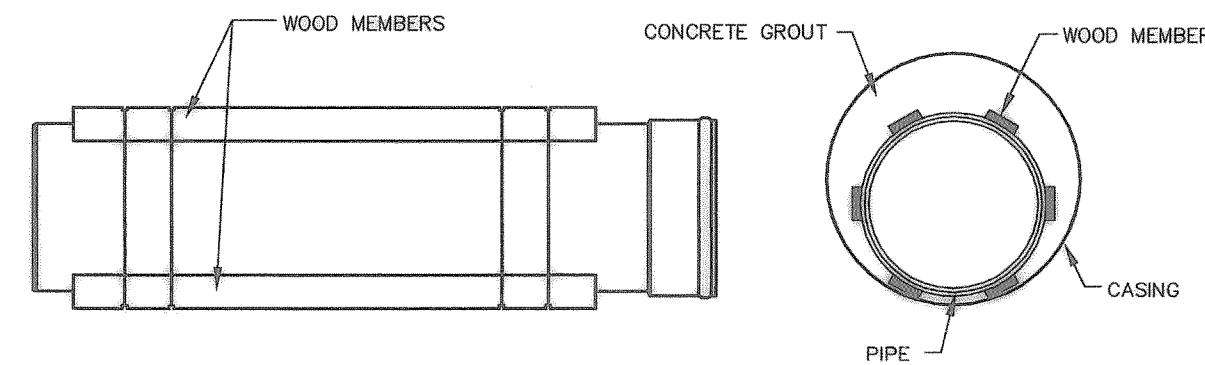
PLAN OF TEE THRUST BLOCK
N.T.S.



PLAN OF BEND THRUST BLOCK
N.T.S.



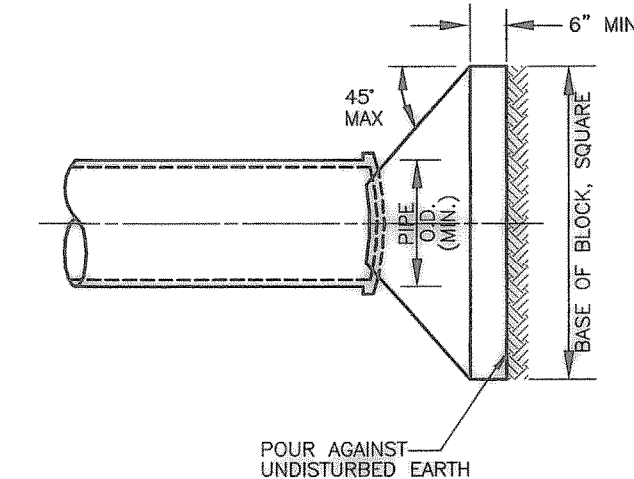
PLAN OF 90° THRUST BLOCK
N.T.S.



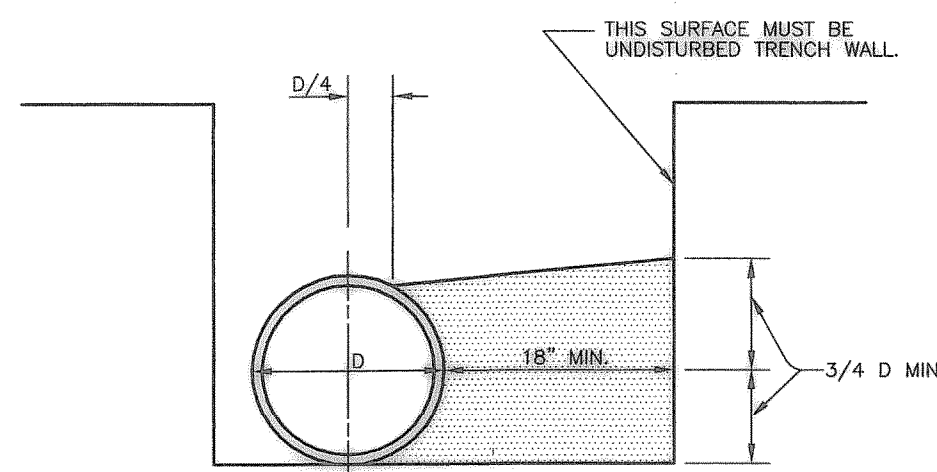
NOTE:
WOOD MEMBERS MUST EXTEND THE FULL LENGTH OF THE PIPE (EXCLUDING THE JOINT) AND BE SECURELY FASTENED TO THE PIPE BY STEEL STRAPS POSITIONED IN NOTCHES. 4 WOOD MEMBERS AT 90° SHALL BE USED FOR SIZES UP TO 12" 6 WOOD MEMBERS AT 60° SHALL BE USED FOR 20" PIPE. THE ANNULAR SPACE BETWEEN THE PIPE AND THE CASING SHALL BE BACKFILLED WITH SAND UP TO OR NEAR THE TOP OF THE PIPE BY FLUSHING THE SAND INTO THE SPACE WITH A HIGH PRESSURE WATER HOSE. AN EXCESSIVE AMOUNT OF WATER SHALL NOT BE USED.

PIPE ENCASEMENT DETAIL
N.T.S.

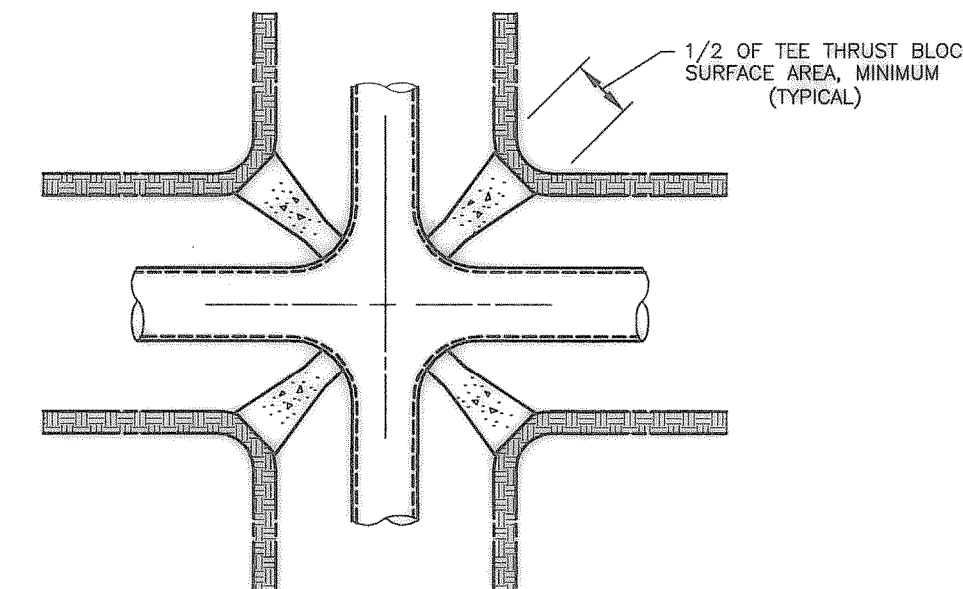
NOTE:
INSTALL EMS PAD AT CHANGES IN DIRECTION



PLAN OF PLUG THRUST BLOCK
N.T.S.



TYPICAL SECTION (A-A)
N.T.S.



PLAN OF CROSS THRUST BLOCK
N.T.S.

TYPICAL DETAILS - THRUST BLOCKING

**RECORD DRAWINGS
AS PROVIDED BY:
I.C.S. COMMERCIAL**
Michael S. Allen
MICHAEL S. ALLEN, P.E.
DATE: 9/25/03