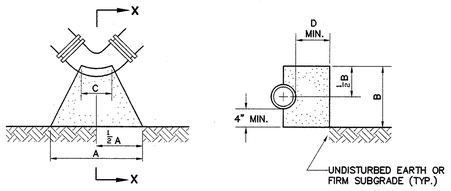


PLAN

SECTION X–X

NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

PIPE DIA.	45° BEND					90° BEND				
	A	B	C	D	E	A	B	C	D	E
3"	9"	12"	6"	6"	4"	12"	12"	6"	12"	6"
4"	9"	12"	6"	6"	4"	16"	12"	6"	12"	6"
6"	12"	14"	6"	8"	4"	21"	14"	6"	18"	6"
8"	18"	16"	8"	9"	6"	30"	16"	8"	18"	9"
10"	24"	18"	8"	10"	6"	36"	24"	10"	18"	9"
12"	30"	20"	12"	12"	9"	48"	24"	12"	18"	12"
16"	42"	30"	12"	15"	9"	60"	30"	16"	21"	12"
20"	56"	30"	12"	16"	16"	72"	40"	20"	21"	24"
24"	60"	36"	12"	21"	24"	84"	48"	24"	24"	30"
30"	72"	48"	16"	27"	24"	108"	60"	30"	24"	36"

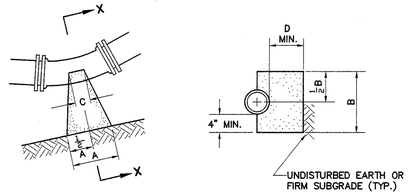
BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

20 | C8 C12

THRUST BLOCK DETAILS
45° - 90° BENDS

NO SCALE



PLAN

SECTION X–X

NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

PIPE DIA.	11 1/4° BEND					22 1/2° BEND				
	A	B	C	D	E	A	B	C	D	E
3"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
4"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
6"	6"	14"	6"	7"	2"	8"	14"	6"	8"	2"
8"	8"	16"	8"	7"	2"	12"	16"	8"	8"	4"
10"	9"	18"	8"	8"	4"	15"	18"	8"	10"	4"
12"	12"	20"	12"	9"	4"	18"	20"	12"	12"	6"
16"	15"	24"	12"	9"	6"	24"	24"	12"	15"	6"
20"	30"	12"	10"	10"	6"	30"	30"	12"	18"	9"
24"	18"	36"	12"	12"	6"	36"	36"	12"	18"	9"
30"	24"	42"	16"	14"	9"	48"	42"	16"	21"	12"

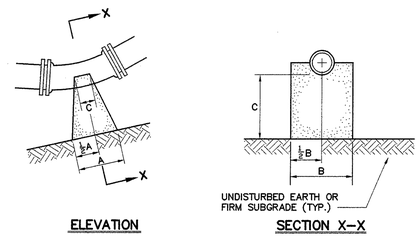
BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

21 | C8 C12

THRUST BLOCK DETAILS
11 1/4° - 22 1/2° BENDS

NO SCALE



ELEVATION

SECTION X–X

NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

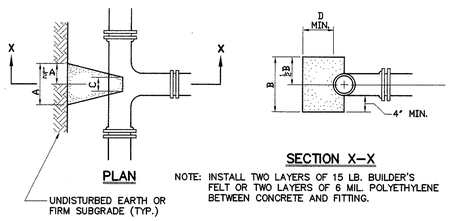
BEND		PIPE DIAMETER									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11 1/4°	A	6"	6"	6"	8"	8"	8"	13"	15"	22"	32"
	B	12"	12"	14"	16"	18"	24"	28"	32"	36"	40"
	C	8"	8"	8"	8"	8"	8"	9"	10"	12"	14"
22 1/2°	A	6"	6"	10"	11"	15"	16"	25"	33"	39"	43"
	B	12"	12"	14"	16"	18"	24"	28"	32"	36"	40"
	C	8"	8"	8"	8"	9"	9"	12"	14"	16"	18"
45°	A	10"	12"	14"	21"	19"	32"	48"	66"	72"	98"
	B	12"	12"	14"	16"	18"	24"	28"	32"	42"	48"
	C	8"	8"	8"	8"	12"	14"	18"	24"	30"	36"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

22 | C8 C12

THRUST BLOCK DETAILS
LOWER VERTICAL BENDS

NO SCALE



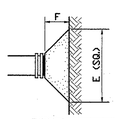
PLAN

SECTION X–X

NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

TEE	BRANCH DIAMETER									
	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
A	12"	12"	16"	18"	26"	30"	40"	48"	60"	80"
B	12"	16"	20"	30"	32"	42"	56"	72"	80"	96"
C	8"	8"	12"	12"	12"	12"	16"	24"	24"	24"
D	6"	6"	8"	9"	10"	12"	14"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI



NOTE: INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING.

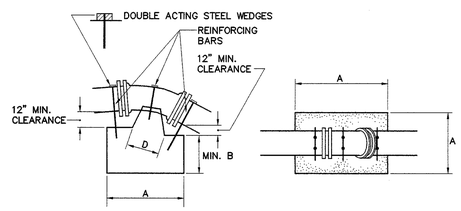
PLUG	PIPE DIAMETER									
	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
E	14"	16"	21"	29"	36"	41"	54"	64"	75"	88"
F	8"	8"	10"	10"	12"	14"	16"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

23 | C8 C12

THRUST BLOCK DETAILS
TEES, TAPPING SLEEVES, PLUGS & CAPS

NO SCALE



ELEVATION

PLAN

NOTE:
1. EMBED REINFORCING BARS MINIMUM OF 36 DIAMETERS INCLUDING HOOK.
2. PAINT EXPOSED BARS WITH TWO COATS OF BITUMINOUS PAINT.
3. WHERE 4 BARS ARE REQUIRED, PLACE 2 BARS SYMMETRICALLY AROUND FITTING.
4. INSTALL TWO LAYERS OF 15 LB. BUILDER'S FELT OR TWO LAYERS OF 6MIL POLYETHYLINE BETWEEN CONCRETE AND FITTING.

C = NUMBER AND SIZE OF REINFORCING BARS
D = DIMENSION OF PIPE DIAMETER

BEND		PIPE DIAMETER									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11 1/4°	A	18"	18"	24"	24"	27"	30"	39"	48"	54"	60"
	B	18"	18"	18"	24"	24"	27"	30"	30"	36"	36"
	C	3#5	3#5	3#5	3#6	3#6	3#6	3#6	3#8	3#8	3#8
22 1/2°	A	18"	24"	30"	33"	42"	48"	54"	66"	72"	84"
	B	18"	18"	24"	27"	27"	30"	36"	42"	48"	54"
	C	3#5	3#5	3#5	3#6	3#6	4#6	4#6	3#8	4#8	4#8
45°	A	24"	30"	26"	42"	48"	54"	60"	90"	98"	120"
	B	18"	24"	24"	30"	33"	36"	42'	48"	54"	60"
	C	3#5	3#5	3#5	3#6	4#6	4#6	4#8	4#8	4#8	4#9

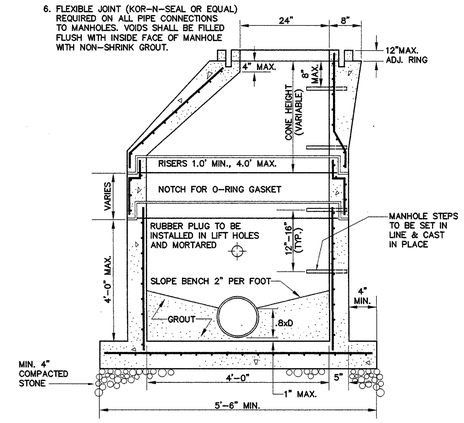
BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

24 | C8 C12

THRUST BLOCK DETAILS
UPPER VERTICAL BENDS

NO SCALE

NOTES:
1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM C–478.
2. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
3. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM A–615.
4. TAPERED JOINT WITH O–RING GASKET TO MEET CURRENT REQUIREMENTS OF ASTM C–361 & C–443.
5. COLD APPLIED JOINT SEALER (SAHOM–98) SHALL BE USED IN ADDITION TO THE JOINT SPECIFIED.
6. FLEXIBLE JOINT (KOR–N–SEAL OR EQUAL) REQUIRED ON ALL PIPE CONNECTIONS TO MANHOLES. VOIDS SHALL BE FILLED FLUSH WITH INSIDE FACE OF MANHOLE WITH NON–SHRINK GROUT.



25 | C8 C12

PRECAST CONCRETE MANHOLE

NO SCALE

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12/20/02
PROFESSIONAL ENGINEER

HVC•• CHENAULT
hening·vest·covey·chenault architectural corporation
richmond virginia
architecture • planning • interior design

NEW COUNTY OFFICE BUILDING
PRINCE GEORGE COUNTY
PRINCE GEORGE, VIRGINIA

com. no.:	4040
drawn by:	SEK
checked by:	CMS
date:	10/01/01
revisions:	12/06/01
	5/15/02
BID:	09/09/02
	11/04/02
	12/20/02

DETAILS

C12