

12/15/97 10:24:47 RCD-12-

A

B

C

D

E

F

A

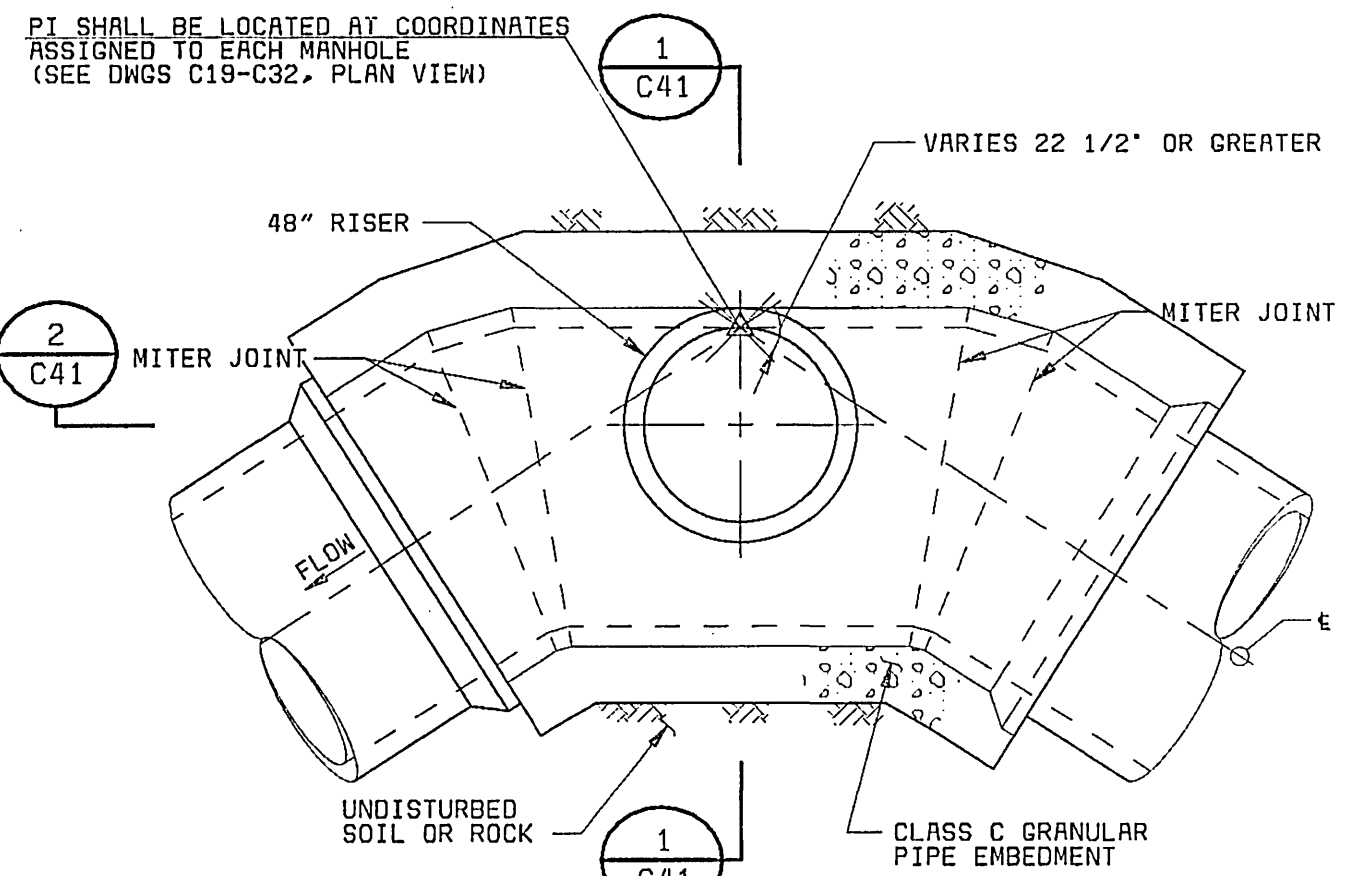
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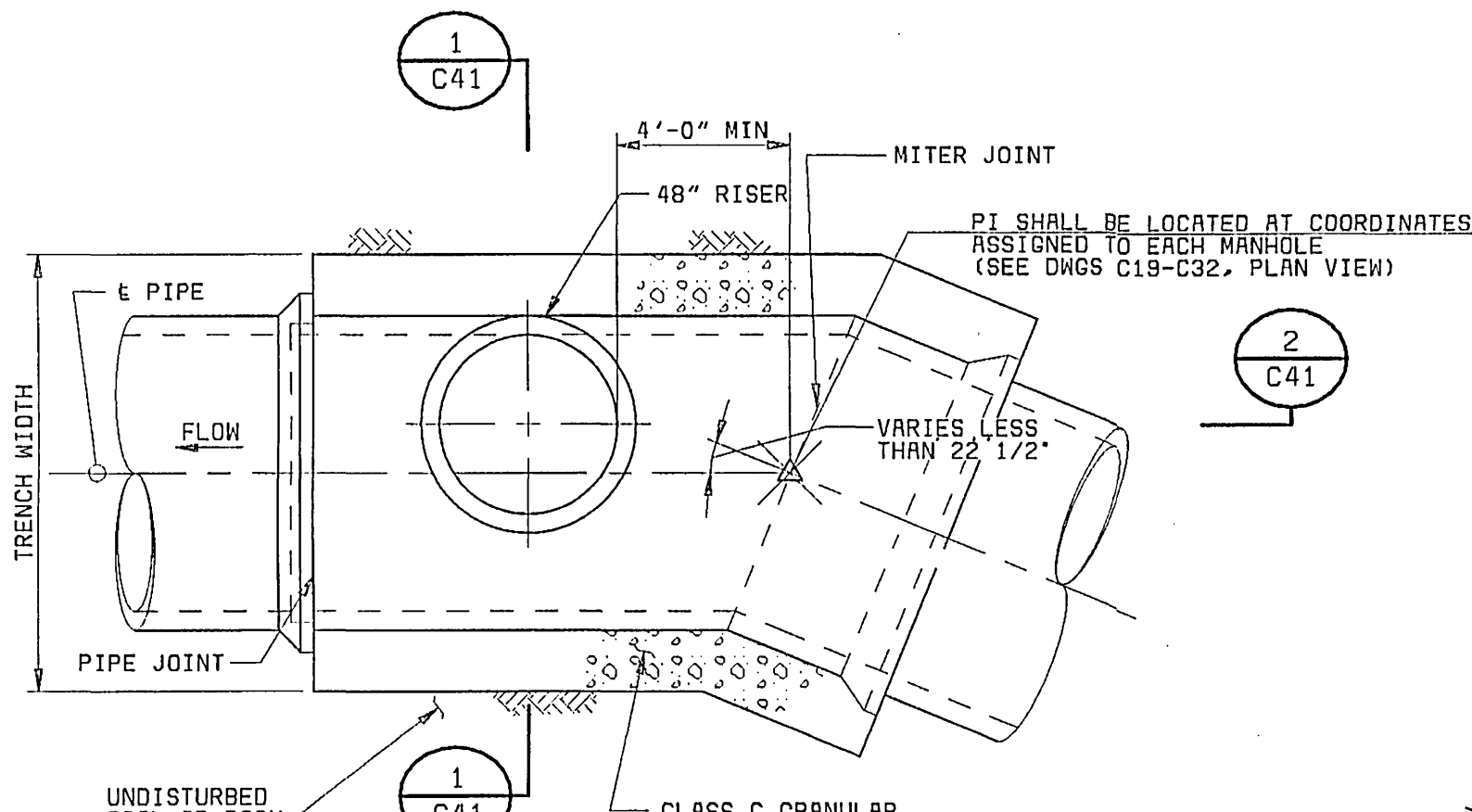
E

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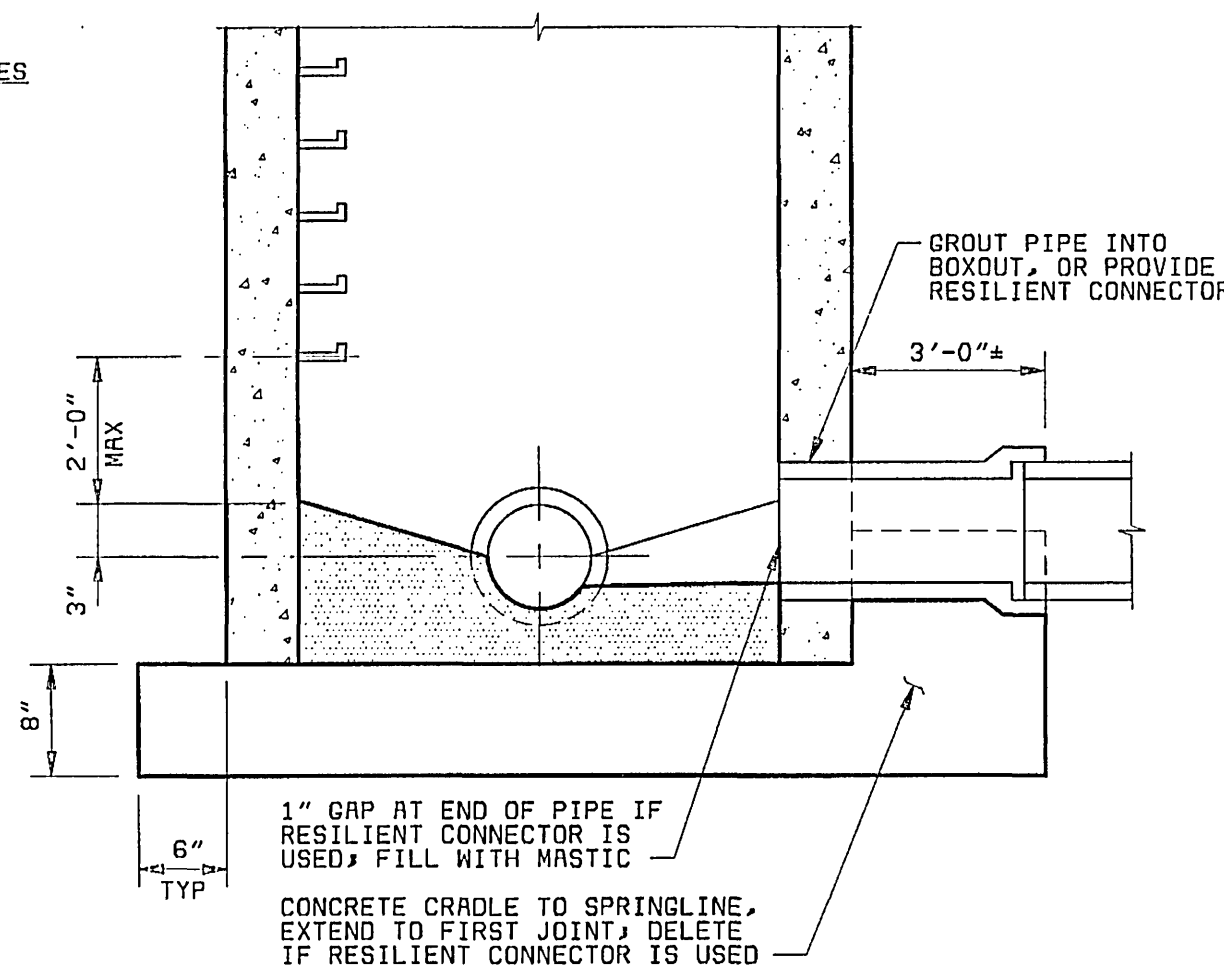
TEE MANHOLE

PI DEFLECTION 22 1/2" OR GREATER
1/4"=1'-0"



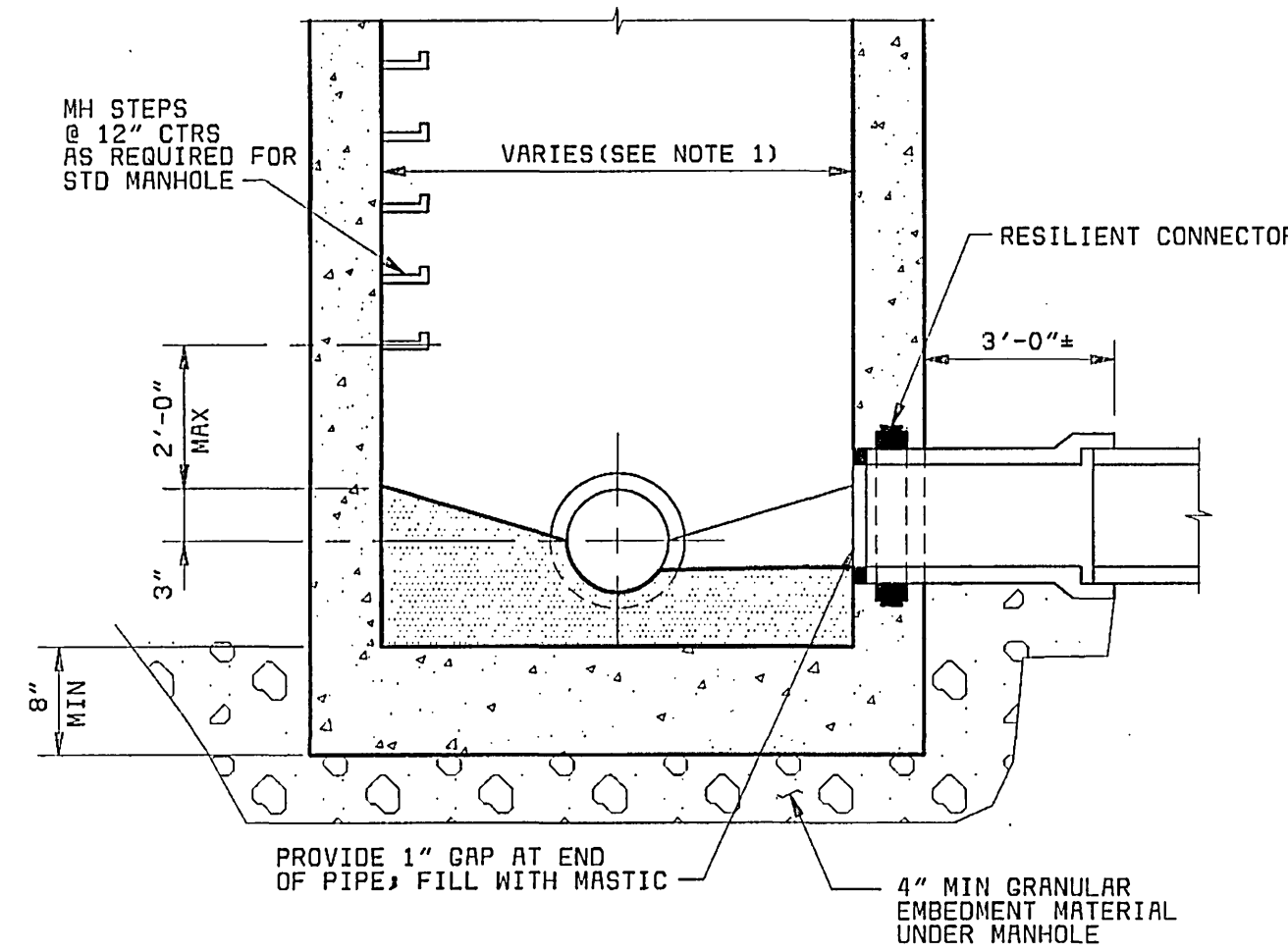
TEE MANHOLE

PI DEFLECTION 22 1/2" OR LESS
1/4"=1'-0"



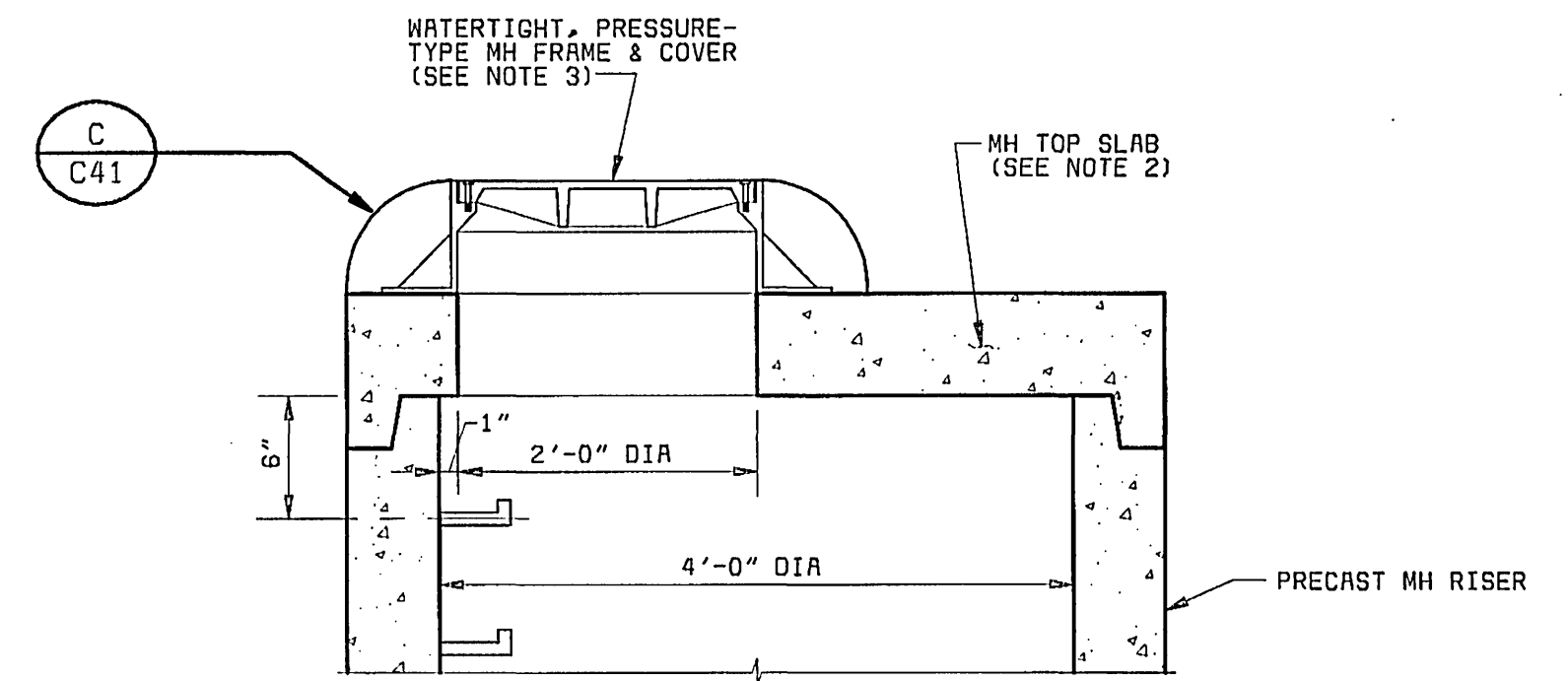
ALTERNATIVE LOWER SECTION
(CAST IN PLACE BASE)

NO SCALE



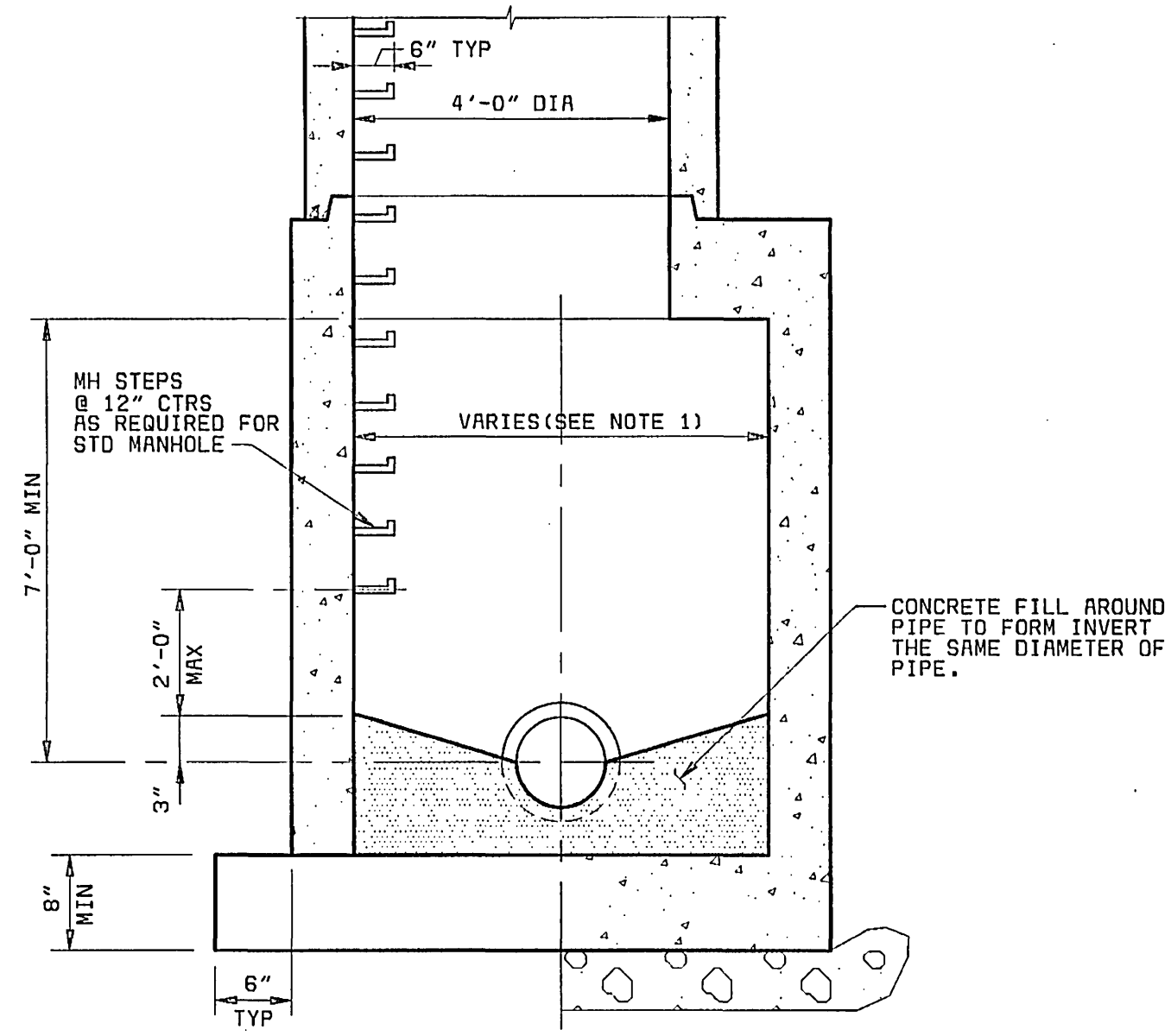
STANDARD LOWER SECTION
(PRECAST OR DEVELOPED BASE)

NO SCALE



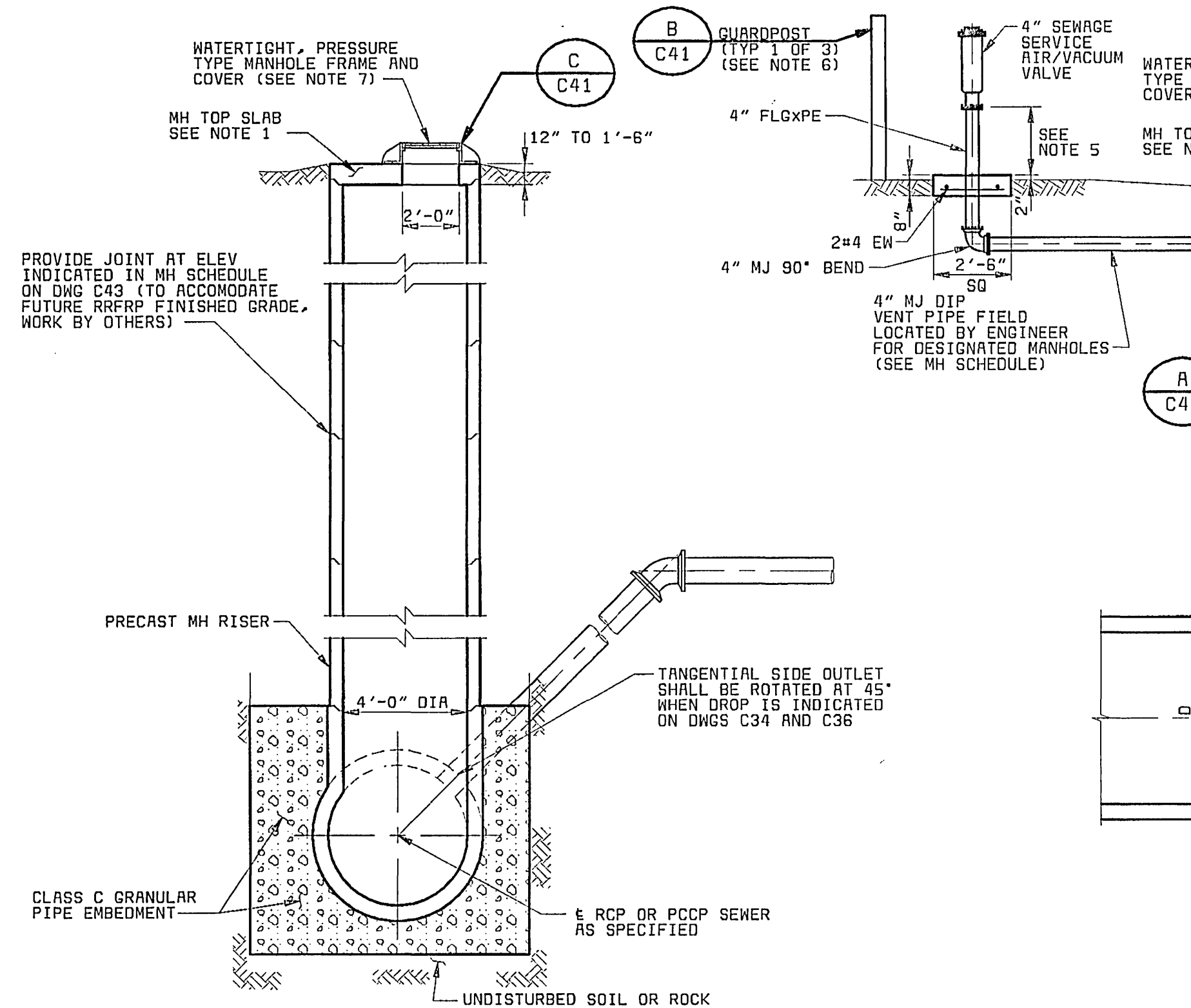
FLAT SLAB UPPER SECTION

NO SCALE



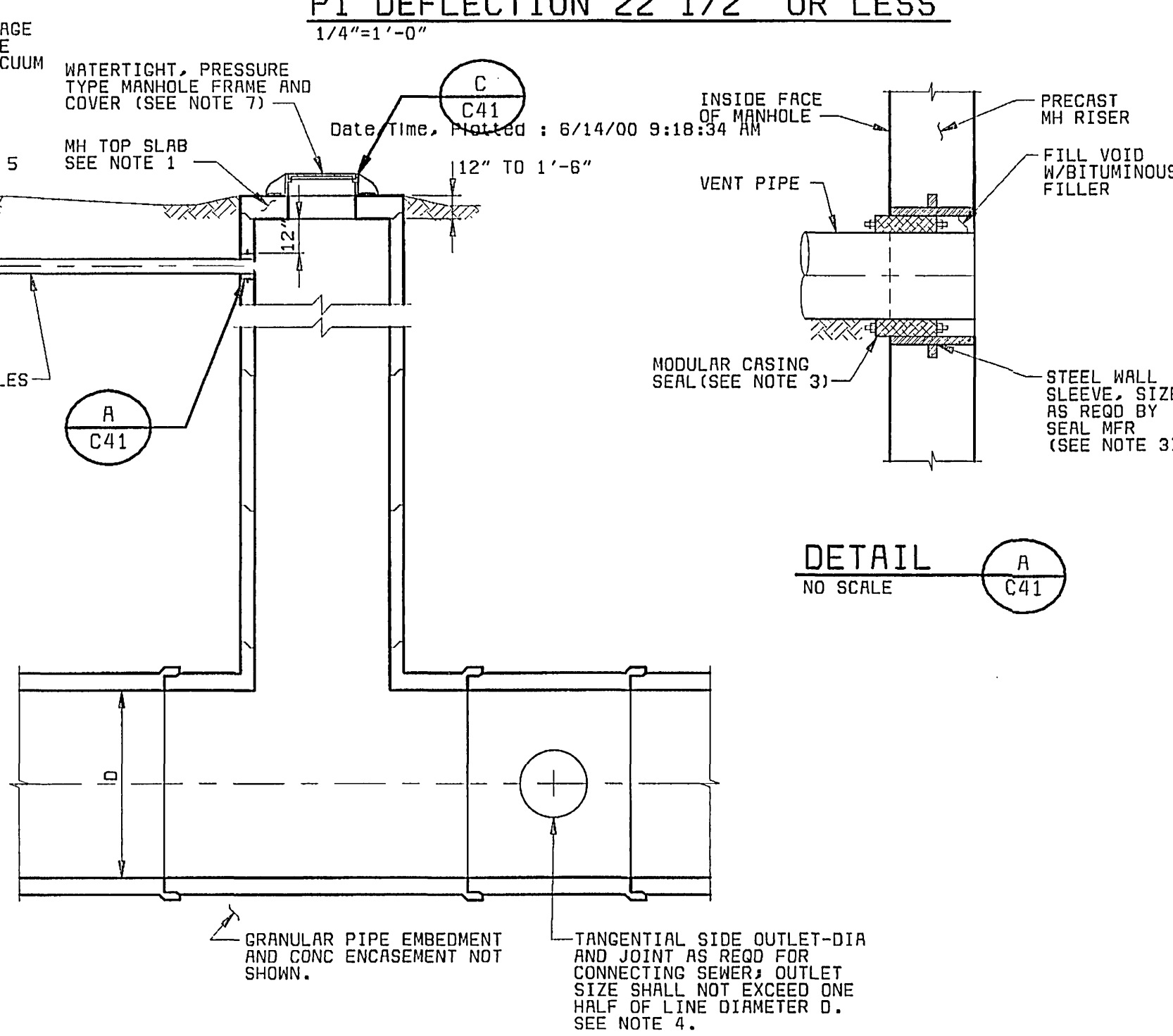
ALTERNATIVE BOTTOM SECTION-
27 INCH AND LARGER SEWERS

NO SCALE



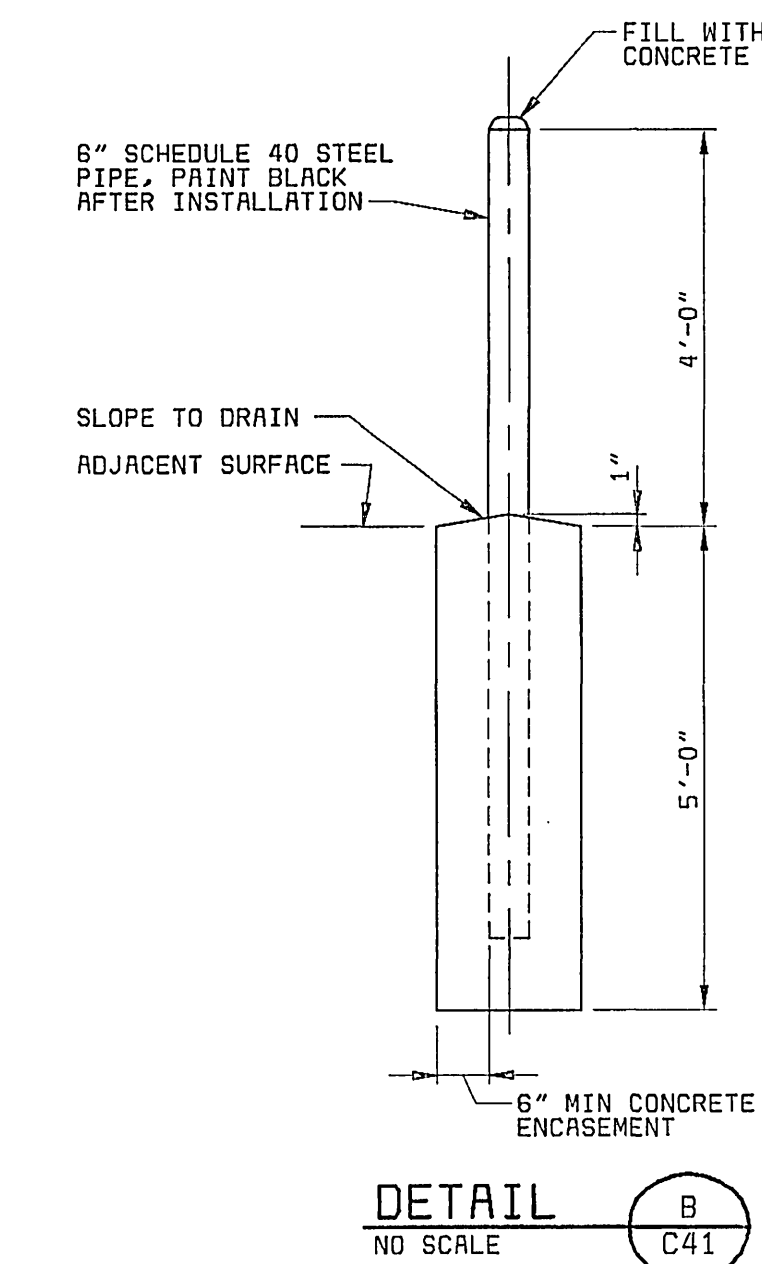
SECTION 1

NO SCALE



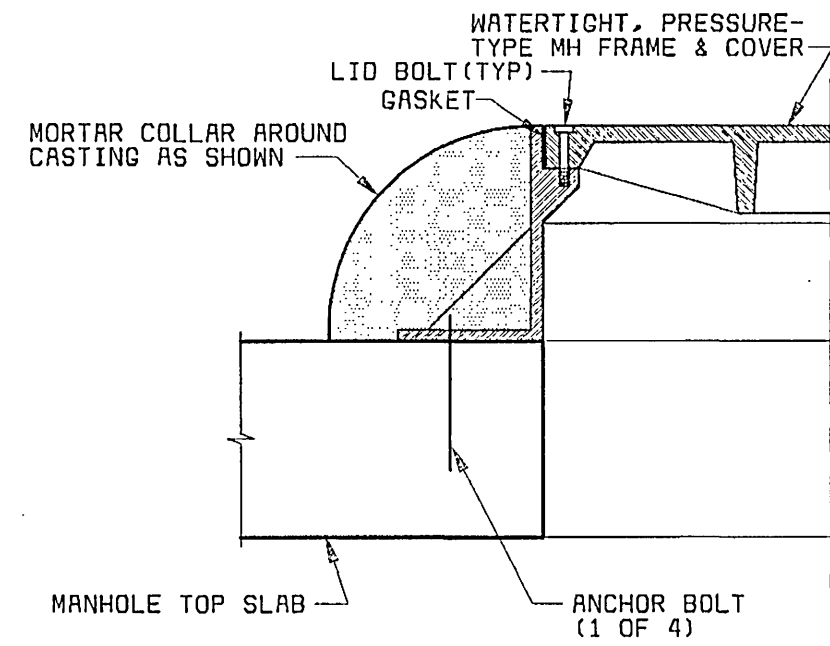
SECTION 2

NO SCALE



DETAIL B

NO SCALE



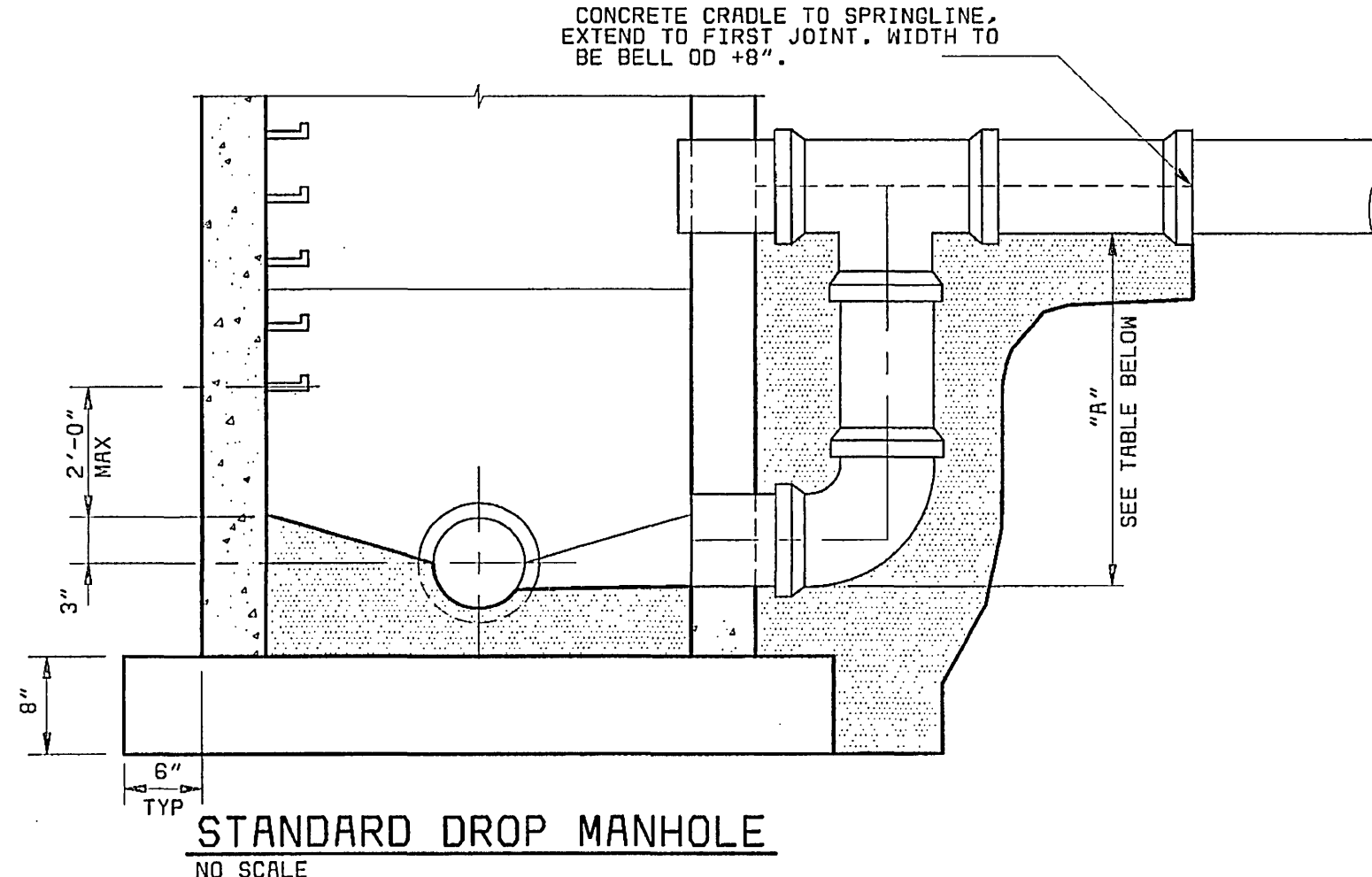
DETAIL C

NO SCALE

TYPE I MANHOLE

TYPE I MANHOLE NOTES:

- MANHOLE FABRICATOR SHALL DESIGN AND PROVIDE TYPE I ("TEE") MANHOLES DESIGNED TO RESIST AN INTERNAL HYDROSTATIC HEAD OF 30 FEET OF WATER. CONNECTIONS BETWEEN RISER SECTIONS AND BETWEEN RISER SECTION AND MANHOLE TOP SLAB SHALL BE STRAPPED AND BOLTED TOGETHER WITH EXTERNAL TYPE 316 STAINLESS STEEL JOINT HARNESS. A MINIMUM OF 3 JOINT HARNESSES, EQUALLY SPACED AROUND MANHOLE, SHALL BE USED AT EACH JOINT. BOLTS SHALL NOT EXTEND INTO INSIDE OF MANHOLE. MANHOLE FABRICATOR SHALL DESIGN TOP SLABS TO RESIST A MINIMUM EXTERNAL LOAD OF 20 FEET OF WATER COLUMN OR H-20 LOADING, AND FABRICATE AND PROVIDE SLAB BASED ON THE MORE CONSERVATIVE LOADING CONDITION. MANHOLE FABRICATOR SHALL ENGAGE A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA TO DESIGN THE PRESSURE MANHOLE COMPLETE WITH JOINT RESTRAINT AND BASE ANCHORAGE SYSTEMS. CONSTRUCTION DRAWINGS BEARING THE SEAL OF THE REGISTERED ENGINEER SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO BEGINNING MANHOLE FABRICATION.
- TEE MANHOLES SHALL BE CONSTRUCTED WITH THE FOLLOWING NUMBER OF MITER JOINTS:
PI DEFL = 0'-22 1/2" - 1 MITER JOINT
PI DEFL = 22 1/2'-45' - 2 MITER JOINTS
PI DEFL = 45'-67 1/2' - 3 MITER JOINTS
PI DEFL = 67 1/2'-90' - 4 MITER JOINTS
- STEEL WALL SLEEVE TO BE CUT IN HALF TO FACILITATE WALL JOINT CONNECTION.
- TANGENTIAL SIDE OUTLET AND DROP CONNECTION AT RISER INDICATED TO ILLUSTRATE CONTRACTOR OPTIONS FOR CONNECTING LATERAL, COLLECTOR, AND SMALL-DIAMETER INTERCEPTORS IDENTIFIED ALONG ALIGNMENT (REFER TO DWG C34).
- TERMINATE AIR/VACUUM VALVE AT ELEVATION AS INDICATED IN MH SCHEDULE, DWG C43.
- PLACE 3 GUARDPOSTS 2'-6" UPSTREAM OF CENTERLINE OF VALVE ASSEMBLY, SPACED 2'-0" ON CENTERS.
- WHERE MANHOLES ARE INSTALLED IN PAVED AREAS, COVER SHALL BE FLUSH WITH FINISH GRADE.



STANDARD DROP MANHOLE

NO SCALE

DROP MANHOLE DIMENSIONS		
INCOMING PIPE	TO DROP PIPE	MINIMUM
8"	8"	2'-2"
10"	10"	2'-6"
12"	12"	3'-2"
15"	12"	3'-8"
18"	16"	4'-0"
24"	18"	4'-0"
36"	18"	4'-0"

TYPE II MANHOLE NOTES:

- INSIDE DIAMETER OF MANHOLES TO BE 4'-0" FOR PIPE THROUGH 24", 5'-0" FOR PIPE 27" THROUGH 36", AND 6'-0" FOR PIPE 42" THROUGH 48" IN SIZE UNLESS OTHERWISE REQUIRED.
- MANHOLE FABRICATOR SHALL DESIGN AND PROVIDE TYPE II MANHOLES DESIGNED TO RESIST AN INTERNAL HYDROSTATIC HEAD OF 30 FEET OF WATER. CONNECTIONS BETWEEN RISER SECTIONS AND BETWEEN RISER SECTION AND MANHOLE TOP SLAB SHALL BE STRAPPED AND BOLTED TOGETHER WITH EXTERNAL TYPE 316 STAINLESS STEEL JOINT HARNESS. A MINIMUM OF 3 JOINT HARNESSES, EQUALLY SPACED AROUND MANHOLE, SHALL BE USED AT EACH JOINT. BOLTS SHALL NOT EXTEND INTO INSIDE OF MANHOLE. MANHOLE FABRICATOR SHALL DESIGN TOP SLABS TO RESIST A MINIMUM EXTERNAL LOAD OF 20 FEET OF WATER COLUMN OR H-20 LOADING, AND FABRICATE AND PROVIDE SLAB BASED ON THE MORE CONSERVATIVE LOADING CONDITION. MANHOLE FABRICATOR SHALL ENGAGE A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA TO DESIGN THE PRESSURE MANHOLE COMPLETE WITH JOINT RESTRAINT AND BASE ANCHORAGE SYSTEMS. CONSTRUCTION DRAWINGS BEARING THE SEAL OF THE REGISTERED ENGINEER SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO BEGINNING MANHOLE FABRICATION.
- WHERE MANHOLES ARE INSTALLED IN PAVED AREAS, COVER SHALL BE FLUSH WITH FINISH GRADE.

RECORD DRAWING

THIS DRAWING HAS BEEN MODIFIED TO REFLECT CHANGES MADE DURING CONSTRUCTION BASED UPON INFORMATION AS MAY BE PROVIDED BY THE CONTRACTOR AND CONSTRUCTION OBSERVATION BY THE ENGINEER'S AUTHORIZED REPRESENTATIVE

ENGINEER DATE

TYPE II MANHOLE

CITY OF ROANOKE, VIRGINIA
ROANOKE RIVER INTERCEPTOR

MANHOLE DETAILS

C41

SHEET
20 OF 23

DESIGNED JBB
DETAILED ABW/CGL
CHECKED RAF
APPROVED
DATE

Black & Veatch
Charlotte, North Carolina

PROJECT NO.
26444

THIS DOCUMENT
ORIGINALLY ISSUED
AND SEALED BY
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REGISTRATION NO. 026345
12/28/97