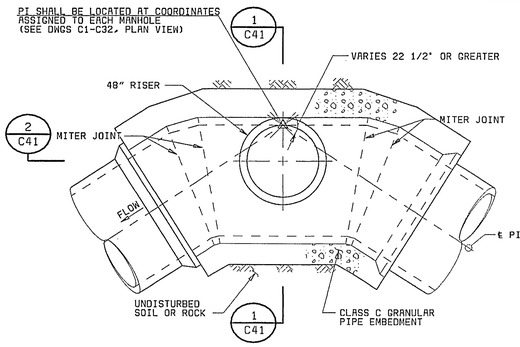
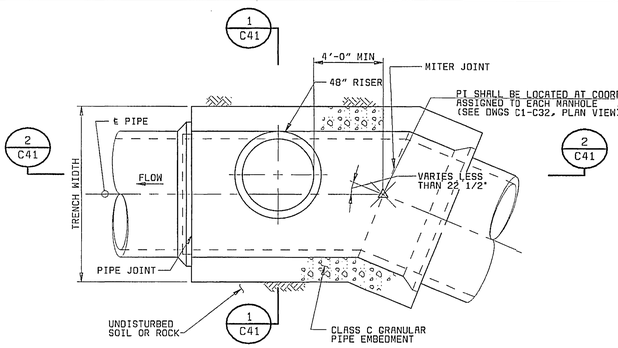
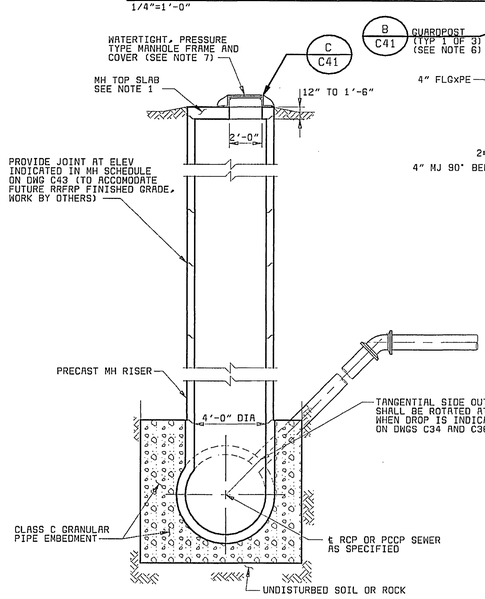


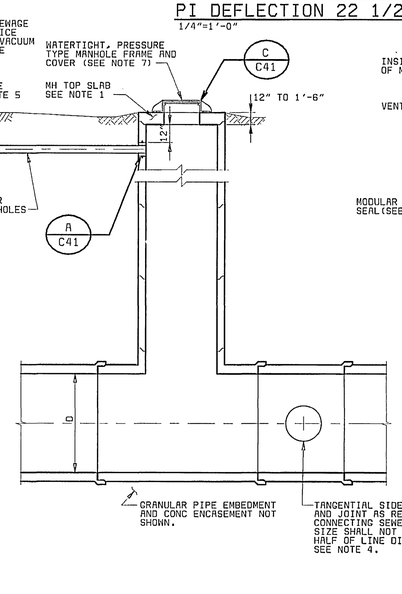
TEE MANHOLE
PI DEFLECTION 22 1/2° OR GREATER
1/4"=1'-0"



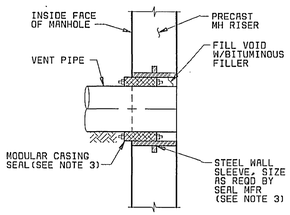
TEE MANHOLE
PI DEFLECTION 22 1/2° OR LESS
1/4"=1'-0"



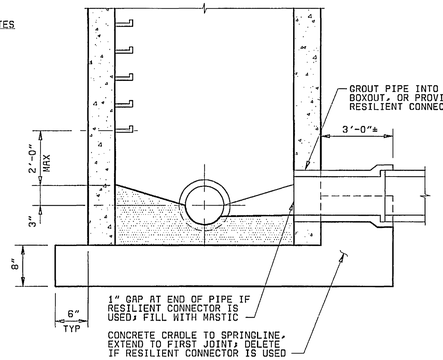
SECTION 1 / C41 — NO SCALE



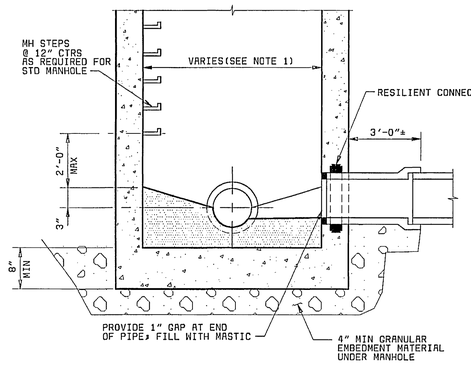
SECTION 2 / C41 — NO SCALE



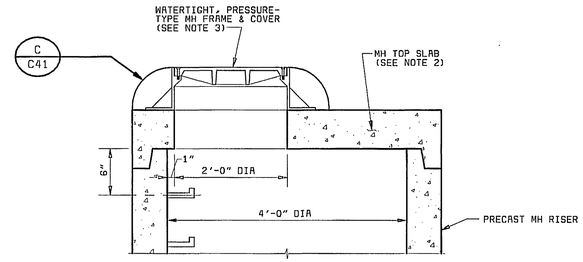
DETAIL A / C41 — NO SCALE



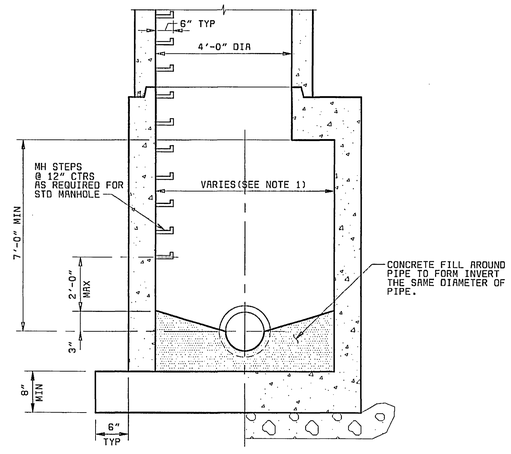
ALTERNATIVE LOWER SECTION
(CAST IN PLACE BASE)
NO SCALE



STANDARD LOWER SECTION
(PRECAST OR DEVELOPED BASE)
NO SCALE

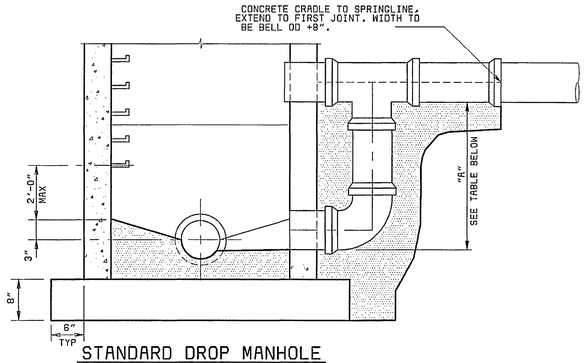


FLAT SLAB UPPER SECTION
NO SCALE



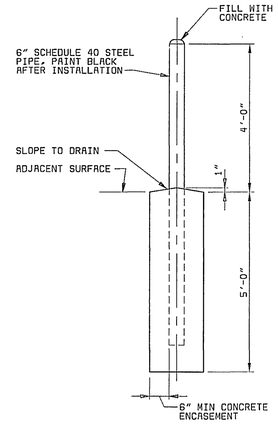
CAST IN PLACE BASE — DEVELOPED BASE

ALTERNATIVE BOTTOM SECTION-
27 INCH AND LARGER SEWERS
NO SCALE

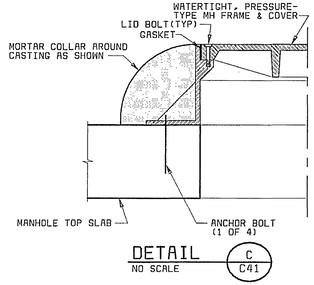


STANDARD DROP MANHOLE
NO SCALE

DROP MANHOLE DIMENSIONS		
ID INCOMING PIPE	ID DROP PIPE	"A" 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"



DETAIL B / C41 — NO SCALE



DETAIL C / C41 — NO SCALE

TYPE I MANHOLE NOTES:

1. 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.
2. 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
3. STEEL WALL SLEEVE TO BE CUT IN HALF TO FACILITATE WALL JOINT CONNECTION.
4. 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 DWGS C34 AND C36).
5. TERMINATE AIR/VACUUM VALVE AT ELEVATION AS INDICATED IN MH SCHEDULE, DWG C43.
6. PLACE 3 GUARDPOSTS 2'-6" UPSTREAM OF CENTERLINE OF VALVE ASSEMBLY, SPACED 2'-0" ON CENTERS.
7. WHERE MANHOLES ARE INSTALLED IN PAVED AREAS, COVER SHALL BE FLUSH WITH FINISH GRADE.

TYPE II MANHOLE NOTES:

1. 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.
2. 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 SHALL BE ANCHORED TO CAST IN PLACE CONCRETE BASE BY EXTENDING EXPOSED BAR CAGE REINFORCING FROM BOTTOM SECTION OF RISER SECTION A MINIMUM OF 18 INCHES INTO MANHOLE BASE AND SPLICING WITH BASE REINFORCING. 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.
3. 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

BY ..... ENGINEER ..... 9/28/00 DATE

TYPE I MANHOLE

TYPE II MANHOLE

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

DESIGNED JBB
DETAILED ABW
CHECKED RAF
APPROVED
DATE

Black & Veatch
Charlotte, North Carolina

PROJECT NO. 26444

CITY OF ROANOKE, VIRGINIA
ROANOKE RIVER INTERCEPTOR

MANHOLE DETAILS

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY BRENT M. REUSS PROFESSIONAL ENGINEER, COMMONWEALTH OF VIRGINIA REGISTRATION NO. 026345 ON 5-30-97

C41

SHEET 27 OF 30