

**APPENDIX B**

**STANDARD DRAWINGS**

**CLERMONT COUNTY WATER RESOURCES DEPARTMENT**

**CLERMONT COUNTY, OHIO**

## STANDARD DRAWINGS

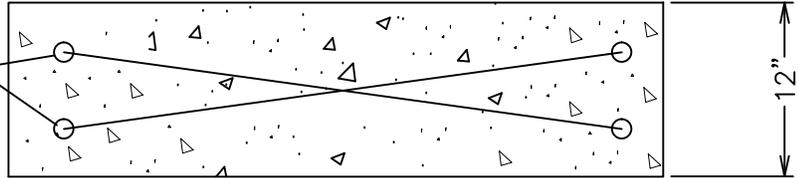
<u>Drawing No.</u>	<u>Title</u>
General Details	
G1.1	Keyblock Anchors for Water or Sewer Mains on Steep Slopes
G1.2	Creek Crossing Concrete Encasement Detail
G1.3	Concrete Blocking for Pipe Fittings on Water & Force Mains
Water Distribution System	
W1.0	Standard General Notes
W1.1	Gate and Butterfly Valves
W1.2	Valve Restraint Blocking
W2.1	Fire Hydrant Layout & Assembly
W3.1	Detector Check Valve Assembly
W3.2	5/8"x3/4"& 1" Domestic Meters Assembly
W3.3	1-1/2"& 2" Domestic Meters Assembly
W3.4	Water Service Connection Detail
W4.1	Fire Protection with Detector Check
W4.2	Dual Service Branch Setting-Domestic Meters 2" & Smaller
W4.3	3" & Larger Standard Meter Pit Arrangement
W4.4	Dual Service Branch Setting-3" & Larger Meters
W4.5	Standard Water System Chamber
W4.6	Chamber Access Ladder
W5.1	Water Main Trench Section
W5.2	Water Main Lowering Detail
Wastewater Collection System	
S1.1	Standard Manhole for Sewers 8" to 18"
S1.2	Standard Manhole for Sewers 21" to 36"
S1.3	Standard Manhole for Sewers 42"& Larger
S1.4	Inside Drop Manhole
S1.6	Manhole Frame with Vented Lid
S1.7	Manhole Frame with Self Sealing Lid
S1.8	Manhole Frame with Solid Lid & Lock
S1.9	Manhole Step – Copolymer
S1.10	IWPT Sampling Manhole
S1.11	Doghouse Manhole
S2.1	Sanitary Sewer Trench Section
S2.3	Aerial Creek Crossing
S2.4	Pier Support for Aerial Creek Crossing
S3.1	Sewer Lateral installation
S3.2	Dual Service Lateral
S4.1	Commercial Sewer Service Installation
S4.2	Residential Sewer Service Installation
S5.1	Lift Station Layout
S5.1.1	Bar Screen Manhole Detail
S5.1.2	Lift Station Detail
S5.1.3	Valve Chamber Detail
S5.2.1	Standard Force Main Access Manhole
S5.2.2	Standard Force Main Low Point Manhole
S5.2.3	Air Release Valve in Manhole

## STANDARD DRAWINGS

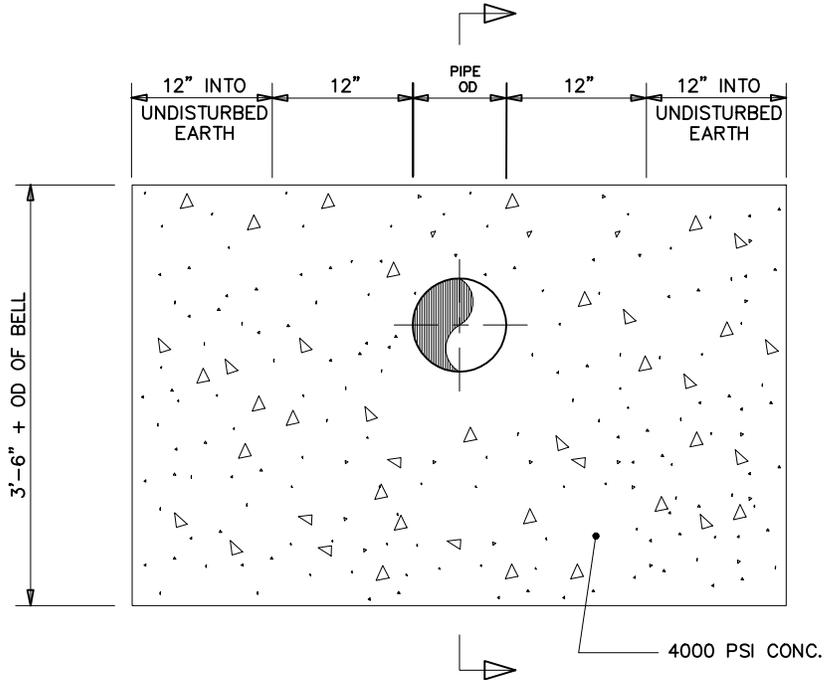
### Wastewater Collection System, Continued

<u>Drawing No.</u>	<u>Title</u>
S6.1	Standard Septic Tank Effluent Pump (STEP)
S6.2	Typical Residential STEP Connection to a LPFM
S6.2.1	Low Pressure Force Main (LPFM) Lateral Installation
S6.3	Typical Residential STEP Connection to Small Diameter Gravity Sewer
S6.3.1	Small Diameter Gravity Sewer Lateral Installation
S6.4	Low Pressure Force Main Flushing Connection Manhole
S6.5	Low Pressure Force Main Flushing MH w/ Air Release Valve
S6.6	Low Pressure Force Main Terminal Manhole
S7.1	Grease Interceptor

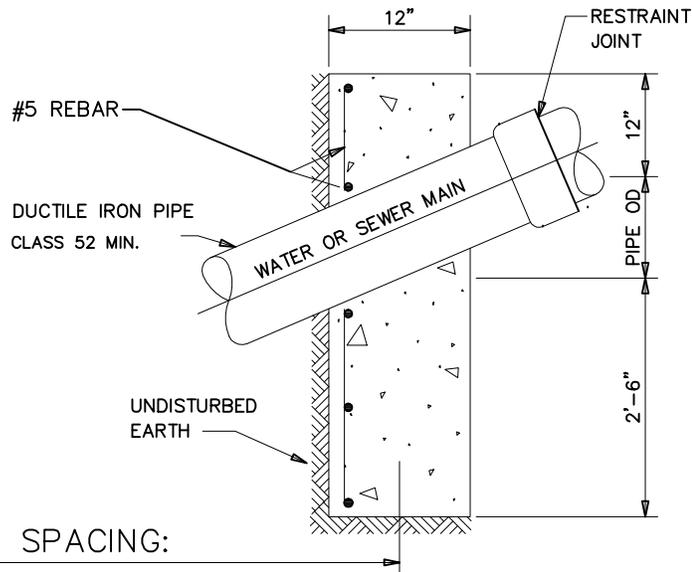
#5 REBAR  
TYP. TOP  
& BOTTOM



TOP



ELEVATION



SECTION

MINIMUM SPACING:

- 36' ON GRADES 15%–35%
- 24' ON GRADES 35%–50%
- 16' ON GRADES OVER 50%

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

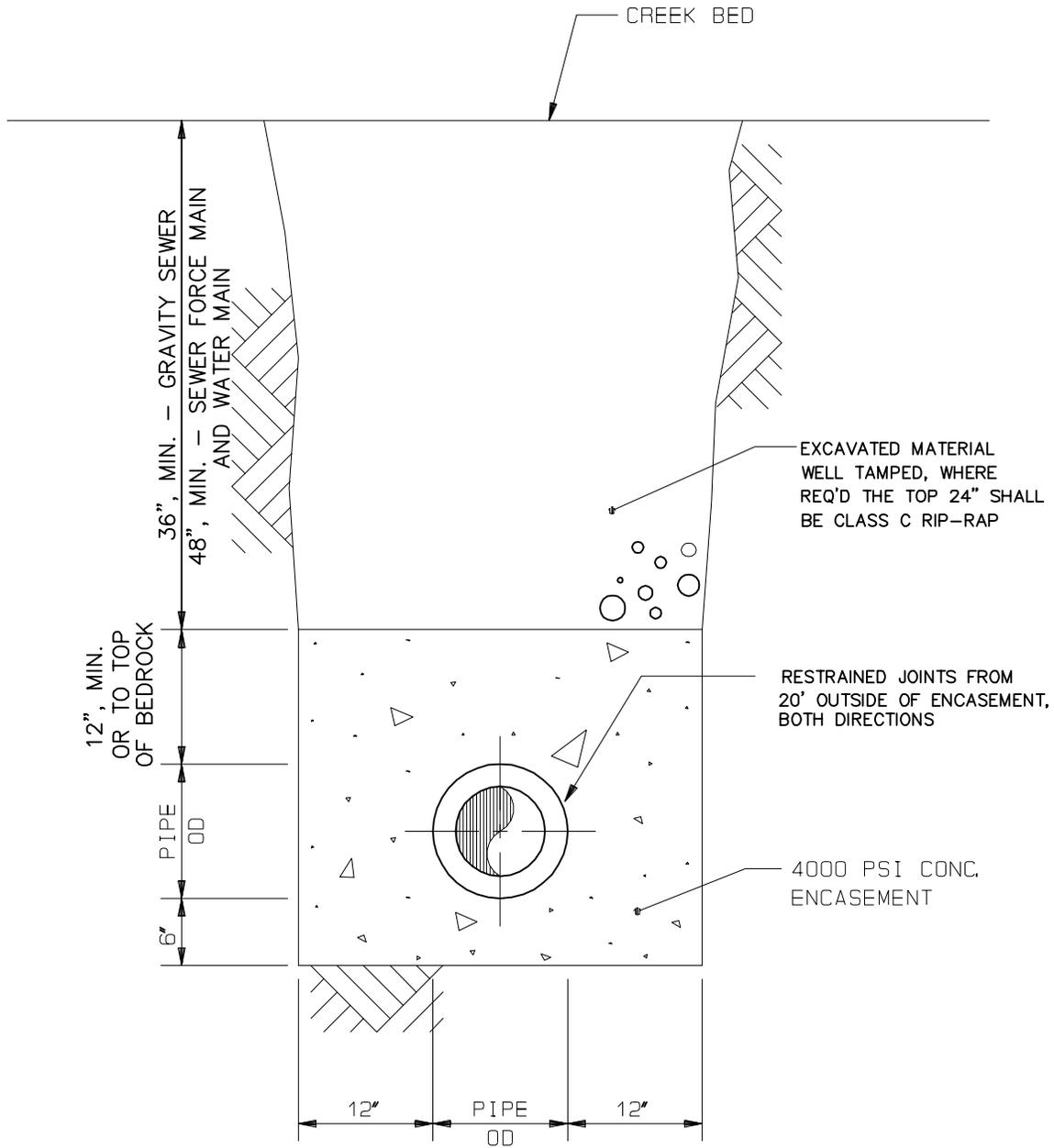
KEYBLOCK ANCHORS FOR  
WATER OR SEWER MAINS  
ON STEEP SLOPES

DRAWING NO.

G1.1

APPROVED \_\_\_\_\_

DATE \_\_\_\_\_



NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

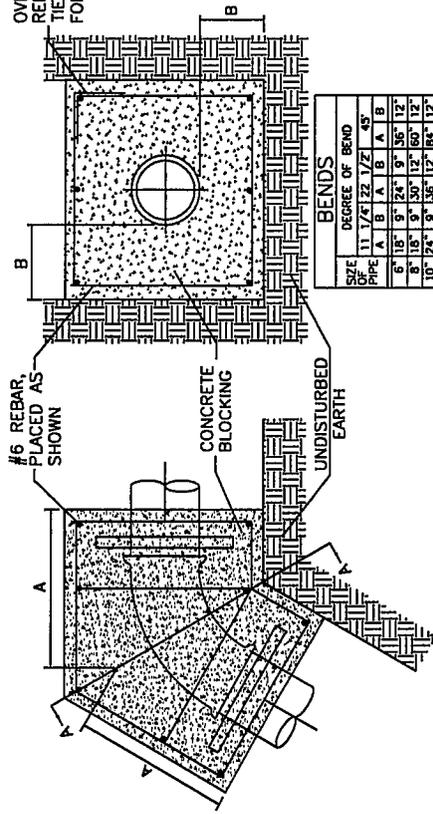
APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

STREAM CROSSING  
CONCRETE  
ENCASEMENT DETAIL

DRAWING NO.

G1.2

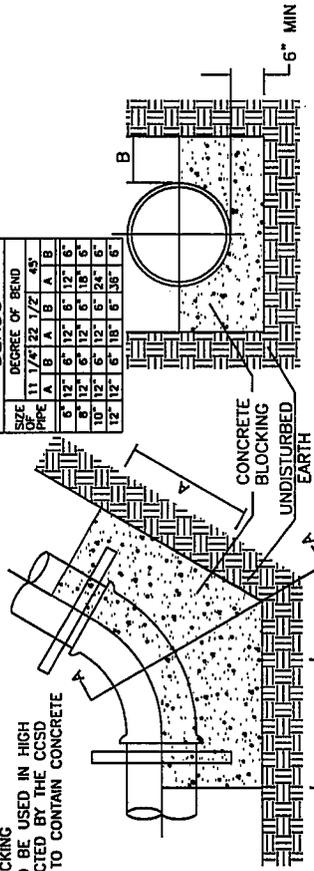
OVERLAP AND REBAR AND TIE TO FORM CAGE



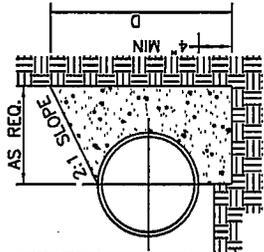
SIZE OF PIPE	DEGREE OF BEND			
	11 1/4°	22 1/2°	45°	
6"	A	B	A	B
8"	9"	24"	9"	36" 12"
10"	12"	30"	12"	60" 12"
12"	15"	36"	15"	84" 12"
18"	24"	48"	24"	108" 12"

ELEVATION SECTION A TYPICAL  
TOP VERTICAL BENDS  
N.T.S.

SIZE OF PIPE	DEGREE OF BEND			
	11 1/4°	22 1/2°	45°	
6"	A	B	A	B
8"	12"	8"	12"	6"
10"	15"	10"	15"	6"
12"	18"	12"	18"	6"
18"	24"	18"	24"	6"



ELEVATION SECTION A TYPICAL  
BOTTOM VERTICAL BENDS  
N.T.S.

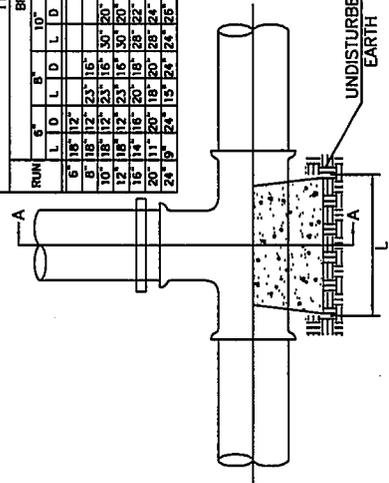
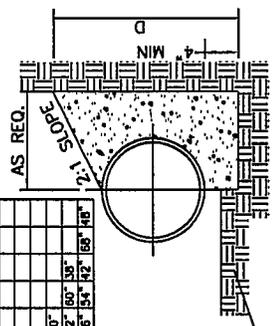


SIZE OF PIPE	DEGREE OF BEND			
	11 1/4°	22 1/2°	45°	
6"	L	D	L	D
8"	6"	12"	7"	20"
10"	8"	15"	9"	24"
12"	10"	18"	12"	30"
15"	12"	24"	14"	36"
18"	15"	30"	18"	48"
20"	18"	36"	20"	60"
24"	24"	48"	24"	84"

PLAN SECTION A TYPICAL  
BENDS 45° AND UNDER  
N.T.S.

- BLOCKING NOTES:**
1. BLOCKING SHALL BE CLASS "C" CONCRETE
  2. BLOCKING REQUIRED AT ALL BENDS
  3. FACE OF EACH BLOCK MUST BE PERPENDICULAR TO THE LINE OF THRUST
  4. FITTINGS TO BE WRAPPED WITH 4 MIL PLASTIC TO PREVENT CONCRETE CONTACTING BOLTS, GLANDS, AND NUTS
  5. CONCRETE TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE
  6. D.I. RETAINER GLANDS TO BE USED IN ADDITION TO CONCRETE THRUST BLOCKING
  7. 3/4" REINFORCING BARS TO BE USED IN HIGH PRESSURE ZONES AS DIRECTED BY THE CCSD RUDIMENTARY FORMS USED TO CONTAIN CONCRETE IN THRUST AREA

RUN	TEES				BRANCH			
	6"	8"	10"	12"	15"	20"	24"	
6"	L	D	L	D	L	D	L	D
8"	18"	12"	23"	16"	30"	20"	38"	22"
10"	18"	12"	23"	16"	30"	20"	38"	22"
12"	18"	12"	23"	16"	30"	20"	38"	22"
15"	14"	16"	20"	18"	28"	22"	35"	23"
18"	14"	16"	20"	18"	28"	22"	35"	23"
20"	11"	20"	18"	20"	24"	15"	24"	46"
24"	9"	24"	15"	24"	26"	15"	20"	42"
								54"
								68"



PLAN SECTION A TYPICAL  
TEES  
N.T.S.

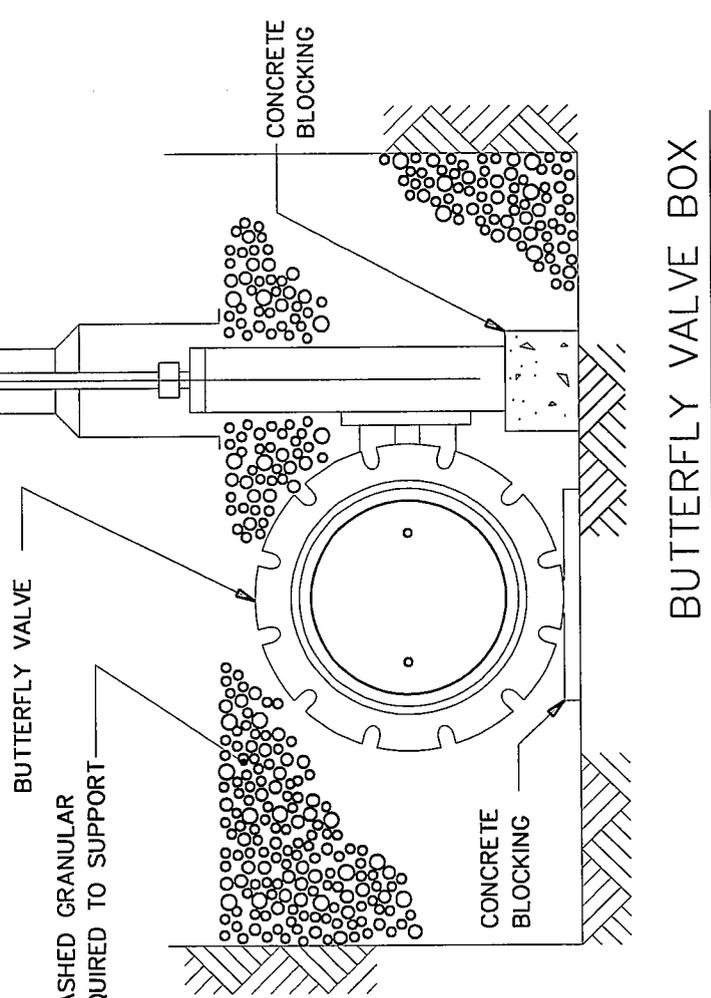
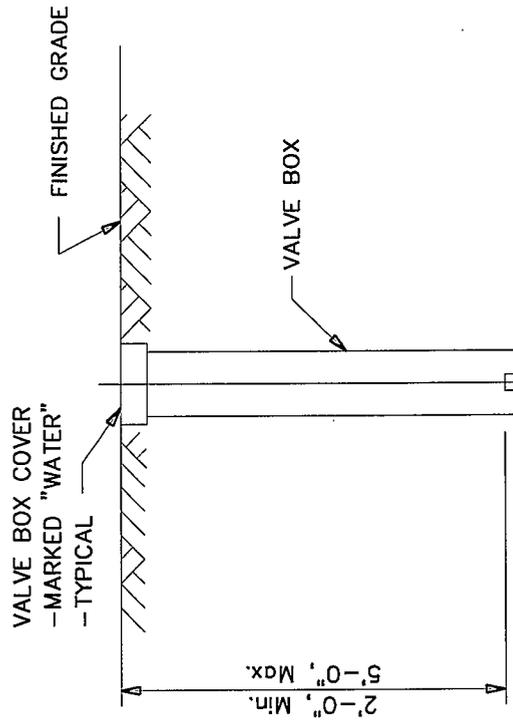
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

CONCRETE BLOCKING  
FOR PIPE FITTINGS ON  
WATER & FORCE MAINS

DRAWING NO.  
G1.3

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_





BUTTERFLY VALVE BOX

GATE VALVE BOX

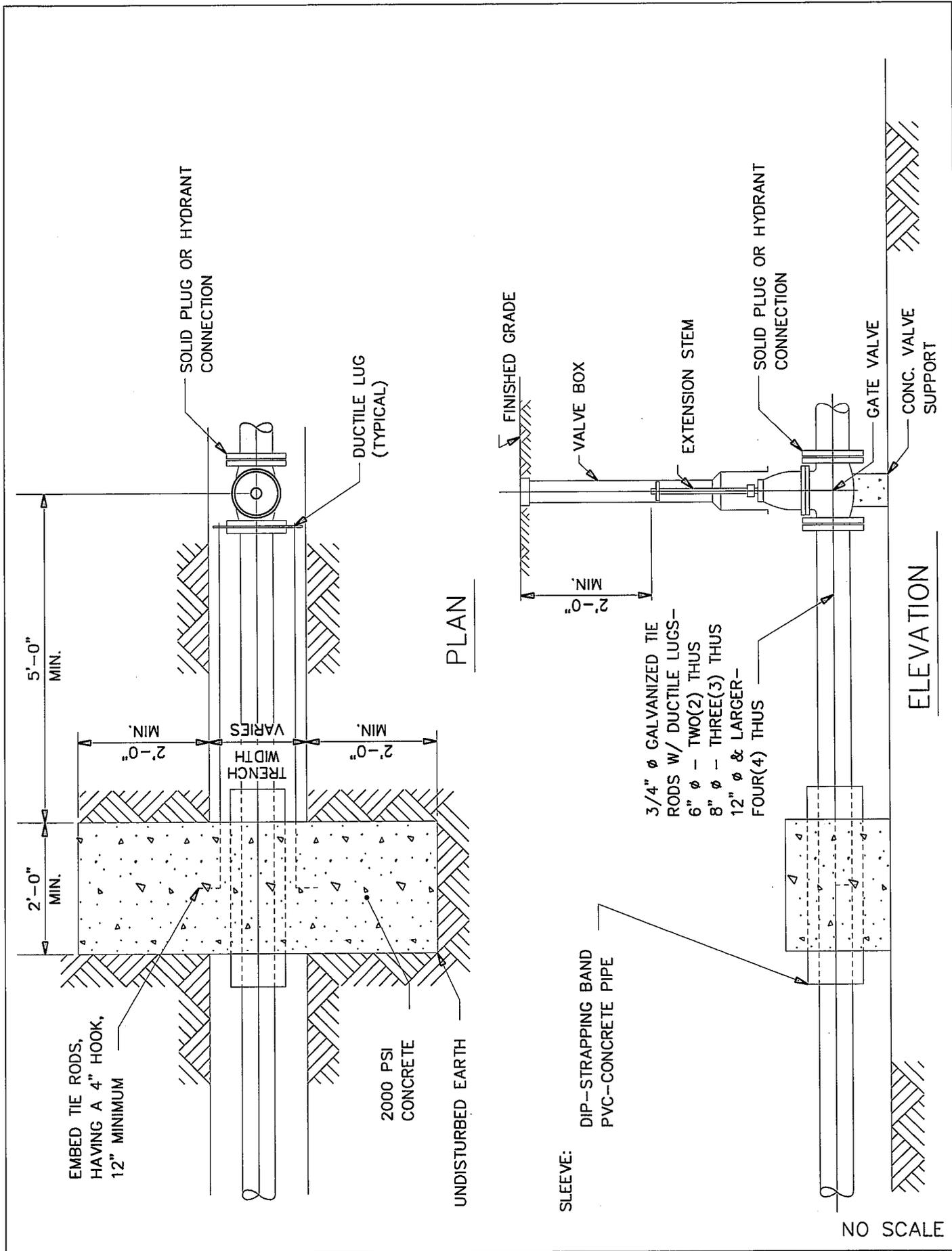
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

GATE & BUTTERFLY  
VALVES

DRAWING NO.  
W1.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

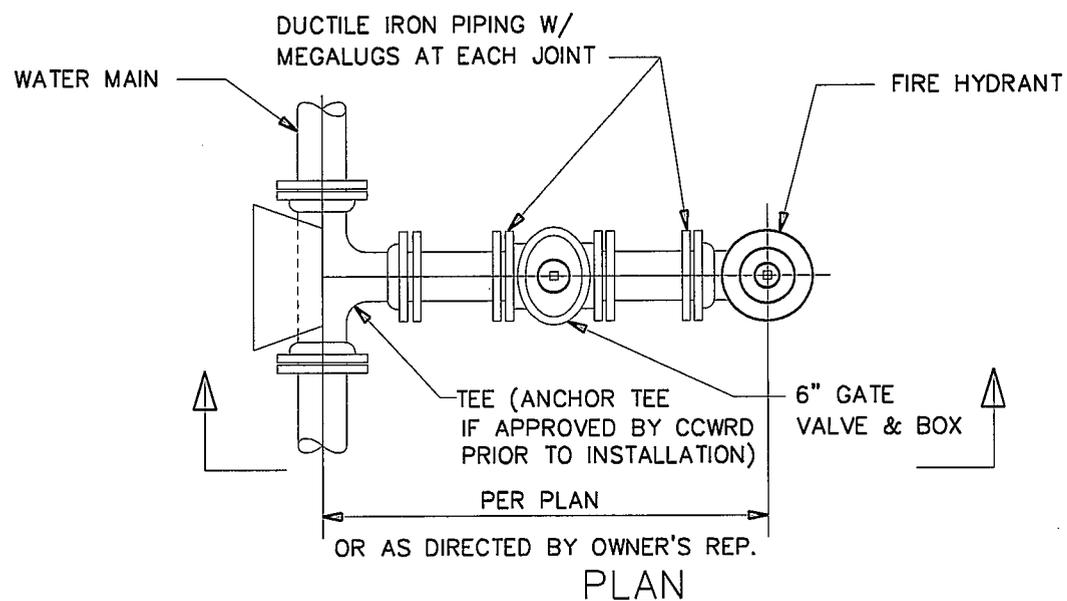
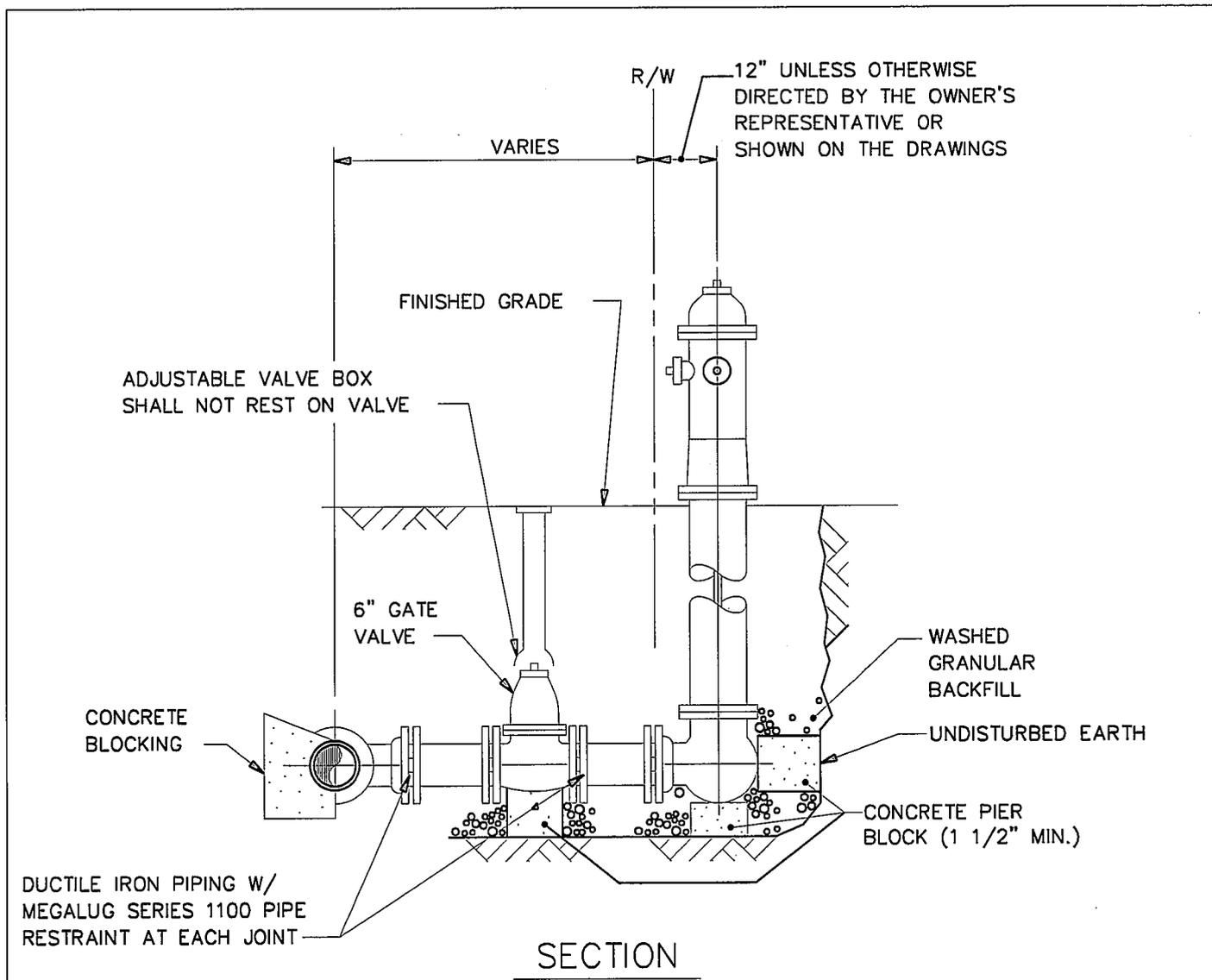


CLERMONT COUNTY  
 WATER RESOURCES DEPARTMENT

VALVE RESTRAINT  
 BLOCKING

DRAWING NO.  
 W1.2

APPROVED \_\_\_\_\_  
 DATE \_\_\_\_\_



NO SCALE

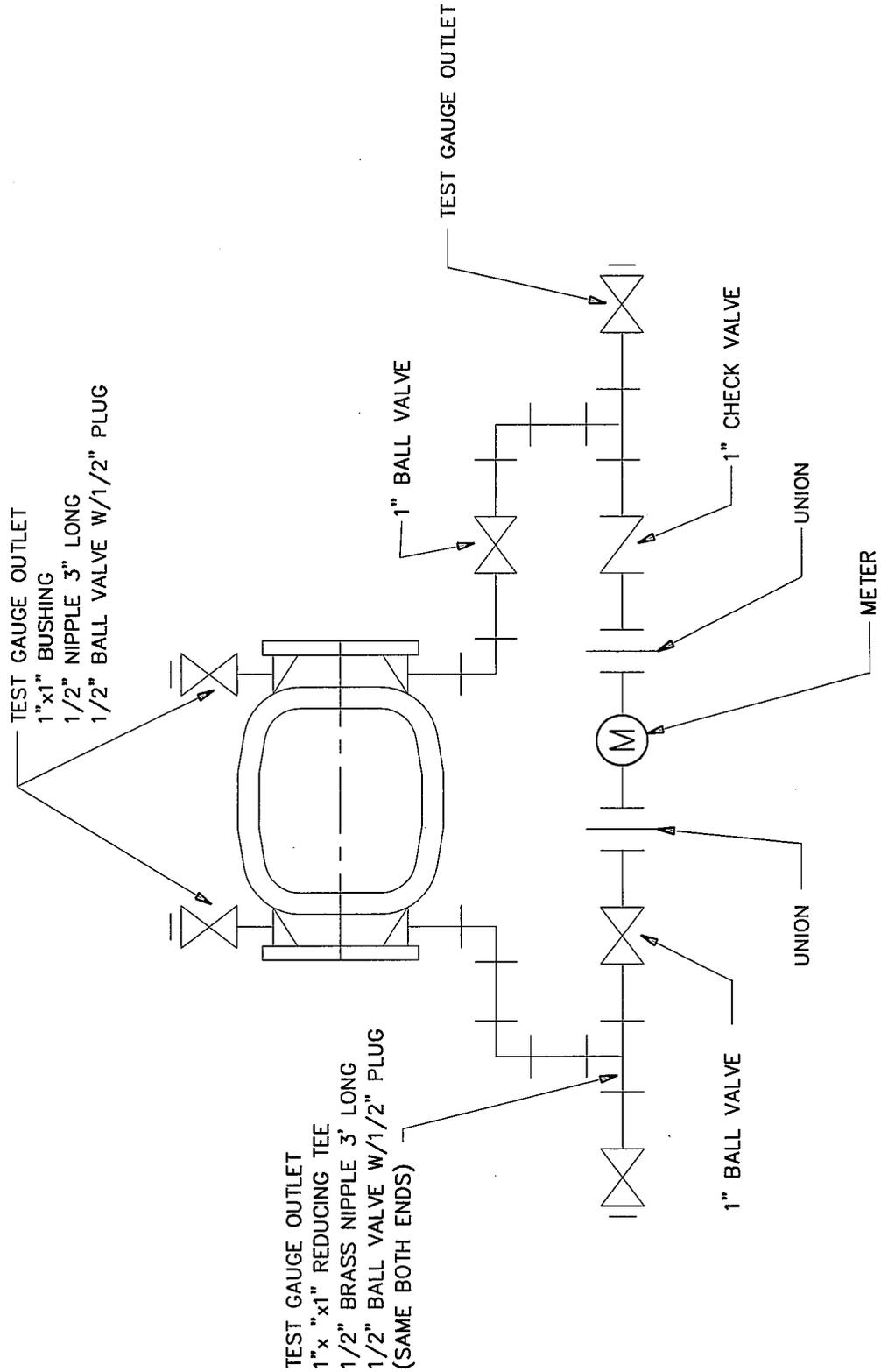
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

FIRE HYDRANT  
LAYOUT & ASSEMBLY

DRAWING NO.

W2.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

DETECTOR  
CHECK VALVE  
ASSEMBLY

DRAWING NO.

W3.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

ANGLED YOKE VALVE  
COMPRESSION COPPER  
W/ PADLOCK WING (1)

ANGLE CHECK VALVE (2)

METER

YOKE & EXPANSION  
WHEEL ASSEMBLY (3)

$\frac{5}{8}$ " X  $\frac{3}{4}$ " & 1" METERS

NOTE:

METERS SHALL BE PURCHASED FROM CCWRD

METER SIZE	1	2	3
$\frac{5}{8}$ " X $\frac{3}{4}$ "	FORD AV94-323-WG-NL OR EQUAL	FORD HA94 -323-G-NL OR EQUAL	YOKE-FORD Y502, WHEEL-EC-23-NL OR EQUAL
1"	FORD AV94-444-WG-NL OR EQUAL	L94-44-G-NL OR EQUAL	YOKE-FORD Y504, WHEEL-EC4-NL OR EQUAL

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

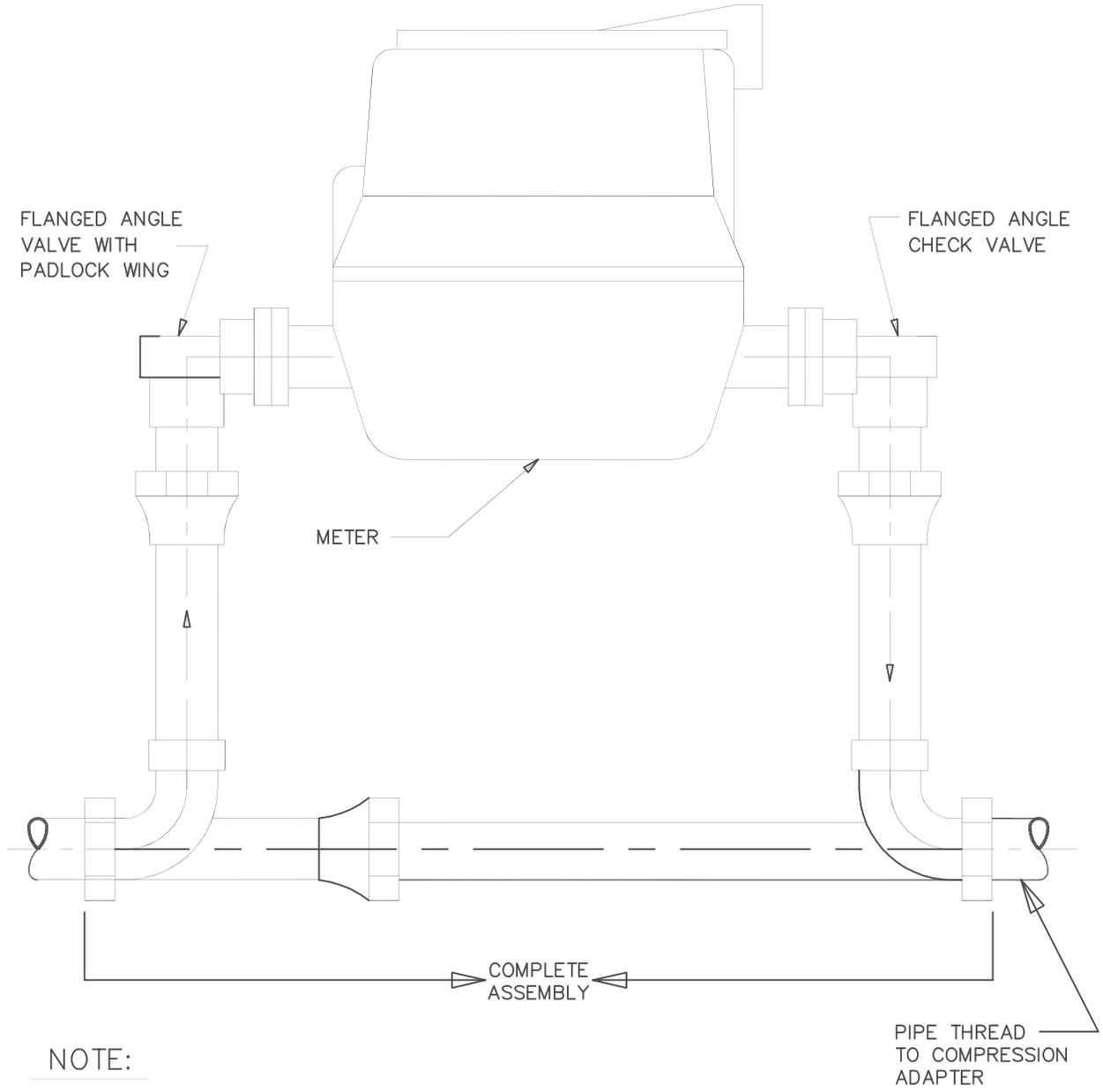
$\frac{5}{8}$ " X  $\frac{3}{4}$ " & 1"  
DOMESTIC METERS  
ASSEMBLY

DRAWING NO.

W3.2

APPROVED \_\_\_\_\_

DATE \_\_\_\_\_



**NOTE:**

- 1. METERS SHALL BE PURCHASED FROM CCWRD
- 2. COMPLETE ASSEMBLY TO BE USED.

METER SIZE	COMPLETE ASSEMBLY
1 1/2"	VH76-18-11-66-G-NL
2"	VH77-18-11-77-G-NL

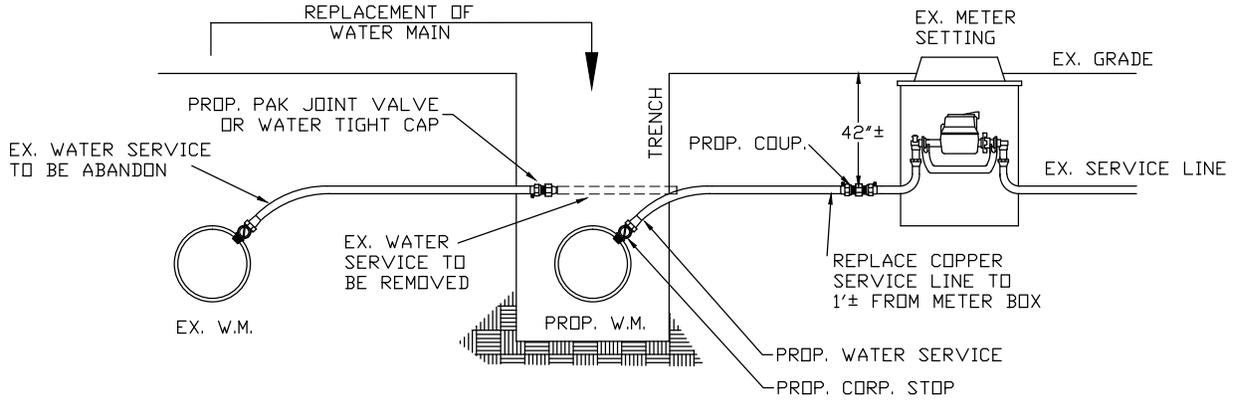
NO SCALE

<p>CLERMONT COUNTY WATER RESOURCES DEPARTMENT</p>	<p>1-1/2" &amp; 2" DOMESTIC CUSTOM METER ASSEMBLY</p>	<p>DRAWING NO. W3.3</p>
<p>APPROVED _____ DATE _____</p>		
<p>REVISED DEC 2013</p>		

# WATER MAIN RELOCATION—SERVICE RECONNECTIONS

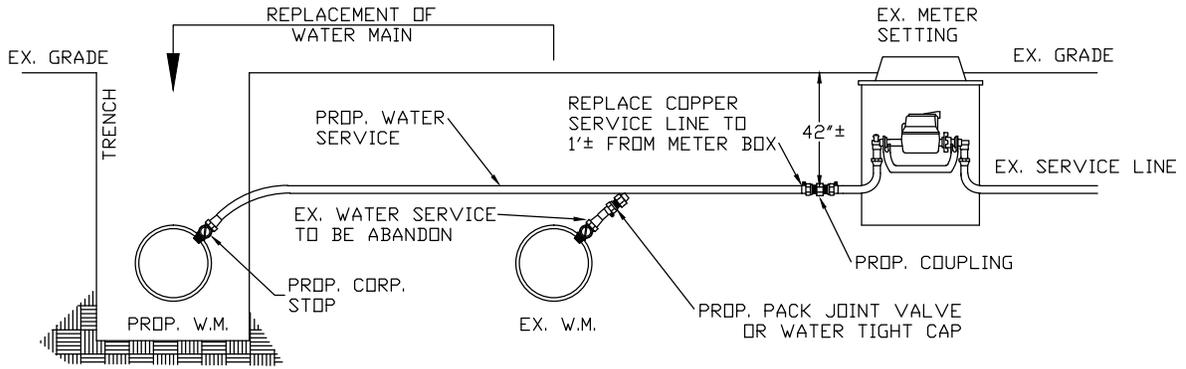
## TYPE 1 CONNECTION

PROPOSED WATER MAIN INSTALLED BETWEEN THE EXISTING WATER MAIN AND THE WATER METER (SHORTER SERVICE)



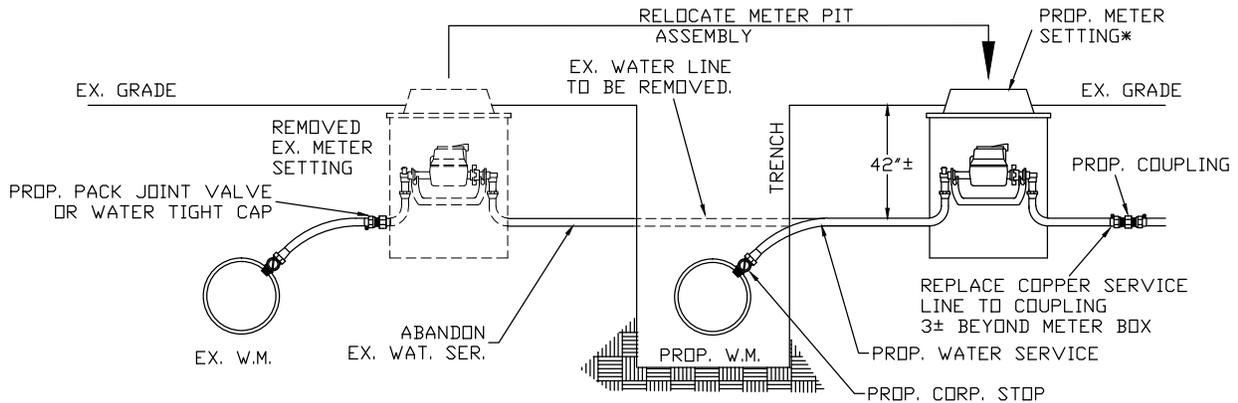
## TYPE 2 CONNECTION

PROPOSED WATER MAIN INSTALLED ON OPPOSITE SIDE OF EXISTING WATER MAIN, FROM THE METER SETTING (LONG SERVICE)



## TYPE 3 CONNECTION

PROPOSED WATER MAIN IS INSTALLED BEHIND THE EXISTING WATER METER (MOVE WATER METER)



\*METER SETTING, METER, AND METER BOX SHALL BE REPLACED. THE METER SHALL BE SUPPLIED BY COUNTY. EXISTING LID TO BE REUSED.

CONTRACTOR TO FREEZE SERVICE TO MAKE ALL CONNECTIONS. NO CRIMPING WILL BE PERMITTED. CONTRACTOR TO CAP ALL WATER SERVICE LINES TO BE ABANDONED.

ALL NEW PIPE, FITTINGS & FIXTURES SHALL MEET THE NEW EPA LEAD-FREE RULES.

NOT TO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

WATER SERVICE  
CONNECTION  
DETAIL

DRAWING NO.

W3.4

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LID TO BE NEENAH R-6661-LH ALUMINUM W/TYPE G LIFT HANDLES & RATCHETS & TYPE J (T-HANDLES) LOCK OR APPROVED EQUAL. CENTER LID OVER DETECTOR CHECK VALVE ASSEMBLY

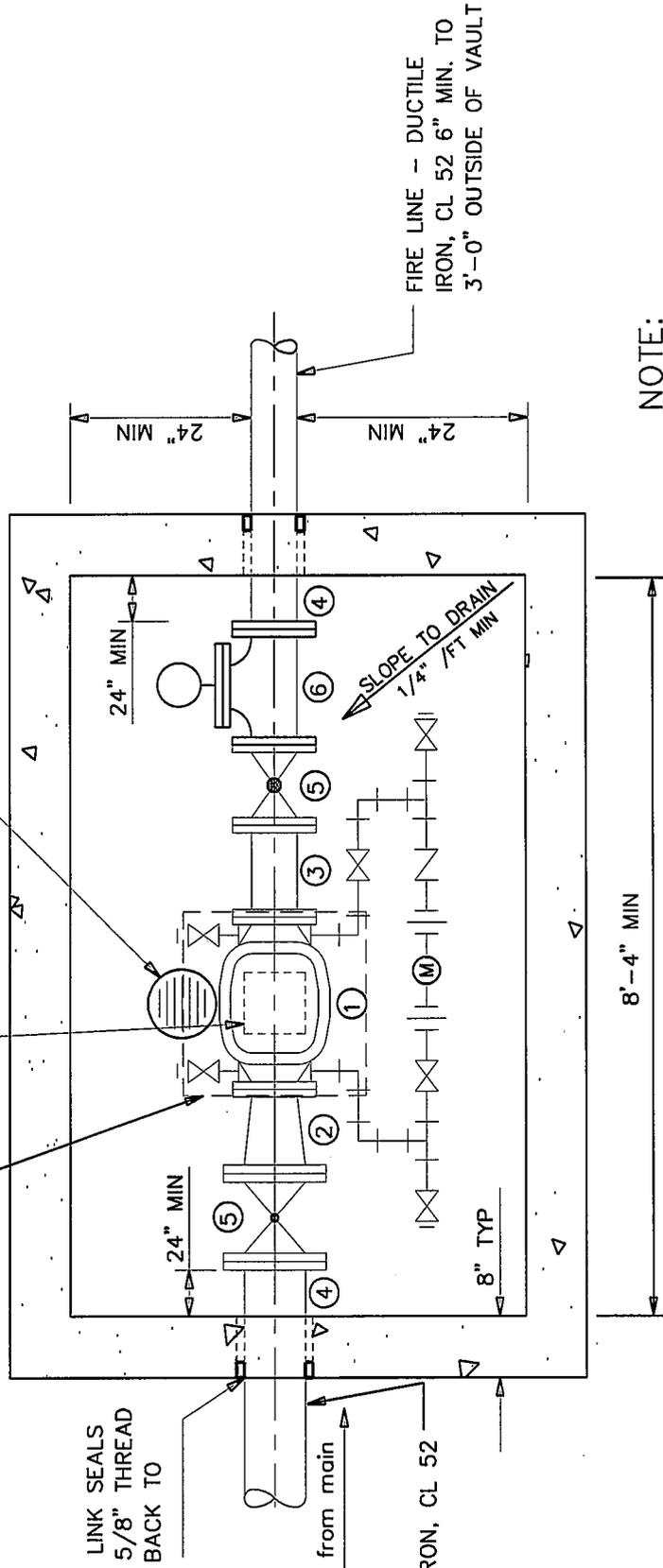
8" SQ. 2000 PSI CONCRETE BASE

6" FLOOR DRAIN JOSAM TYPE 32226 OR EQUAL TO STORM SEWER (CENTER DRAIN UNDER MANHOLE LID)

MECH. LINK SEALS (TYP) 5/8" THREAD RODS BACK TO WALL

DUCTILE IRON, CL 52 6" MIN

from main



NOTE:

① DETECTOR CHECK VALVE ASSEMBLY. SEE CCWRD STD. DWG. W3.1

② FLANGED CONCENTRIC REDUCER

③ FLANGED SPOOL x 12" LENGTH

④ FLANGED - PLAIN END (3' MIN. LENGTH)

⑤ FLANGED INDICATOR GATE VALVE W/ HANDWHEEL OR POST INDICATOR VALVE, AS REQUIRED BY FIRE DEPARTMENT ELECTRONIC SUPERVISION OF VALVE AS REQUIRED

⑥ FIRE DEPARTMENT CONNECTION AND/OR FIRE ALARM SYSTEM, IF REQUIRED BY FIRE DEPARTMENT

SEE CCWRD STANDARD DWGS W4.5 & W4.6 FOR WATER SYSTEM CHAMBER DETAILS

FIRE LINE - DUCTILE IRON, CL 52 6" MIN. TO 3'-0" OUTSIDE OF VAULT

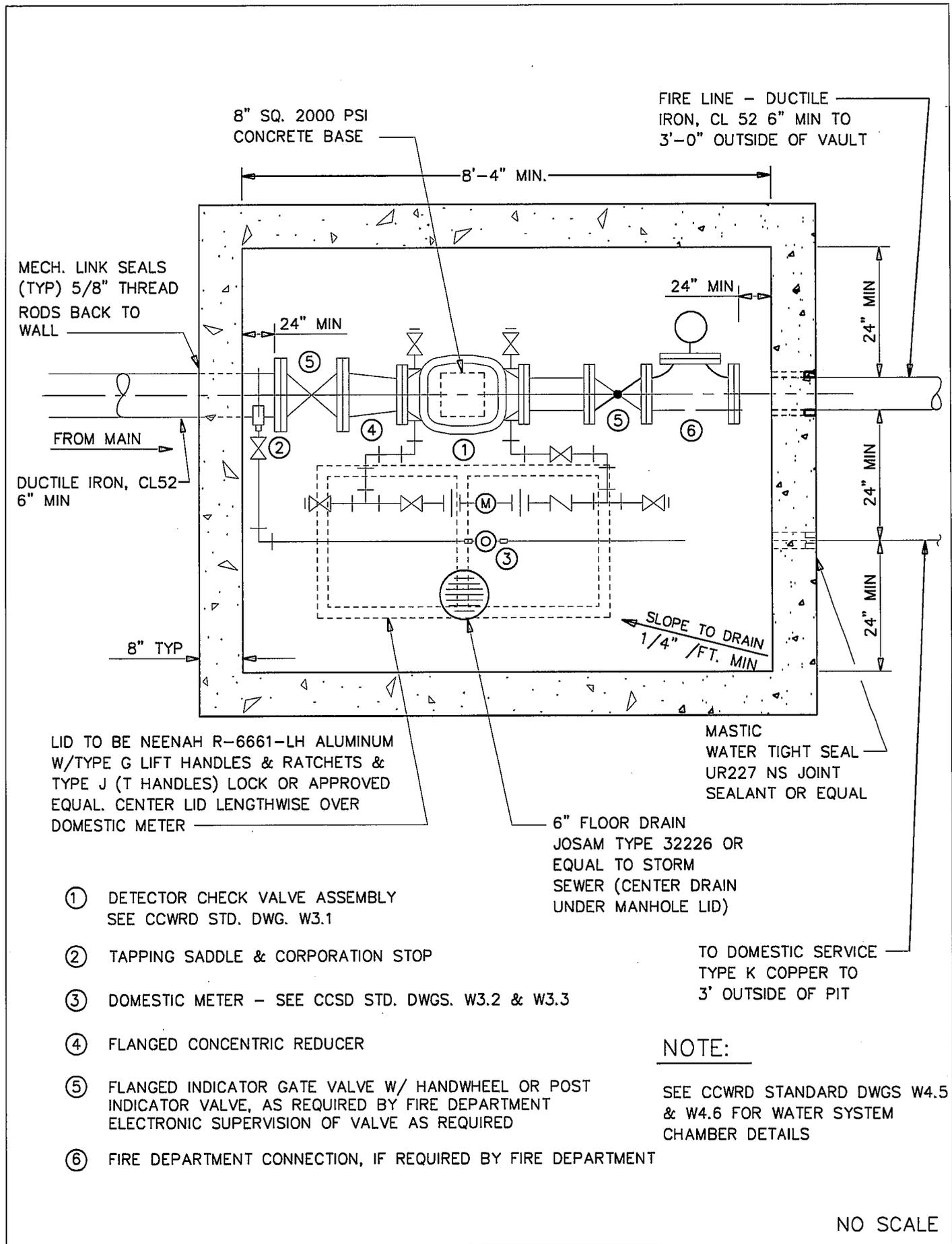
NO SCALE

CLERMONT COUNTY WATER RESOURCES DEPARTMENT

FIRE PROTECTION WITH DETECTOR CHECK

DRAWING NO. W4.1

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_



CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

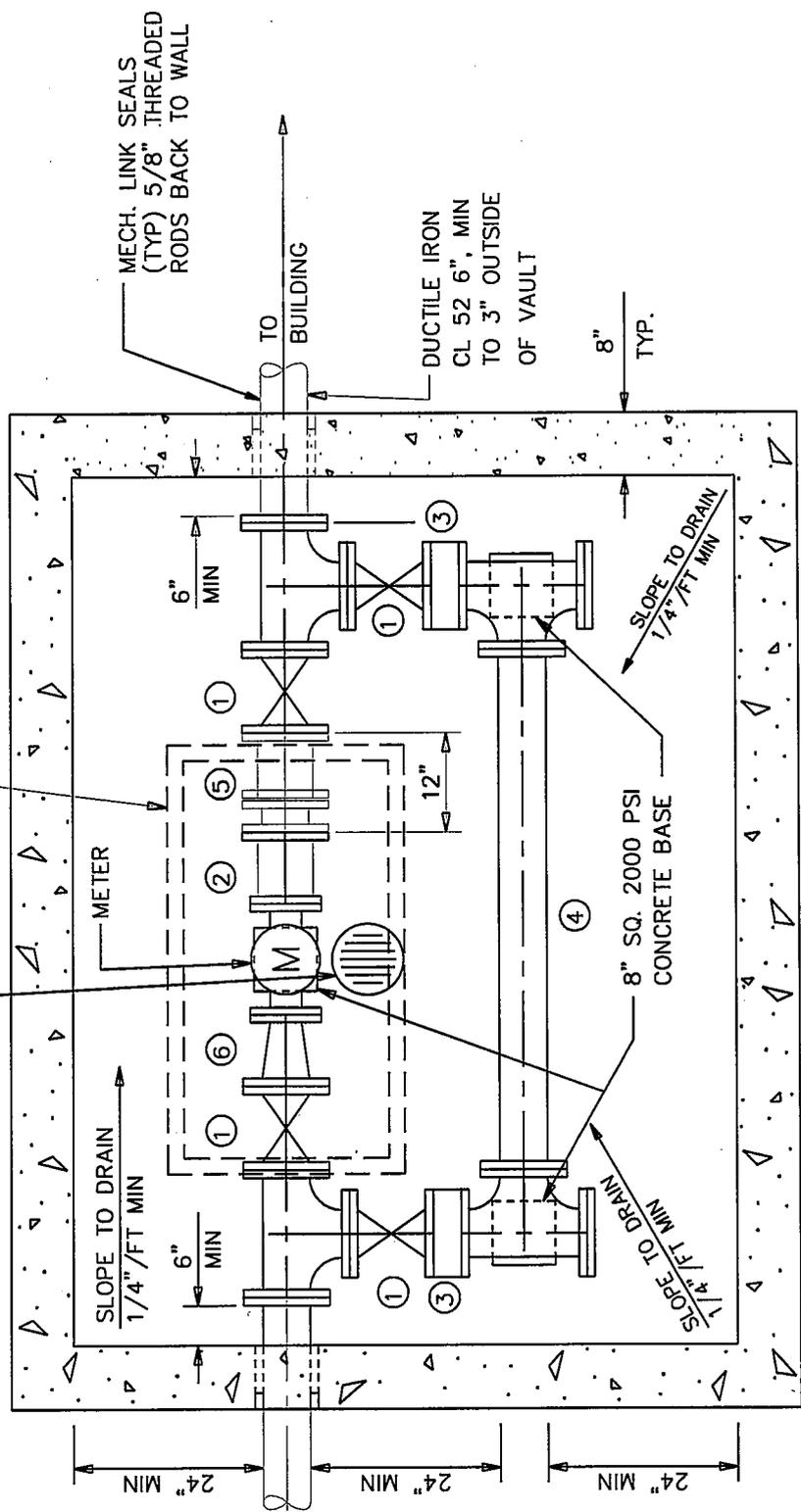
DUAL SERVICE  
BRANCH SETTING-  
DOMESTIC METERS  
(2" & SMALLER)

DRAWING NO.  
W4.2

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LID TO BE NEEHAH R-6661-LH ALUMINUM W/ TYPE G LIFT HANDLES & RATCHET, & TYPE J (T HANDLES) LOCK OR APPROVED EQUAL. CENTER LID LENGTHWISE OVER DOMESTIC METER

6" FLOOR DRAIN JOSAM TYPE 32226 OR EQUAL TO STORM SEWER (CENTER DRAIN UNDER MANHOLE LID)



NOTE:

SEE CCWRDD STANDARD DWGS W4.5 & W4.6 FOR WATER SYSTEM CHAMBER DETAILS

① FLANGED INDICATOR GATE VALVE W/ HANDWHEEL

② FLANGED SPOOL OR SPACER

③ FILLER FLANGE OR SPOOL PIECE AS REQUIRED

④ BY-PASS LINE TO BE SAME SIZE AS DOMESTIC LINE

⑤ FLANGED ADAPTER EQUAL TO DRESSER STYLE 128 WITH 2" NPT TAP & PLUG (TEST PORT)

⑥ FLANGED STRAINER

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

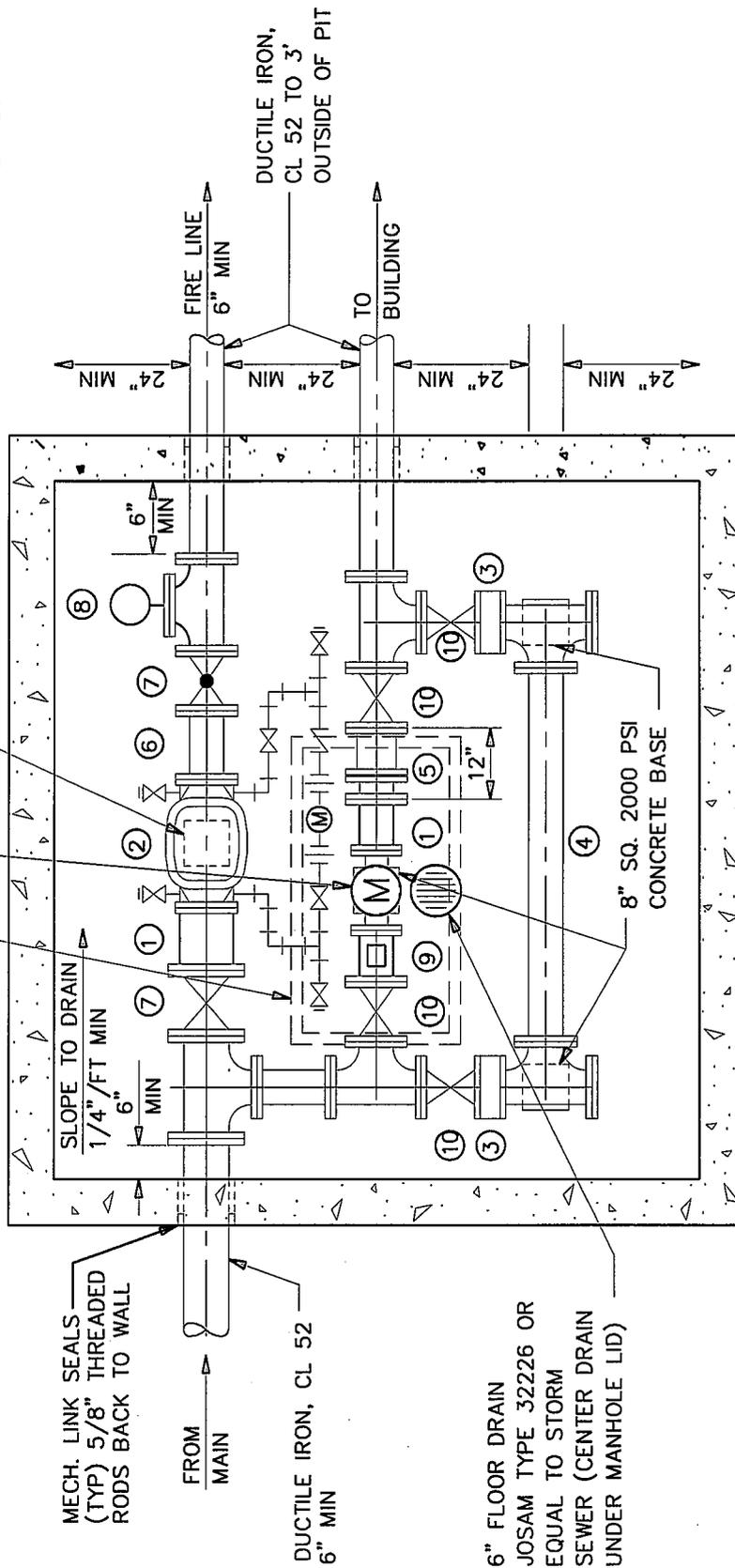
3" & LARGER  
STANDARD METER  
PIT ARRANGEMENT

DRAWING NO.  
W4.3

**NOTE:**

SEE CCWRD STANDARD DWGS W4.5 & W4.6 FOR WATER SYSTEM CHAMBER DETAILS

LID TO BE NEEVAH R-6661-LH ALUMINUM W/ TYPE G LIFT HANDLES & RATCHET, & TYPE J (T HANDLES) LOCK OR APPROVED EQUAL. CENTER LID LENGTHWISE OVER DOMESTIC METER



- ① FLANGED SPOOL OR SPACER
- ② DETECTOR CHECK VALVE ASSEMBLY. SEE CCWRD STD. DWG. W3.1
- ③ FILLER FLANGE OR SPOOL PIECE AS REQUIRED
- ④ BY-PASS LINE TO BE SAME SIZE AS DOMESTIC LINE
- ⑤ FLANGED ADAPTER EQUAL TO DRESSER STYLE 128 WITH 2" NPT TAP & PLUG (TEST PORT)
- ⑥ FLANGED SPOOL 12" x LENGTH
- ⑦ FLANGED INDICATOR GATE VALVE W/ HANDWHEEL OR POST INDICATOR VALE, AS REQUIRED BY FIRE DEPARTMENT ELECTRONIC SUPERVISION OF VALVE AS REQUIRED
- ⑧ FIRE DEPARTMENT CONNECTION, IF REQUIRED BY FIRE DEPARTMENT
- ⑨ FLANGED STRAINER
- ⑩ FLANGED GATE VALVE W/ HANDWHEEL

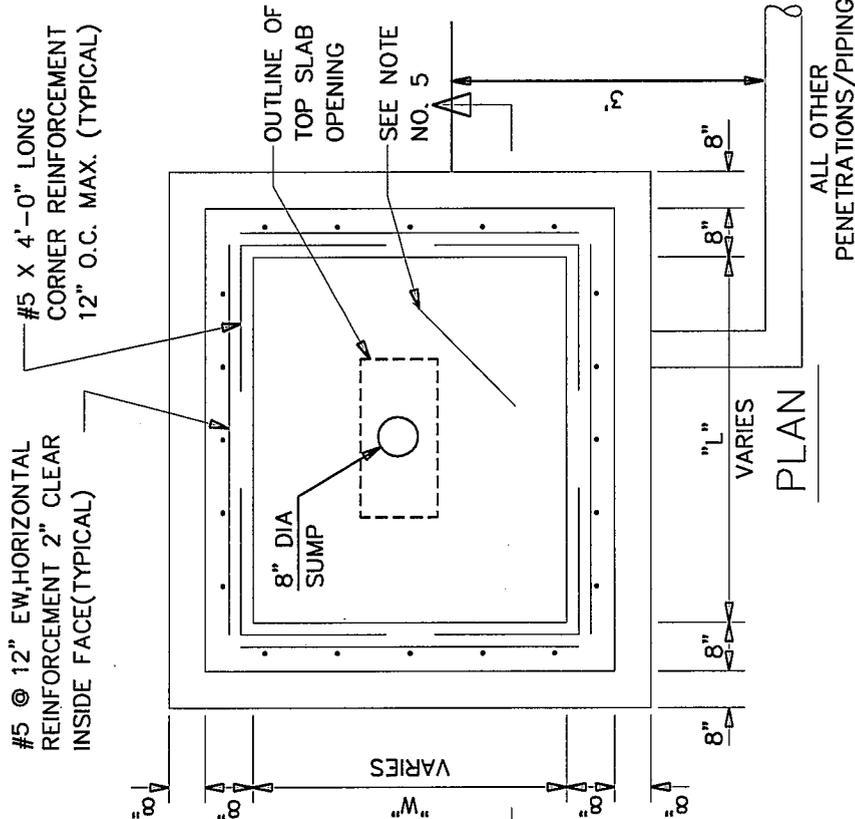
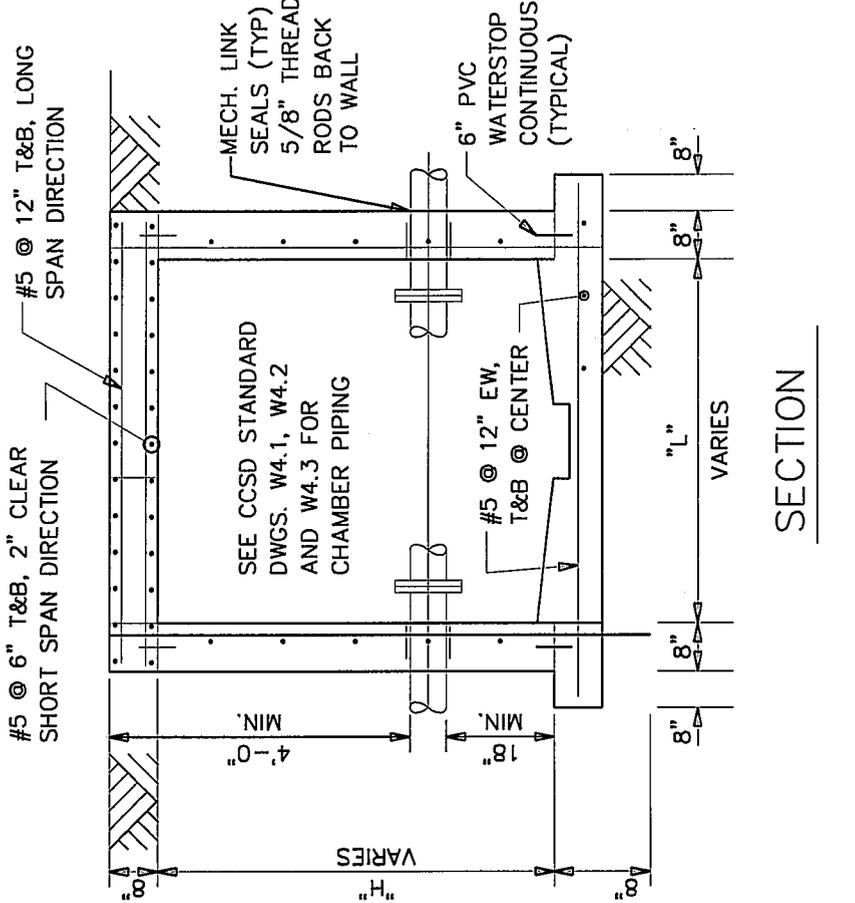
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

DUAL SERVICE  
BRANCH SETTING- 3"  
& LARGER METERS

DRAWING NO.  
W4.4



**NOTES:**

1. IF A STORM SEWER IS UNAVAILABLE FOR THE 6" PVC SDR 23.5 CHAMBER DRAIN CONNECTION, AN 8 INCH DIAMETER SUMP SHALL BE PROVIDED. SUMP SHALL BE CAST MONOLITHICALLY WITH BASE SLAB. SUMP PUMPS MAY BE CONSIDERED ONLY FOR FIRE SUPPRESSION VAULTS WITH ELECTRONIC MONITORING ONLY IF POSITIVE DRAINAGE CANNOT BE PROVIDED. ELECTRIC CIRCUIT MUST BE GFCI PROTECTED & INSTALLED IN ACCORDANCE TO NATIONAL ELECTRIC CODE. FROM MINIMUM HORIZONTAL CLEARANCE OF 3 FEET.
2. 6" FLOOR DRAIN SHALL BE JOSAM TYPE 32226 OR EQUAL. DRAIN SHALL BE CENTERED UNDER MANHOLE LID.
3. FOR MINIMUM CHAMBER DIMENSIONS: "L", "W", "H" AND LID PLACEMENT & SIZING, SEE CCWRD STANDARD DWGS. W4.1, W4.2 AND W4.3.
4. SEE CCWRD STANDARD DWG. W4.6 FOR CHAMBER ACCESS LADDER.
5. ADDITIONAL REINFORCEMENT SHALL BE PROVIDED AT EACH CORNER OF EVERY TOP SLAB OPENING--#5 X 2'-0" LONG T&B MINIMUM.
6. REINFORCEMENT SHOWN IS MINIMUM REQUIRED. TOP AND BASE SLABS SHALL BE DESIGNED FOR A UNIFORM LOADING OF 300 PSF LIVE LOAD, WALLS SHALL BE DESIGNED FOR A UNIFORM VARYING LOAD OF 80 PCF PER FOOT FOOT OF DEPTH, WITH A SAFETY OF 1.7 MIN.
7. CHAMBERS SHALL BE CAST-IN-PLACE OR PRECAST CONCRETE (4000 PSI)
8. ALL OTHER PENETRATIONS SHALL BE NO MORE THAN 18" BELOW SURFACE

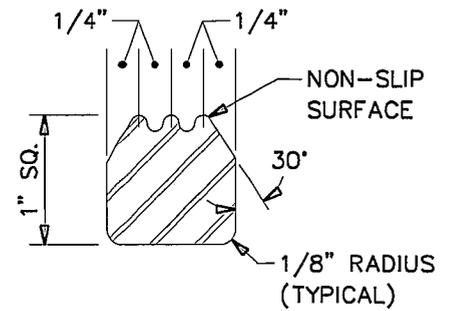
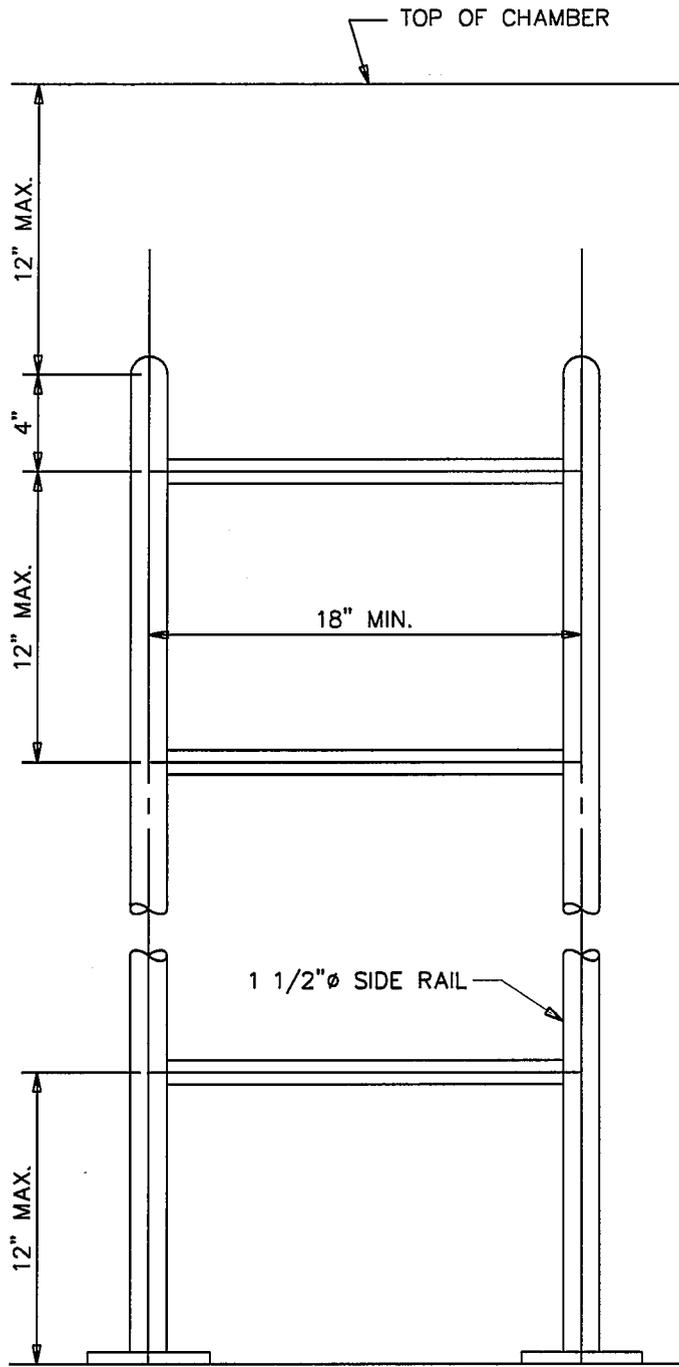
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

STANDARD  
WATER SYSTEM  
CHAMBER

DRAWING NO.  
W4.5

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



RUNG DETAIL

NOTES:

- 1.LADDERS SHALL BE FABRICATED FROM ALUMINUM TUBING, PLATES & BARS CONFORMING TO ALLOY & TEMPER 6061-T6.
- 2.TUBING SHALL HAVE A 1/8" MIN. WALL THICKNESS.
- 1.LADDER MUST BE FASTENED TO WALL AND FLOOR WITH STAINLESS STEEL ANCHORS.

NO SCALE

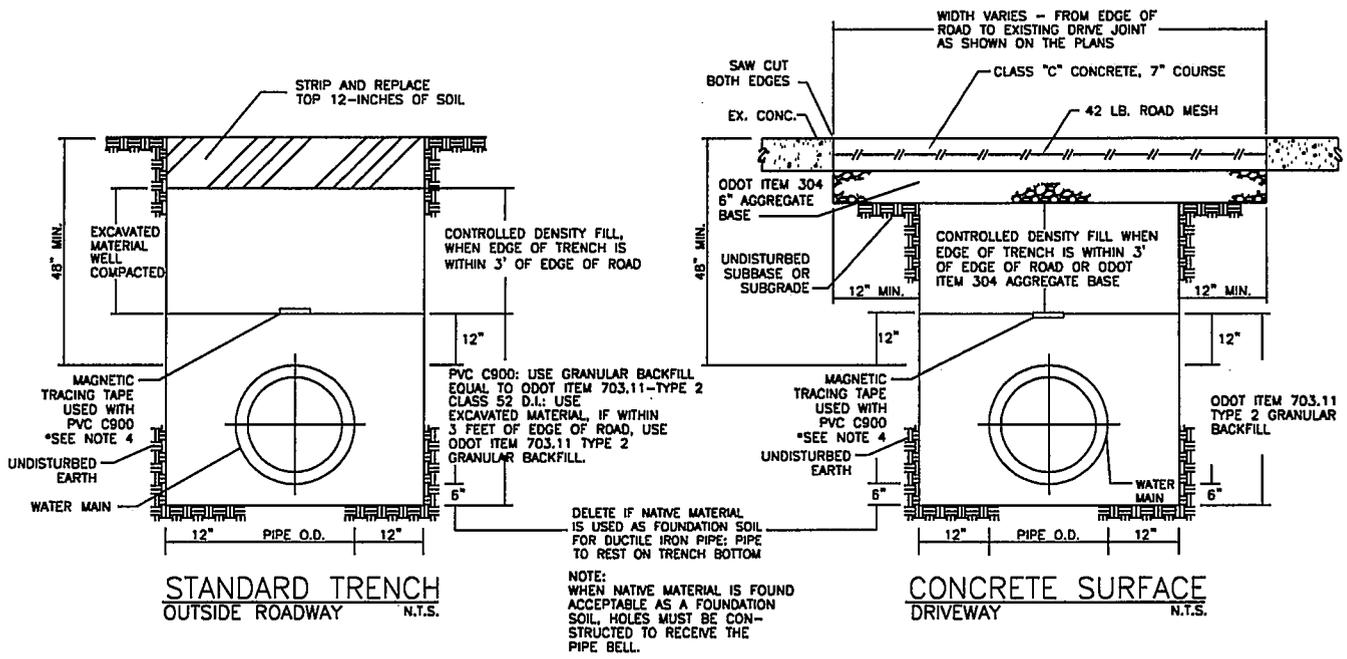
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

CHAMBER ACCESS  
LADDER

DRAWING NO.

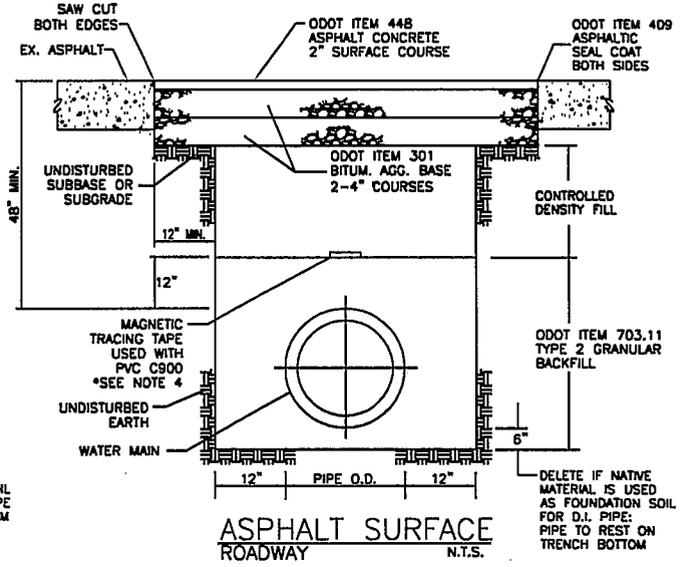
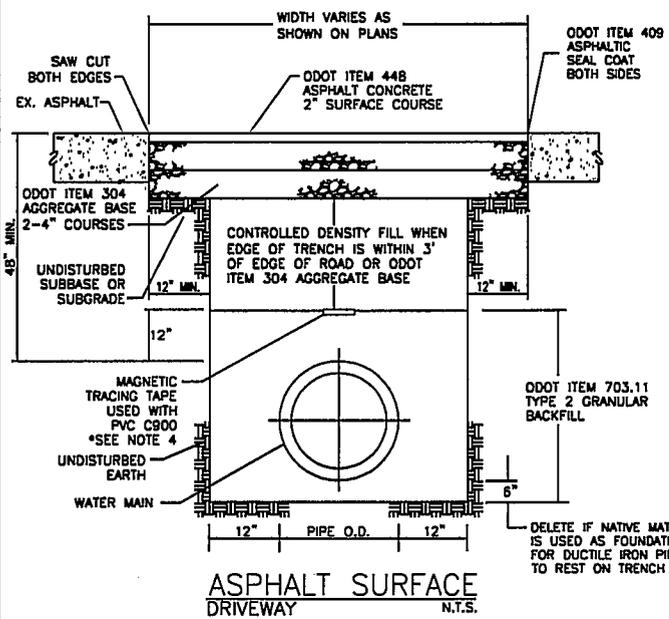
W4.6

APPROVED \_\_\_\_\_  
DATE



NOTE: VERTICAL EDGES OF EXISTING TRENCH TO BE COATED WITH LIQUID ASPHALT PRIOR TO PLACING ODOT ITEM 304 AND ODOT ITEM 448

NOTE: VERTICAL EDGES OF EXISTING TRENCH TO BE COATED WITH LIQUID ASPHALT PRIOR TO PLACING ODOT ITEM 301 AND ODOT ITEM 448



**NOTES:**

1. "PAVEMENT" AS USED IN THIS DETAIL SHALL ALSO MEAN SIDEWALKS, CURBS, SLABS & OTHER GRADED STRUCTURES.
2. ALL BACKFILL & BEDDING IS TO BE COMPACTED AS CALLED FOR IN THE SPECIFICATIONS.
3. BEDDING AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR THE SPECIFIC PIPE MATERIAL BEING INSTALLED.
4. IN ADDITION TO MAGNETIC TRACER TAPE, ALL PVC WATER MAIN SHALL INCLUDE A TRACER WIRE SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 2120 OF THE CCWRD STANDARD SPECIFICATIONS

5.6' LONG CLAY BULKHEADS TO BE INSTALLED AROUND PIPE EVERY 100' IN ACCORDANCE WITH SECTION 1200 OF THE CCWRD SPECIFICATIONS.

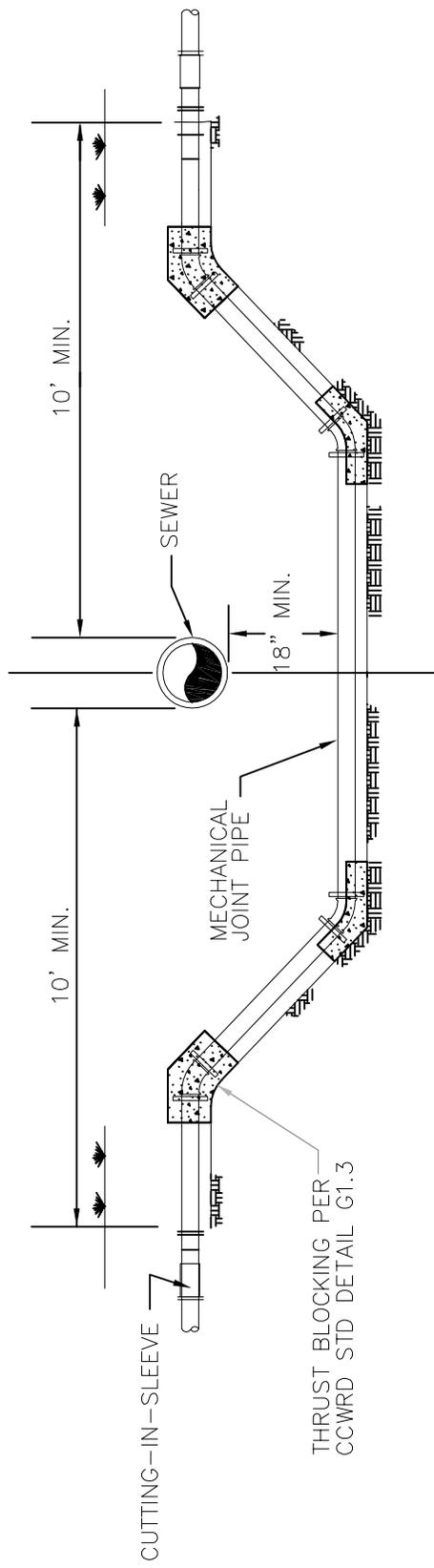
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

WATER MAIN  
TRENCH SECTION

DRAWING NO.  
W5.1

APPROVED \_\_\_\_\_  
DATE



NOTE  
 DUCTILE IRON RETAINER GLANDS SHALL BE USED  
 ON ALL FITTINGS AND PIPE.

NOT TO SCALE

CLERMONT COUNTY  
 WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
 DATE \_\_\_\_\_

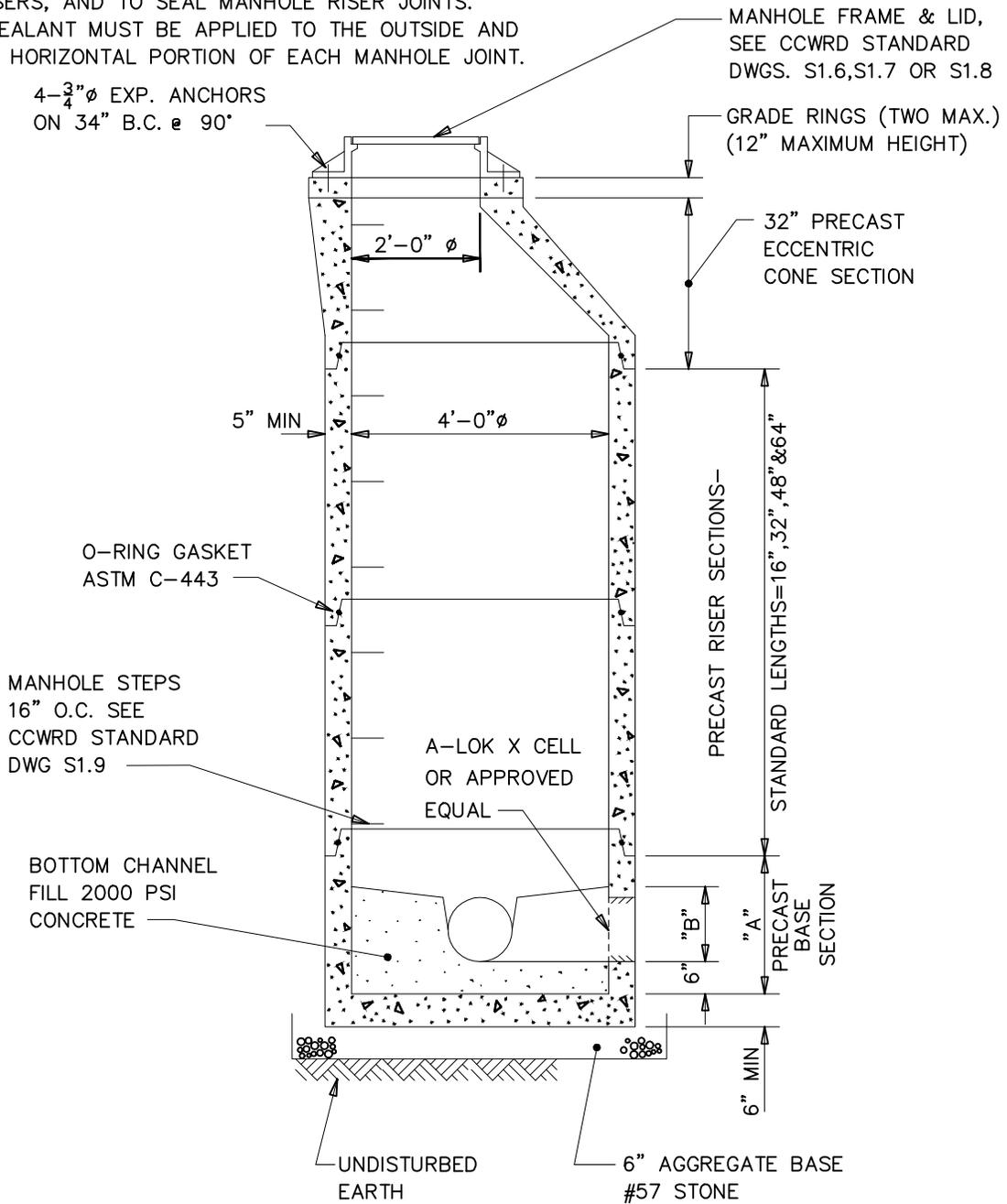
WATER MAIN  
 LOWERING DETAIL

DRAWING NO.  
 W5.2

**NOTE:**

FLEXIBLE BUTYL RUBBER SEALANT EQUAL TO CONSEAL TYPE CS-302 SHALL BE USED TO: SEAL CASTING TO MANHOLE, TO SEAL ADJUSTING RINGS TOGETHER AND TO RISERS, AND TO SEAL MANHOLE RISER JOINTS. THE SEALANT MUST BE APPLIED TO THE OUTSIDE AND INSIDE HORIZONTAL PORTION OF EACH MANHOLE JOINT.

4- $\frac{3}{4}$ " $\phi$  EXP. ANCHORS  
ON 34" B.C. @ 90°



"A" DIMENSION	SEWER SIZE
24"	8" & 10"
30"	12" & 15"
38"	18"

"B" DIMENSION	SEWER SIZE
PIPE ID + 2"	8", 10" & 12"
1/2 PIPE ID + 2"	15" & LARGER

KOR-N-SEAL I OR APPROVED EQUAL FOR CONNECTION TO EXISTING MANHOLES

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

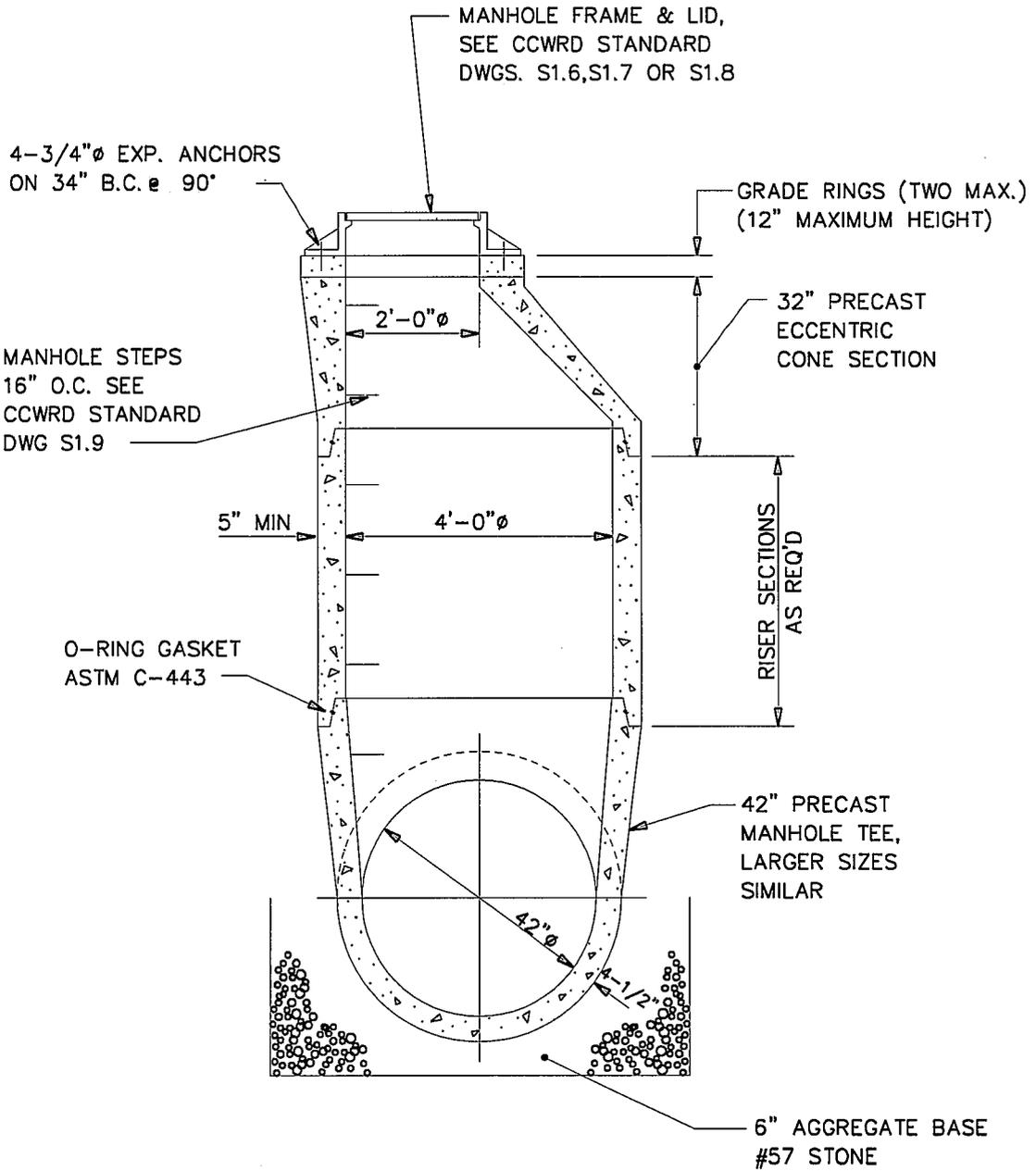
STANDARD MANHOLE  
FOR SEWERS  
8" TO 18"

DRAWING NO.

S1.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_





**NOTES:**

1. MANHOLE RISER SHALL BE CAST MONOLITHICALLY WITH 8" LG. PIPE SECTION.
2. FLEXIBLE BUTYL RUBBER SEALANT EQUAL TO CONSEAL TYPE CS-302 SHALL BE USED TO: SEAL CASTING TO MANHOLE, SEAL ADJUSTING RINGS TOGETHER AND TO RISERS, AND TO SEAL MANHOLE RISER JOINTS. THE SEALANT MUST BE APPLIED TO THE OUTSIDE AND INSIDE HORIZONTAL PORTION OF EACH MANHOLE JOINT.

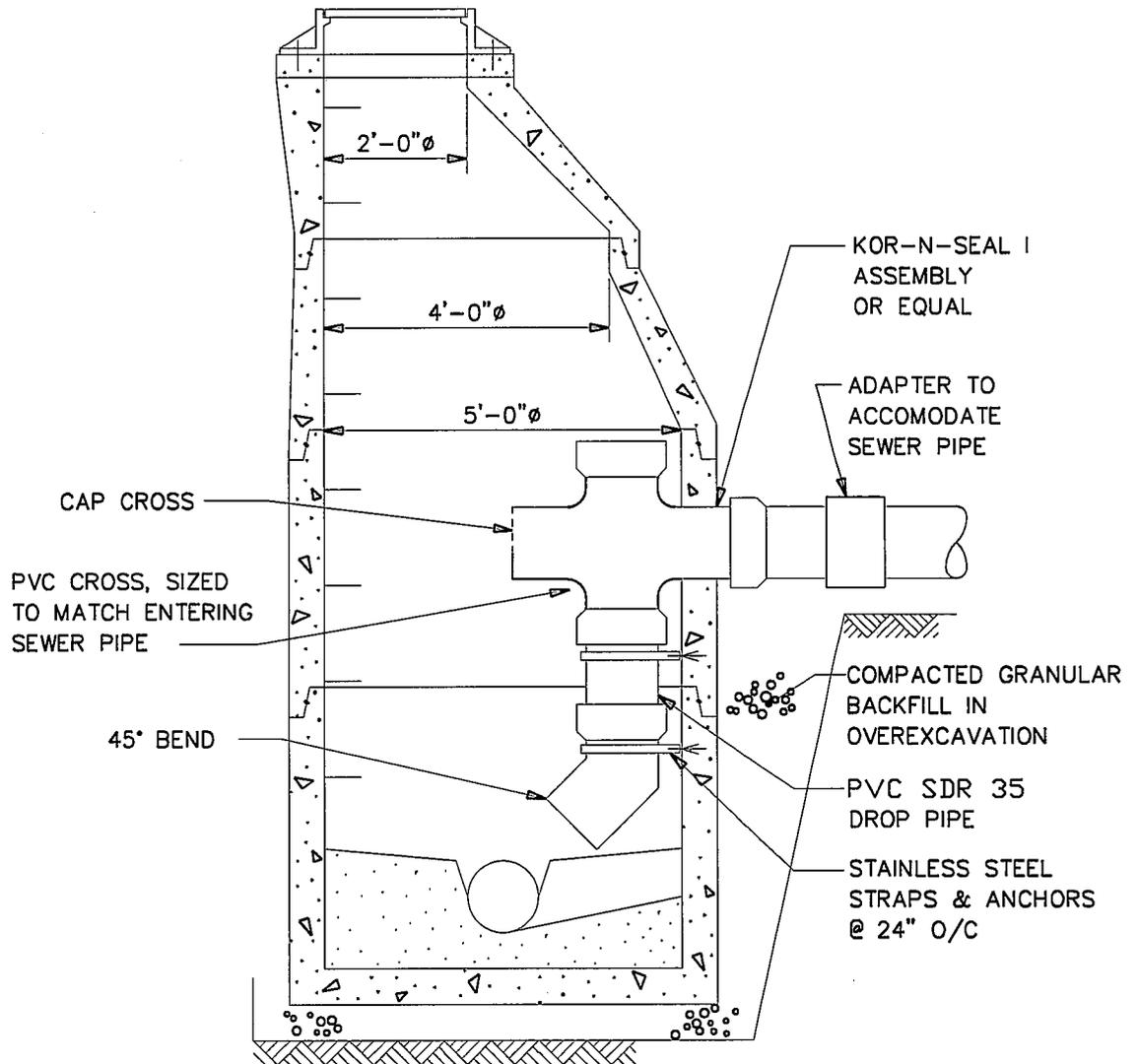
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

STANDARD MANHOLE  
FOR SEWERS  
42" & LARGER

DRAWING NO.  
S1.3

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



SEWER PIPE SIZE	DROP PIPE SIZE
8"	8"
10"	10"
12"	12"
15" & OVER	12" UNLESS OTHERWISE APPROVED

**NOTES:**

1. IN LIEU OF THE DROP STRUCTURE SHOWN, A RELINER BRAND INSIDE DROP SYSTEM MAY BE USED.
2. ALL OTHER CHARACTERISTICS ARE SIMILAR TO THE STANDARD MANHOLES. SEE CCWRD STANDARD DWGS. S1.1-S1.3.

NO SCALE

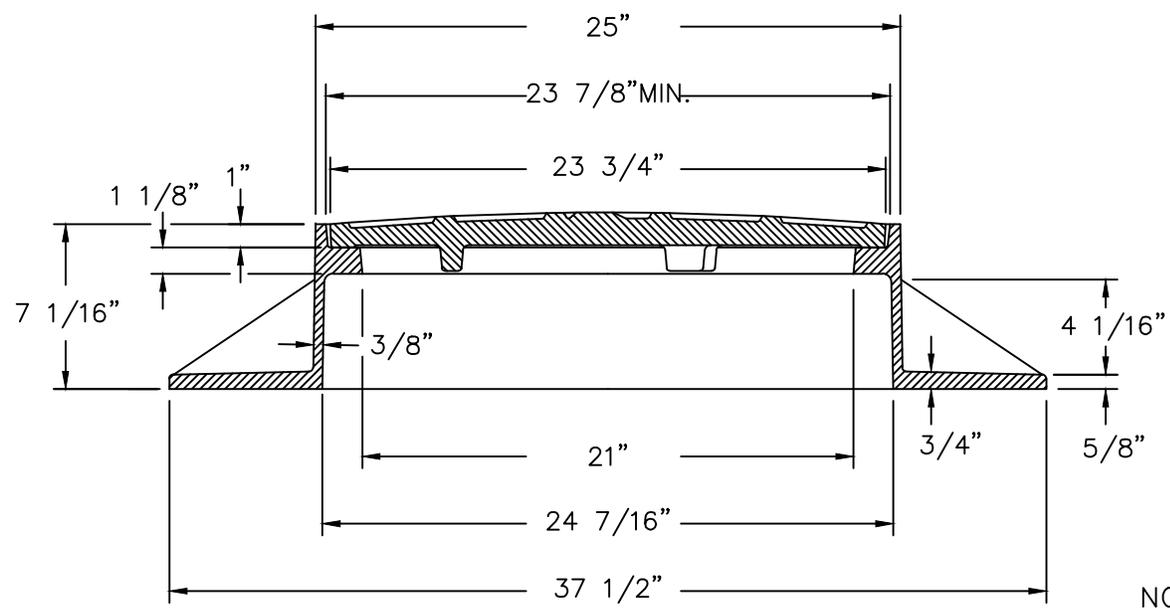
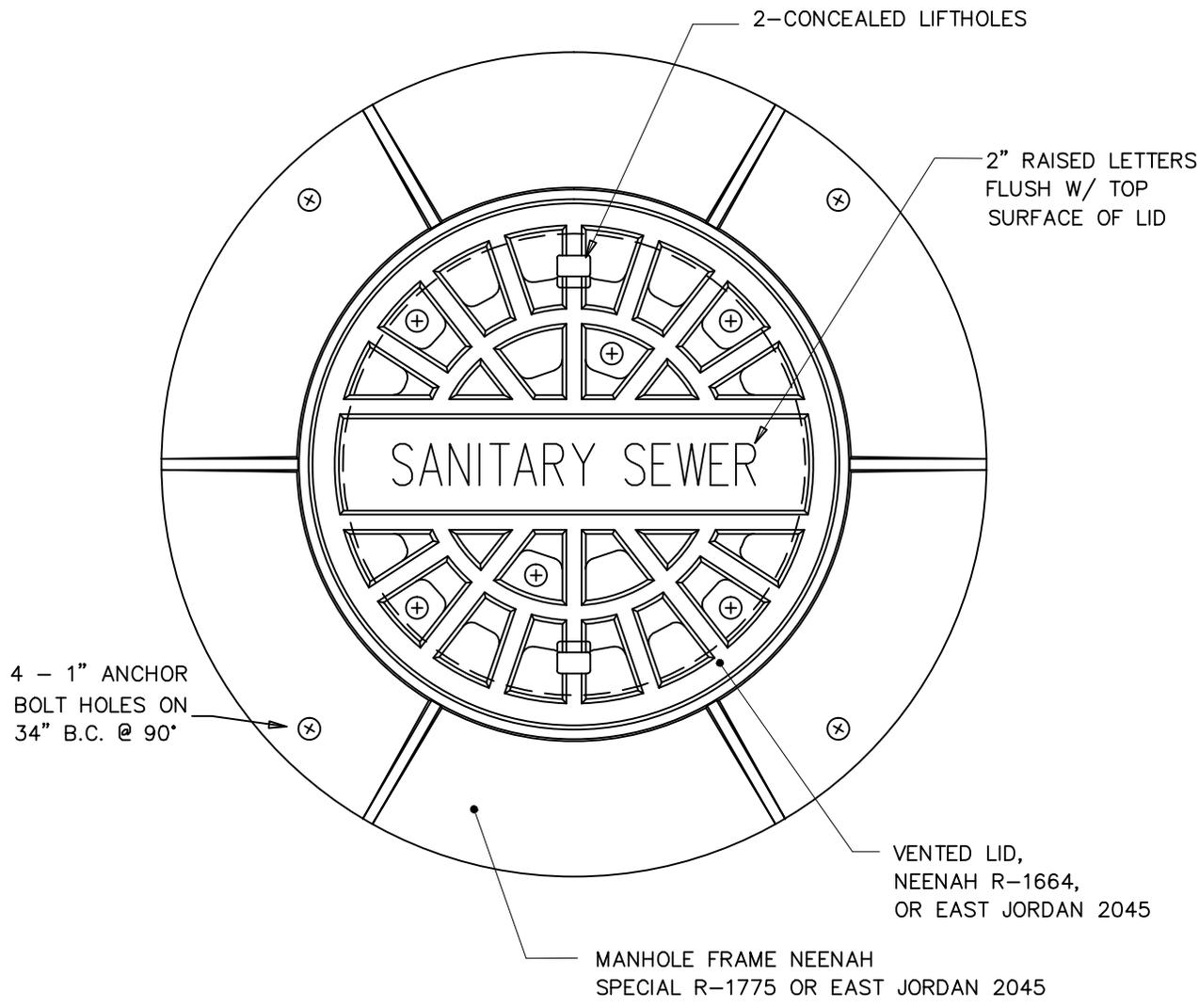
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

INSIDE DROP  
MANHOLE

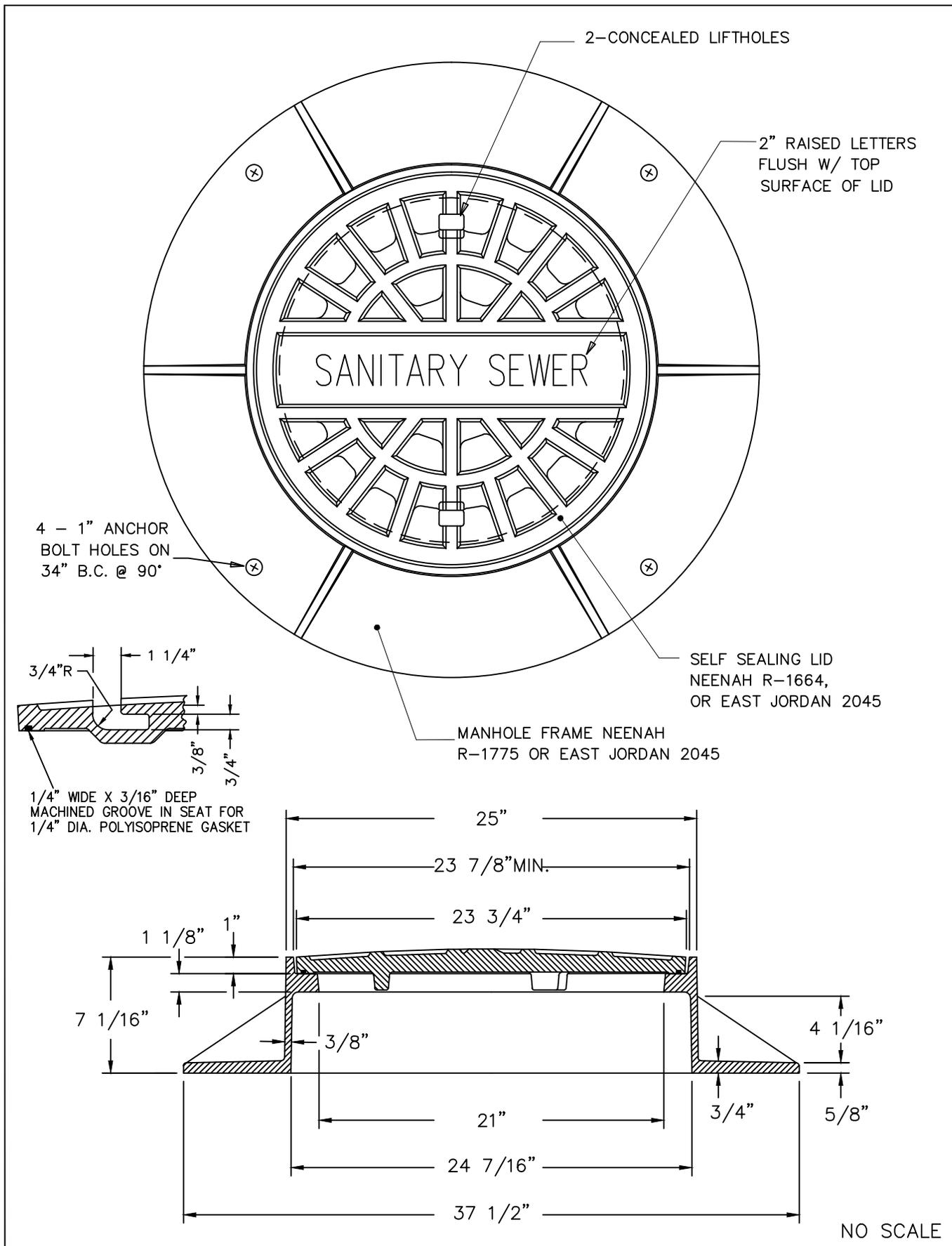
DRAWING NO.

S1.4



NO SCALE

CLERMONT COUNTY WATER RESOURCES DEPARTMENT	MANHOLE FRAME WITH VENTED LID	DRAWING NO. S1.6
APPROVED _____ DATE _____		

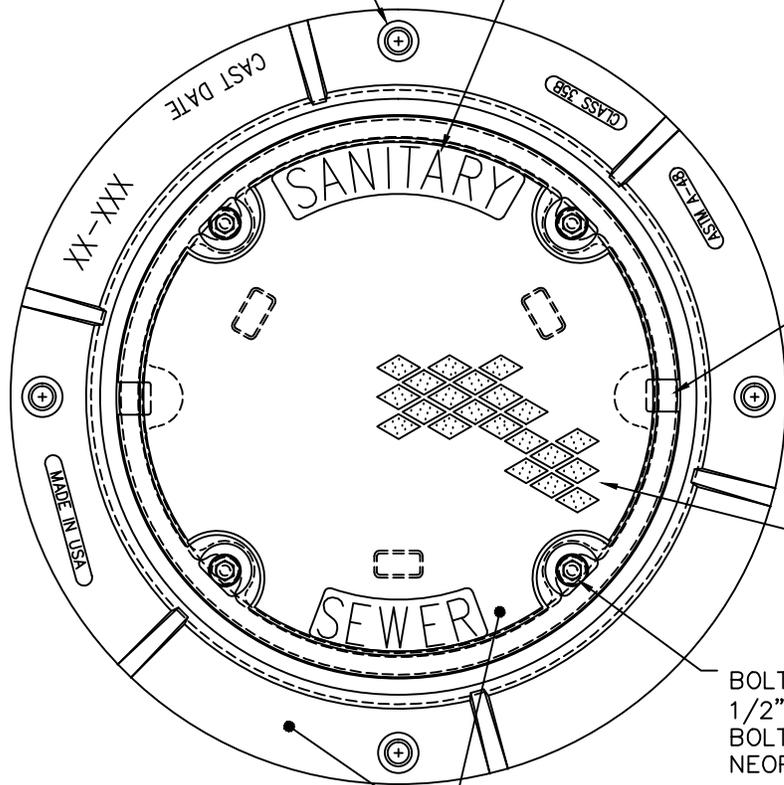


CLERMONT COUNTY WATER RESOURCES DEPARTMENT	MANHOLE FRAME WITH SELF SEALING LID	DRAWING NO. S1.7
APPROVED _____ DATE _____		

REVISED JUNE 2013

4 - 1" ANCHOR BOLTS  
ON 32 3/4" B.C. @ 90°

2" RAISED LETTERING  
FLUSH WITH TOP SURFACE

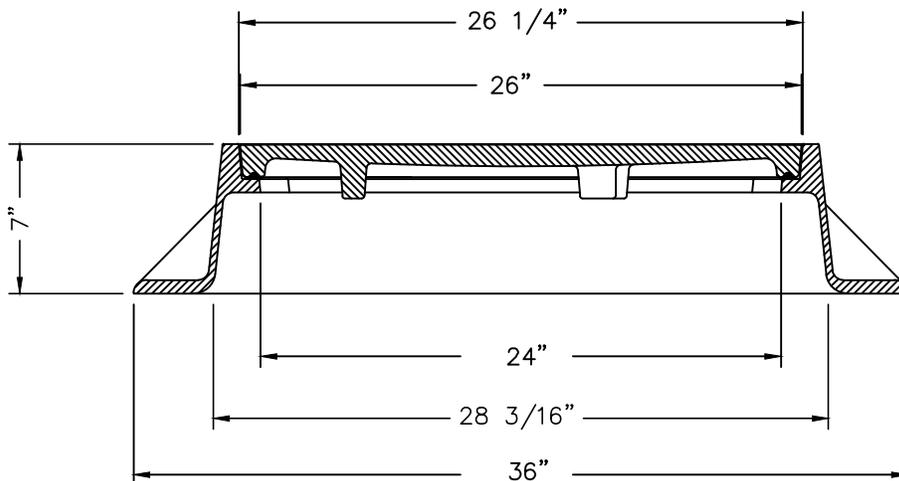


2 CONCEALED PICK HOLES

TEXTURE TYPICAL ON LID

BOLT LID TO FRAME WITH 4  
1/2"-13 X 2 1/4" SS HEX.  
BOLT, WITH SS WASHER AND  
NEOPRENE WASHER

WATERTIGHT FRAME AND PLATEN LID  
EAST JORDAN 1045ZPT OR NEENAH  
R-1916-F



NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

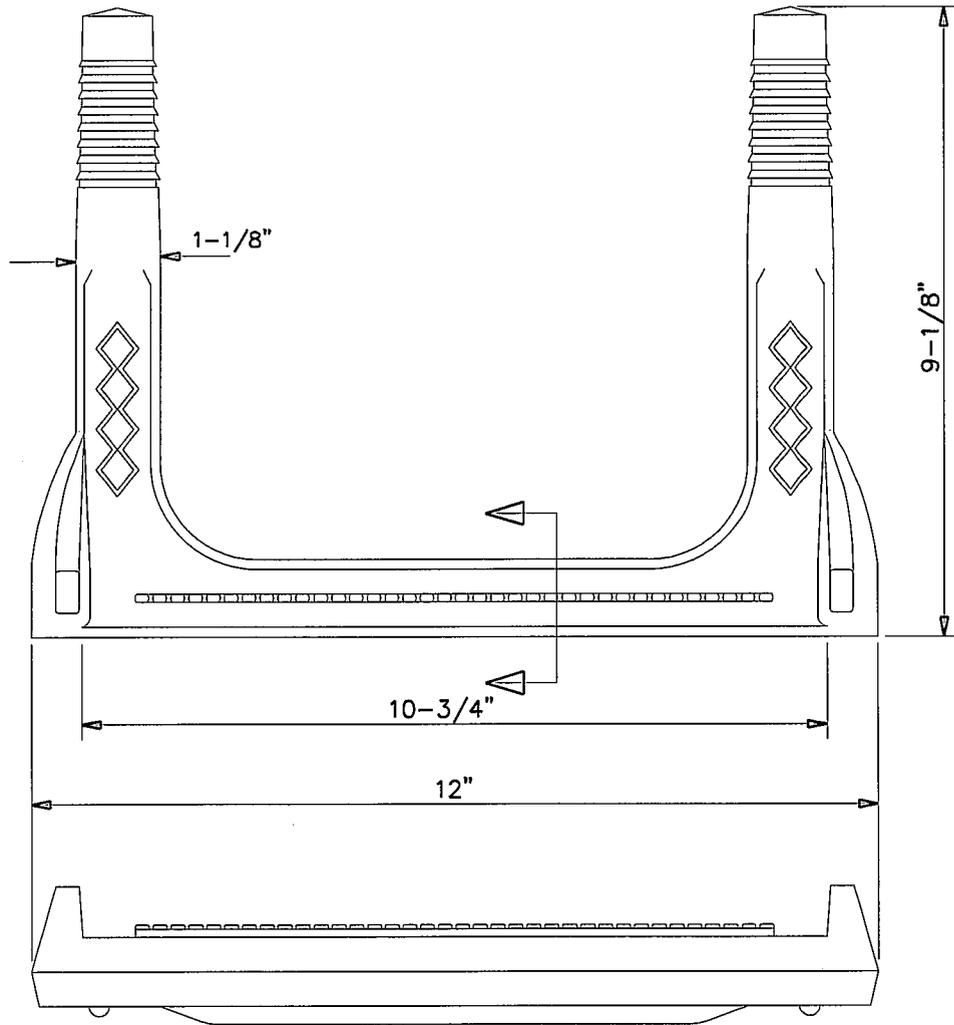
WATERTIGHT FRAME  
WITH BOLT DOWN LID

DRAWING NO.

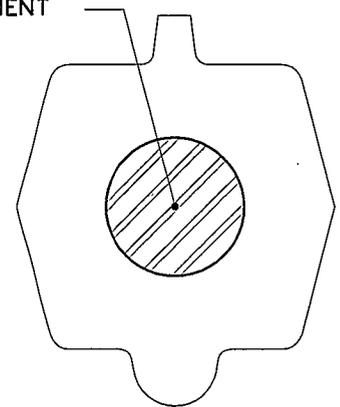
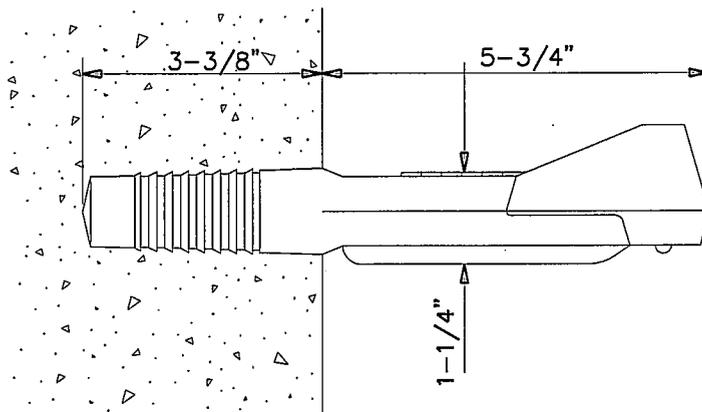
S1.8

APPROVED \_\_\_\_\_

DATE \_\_\_\_\_



1/2"Ø GRADE 60  
STEEL REINFORCEMENT



SECTION

NO SCALE

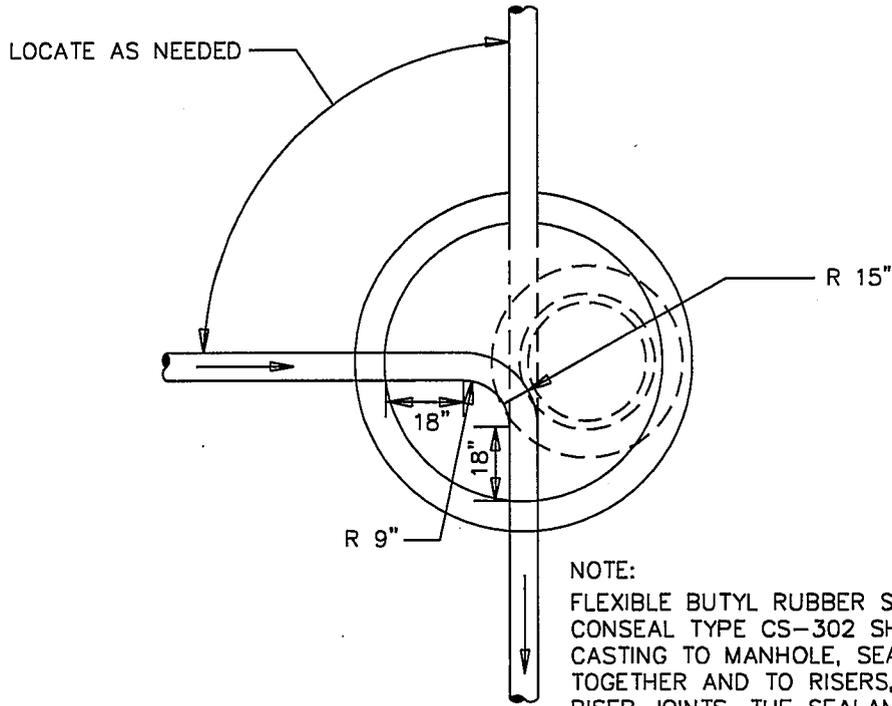
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

MANHOLE STEP-  
COPOLYMER

DRAWING NO.

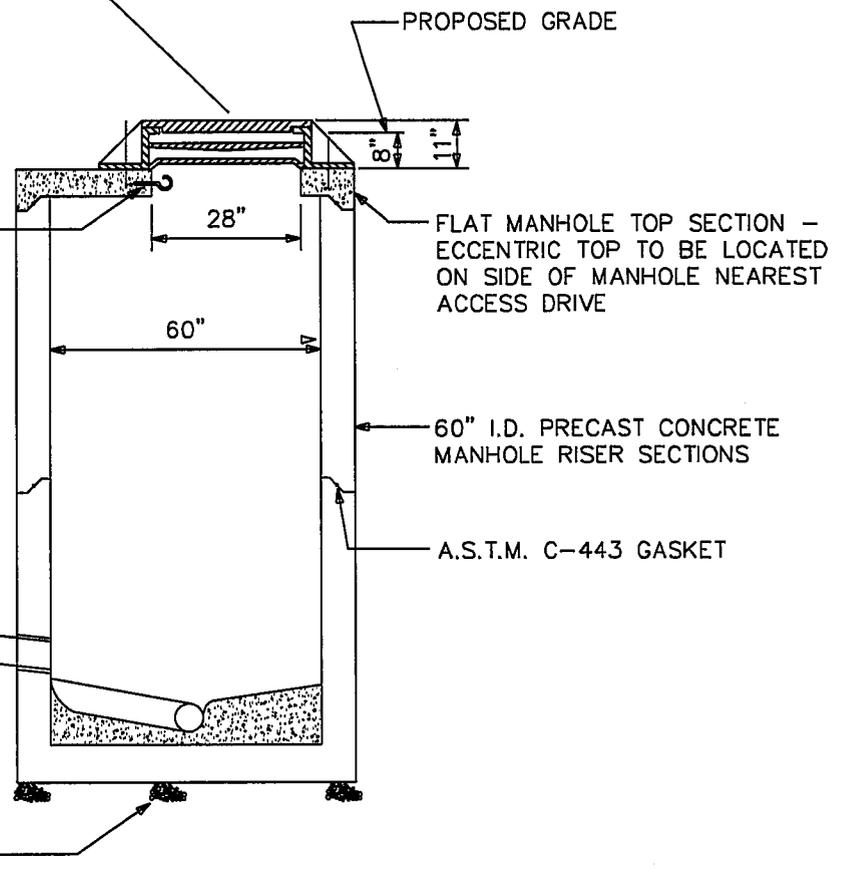
S1.9



IN NON-PAVED/UNTRAVELED AREAS  
INSTALL AN ALUMINUM LID,  
NEENAH TYPE R-1751-A WITH  
2-1/2" DIA. TYPE "C" DROP HANDLES  
& LOCKABLE INNER LID

IN PAVED/TRAVELED AREAS INSTALL  
A CAST IRON LID NEENAH R-1751-A  
WITH 2 1/2" DIA. TYPE "C" DROP  
HANDLES & LOCKABLE INNER LID

1/2" Ø STAINLESS STEEL EYEBOLT,  
TWO REQUIRED OVER CENTRAL  
PORTION OF MANHOLE CAVITY,  
90° APART



NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

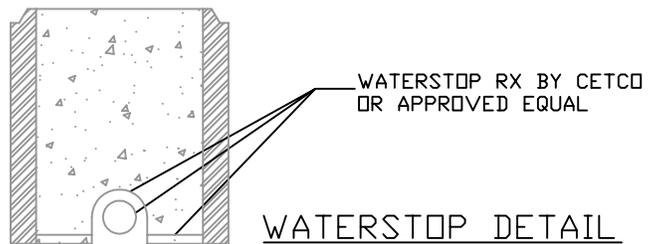
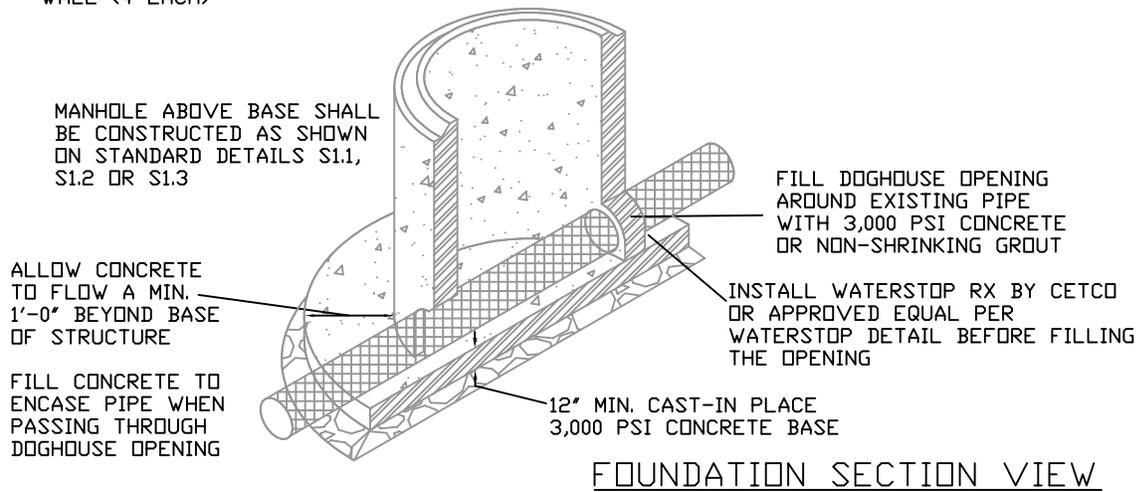
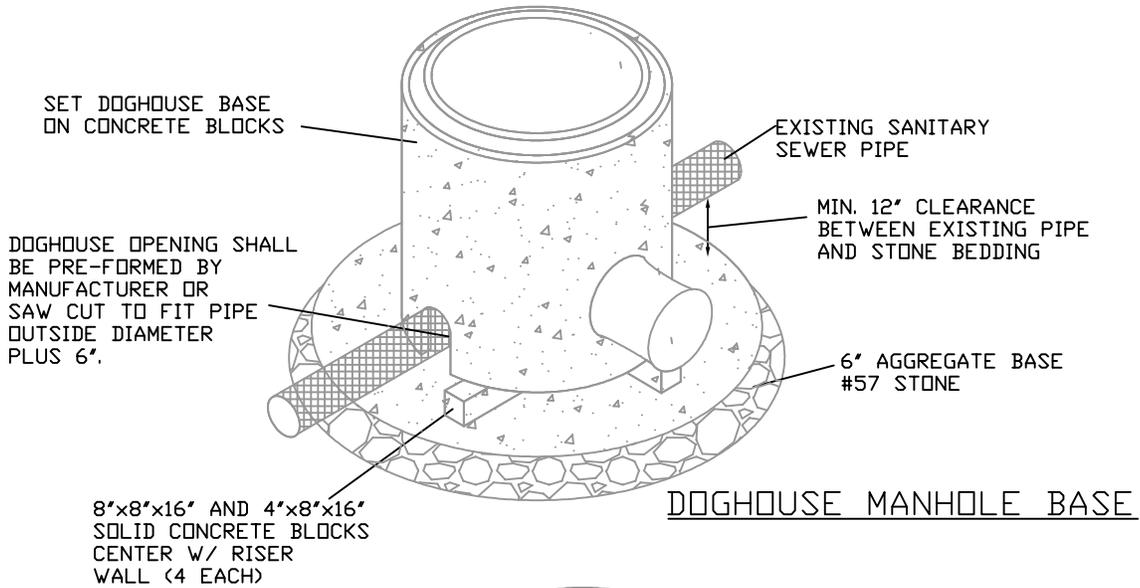
IWPT SAMPLING  
MANHOLE

DRAWING NO.

S1.10

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

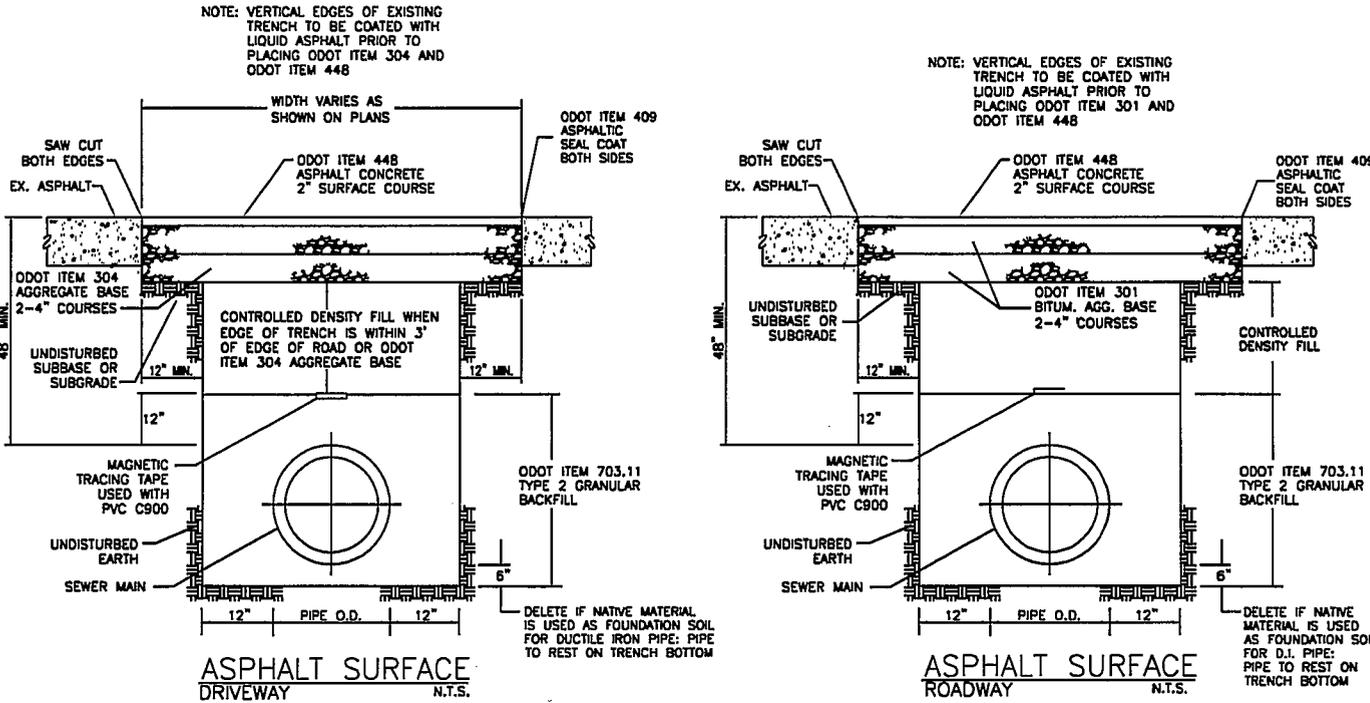
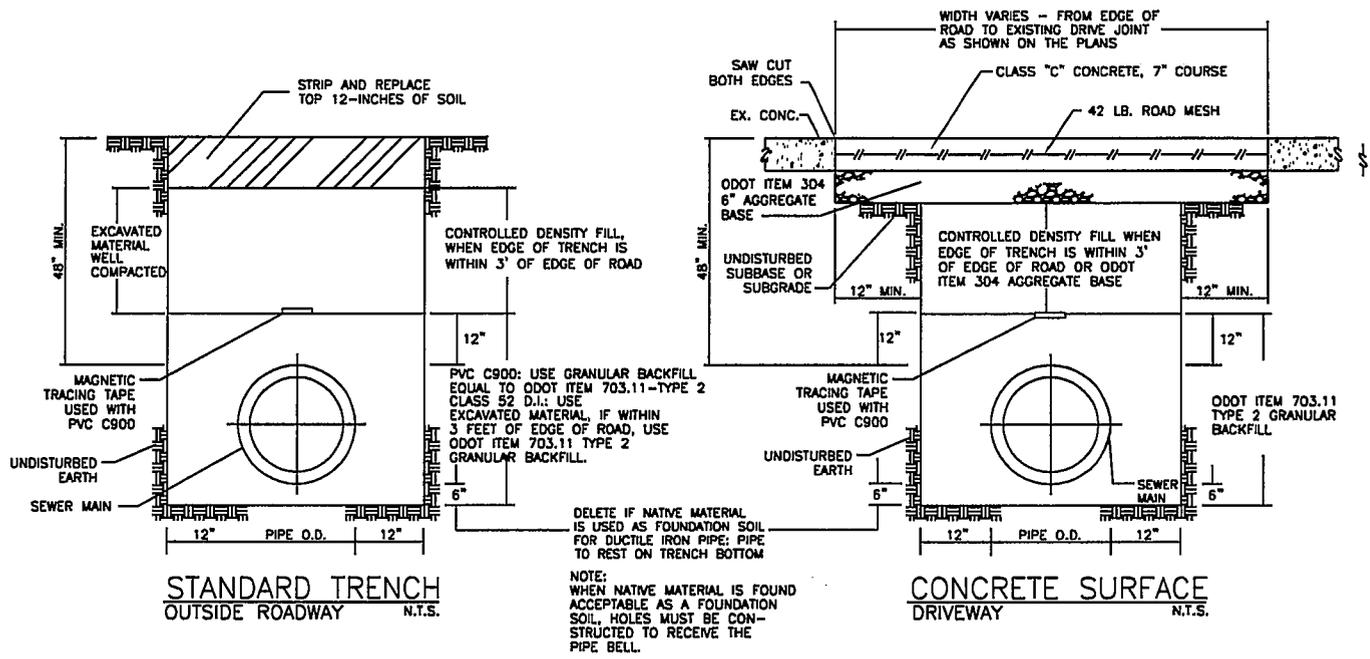
PRECAST CONCRETE MANHOLE BASES SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 3200 OF THE CCWRD SPECIFICATIONS.



NOTES:

1. CONSTRUCT A FORMED INVERT FROM NEW SEWER LINE TO ALLOW FLOW TO THE EXISTING PIPE.
2. POUR A BENCH TO THE LOWER HALF OF THE EXISTING PIPE.
3. CUT AND REMOVE THE TOP HALF OF EXISTING PIPE TO WITHIN 6" OF THE MANHOLE WALLS AFTER THE INVERT AND BENCH HAVE BEEN FORMED, AND THE MH HAS BEEN FULLY TESTED IN ACCORDANCE WITH CCWRD SPECIFICATIONS.

<p>CLERMONT COUNTY WATER RESOURCES DEPARTMENT</p>	<p>MANHOLE BASE "DOGHOUSE" INSTALLATION</p>	<p>DRAWING NO.  S1.11</p>
<p>APPROVED _____ DATE _____</p>		



**NOTES:**

1. "PAVEMENT" AS USED IN THIS DETAIL SHALL ALSO MEAN SIDEWALKS, CURBS, SLABS & OTHER GRADED STRUCTURES.
2. ALL BACKFILL & BEDDING IS TO BE COMPACTED AS CALLED FOR IN THE SPECIFICATIONS.
3. BEDDING AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR THE SPECIFIC PIPE MATERIAL BEING INSTALLED.
4. 6' LONG CLAY BULKHEADS TO BE INSTALLED AROUND PIPE EVERY 100' IN ACCORDANCE WITH SECTION 1200 OF THE CCWRD SPECIFICATIONS.

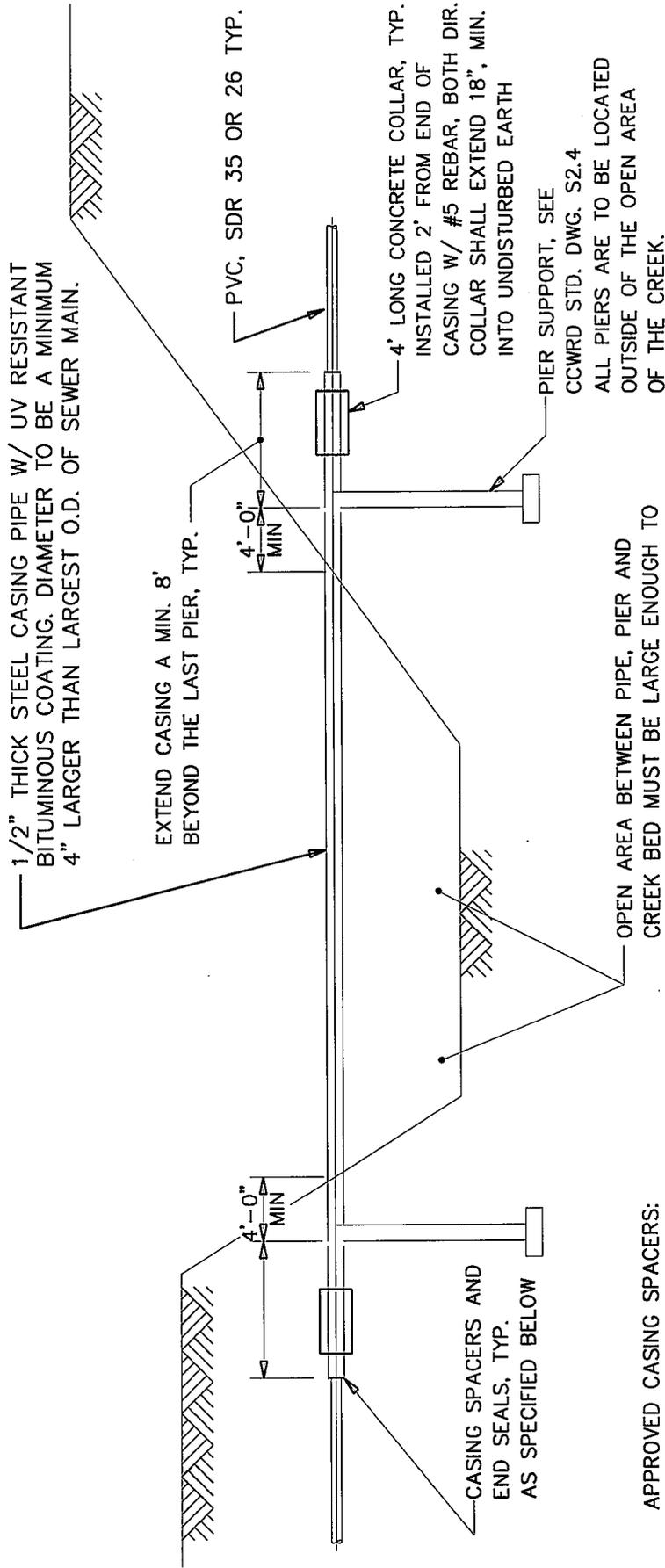
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

SANITARY SEWER  
TRENCH SECTIONS

DRAWING NO.  
S2.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



OPEN AREA BETWEEN PIPE, PIER AND CREEK BED MUST BE LARGE ENOUGH TO ALLOW UNOBSTRUCTED FLOW OF 50 YEAR STORM RUNOFF. PROVIDE CALCULATIONS TO CCWRD FOR REVIEW. AERIAL CROSSING TO BE PERPENDICULAR TO STREAM.

APPROVED CASING SPACERS:  
 MODEL CCS, CASCADE WATERWORKS  
 MODEL BWM-SS, BWM COMPANY

APPROVED END SEALS:  
 MODEL CCES, CASCADE WATERWORKS  
 MODEL BWM-PO, BWM COMPANY

NOTE:  
 THIS DETAIL IS A MINIMUM STANDARD ONLY.  
 ACTUAL AERIAL STRUCTURE AND PIPE SUPPORT TO BE DESIGNED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CCWRD.

ELEVATION

NO SCALE

CLERMONT COUNTY  
 WATER RESOURCES DEPARTMENT

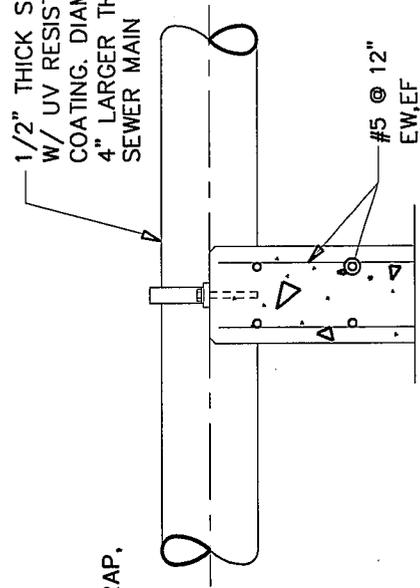
APPROVED \_\_\_\_\_  
 DATE \_\_\_\_\_

CREEK CROSSING  
 AERIAL TYPE

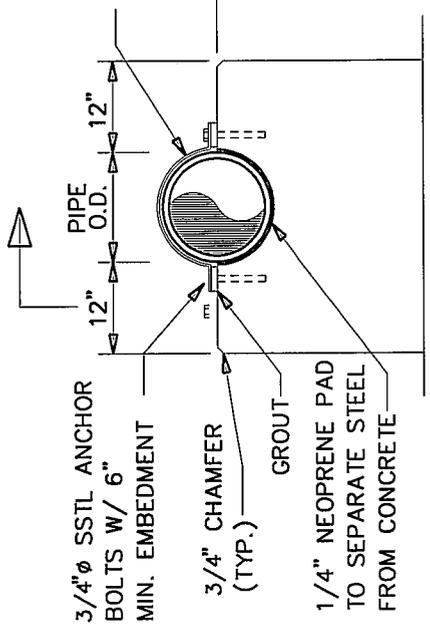
DRAWING NO.

S2.3

1/2" THICK STEEL CASING PIPE  
W/ UV RESISTANT BITUMINOUS  
COATING, DIAMETER TO BE A MIN.  
4" LARGER THAN LARGEST O.D. OF  
SEWER MAIN



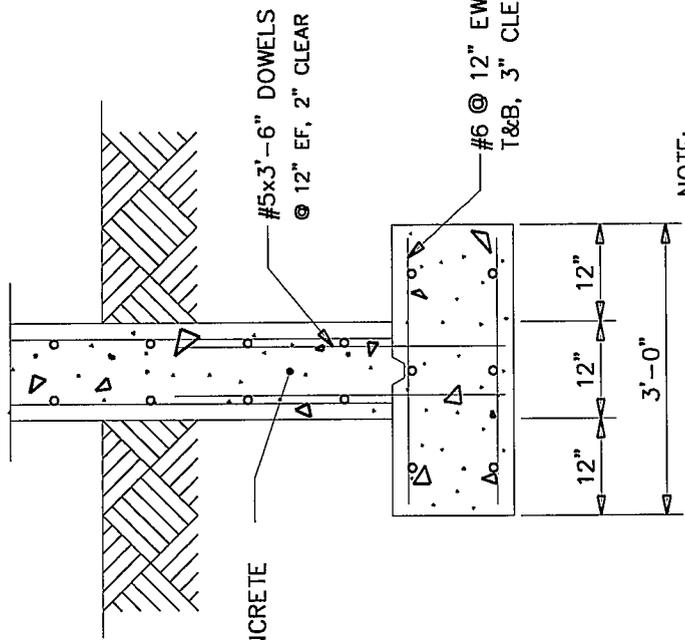
STAINLESS STEEL PIPE STRAP,  
1/4" THICK X 3" WIDE



VARIES

LOWEST ELEV.  
OF CREEK OR  
SWALE

4,000 PSI CONCRETE



NOTE:  
THIS DETAIL IS A MINIMUM  
STANDARD ONLY. ACTUAL  
PIER DIMENSIONS AND STEEL  
REINFORCING TO BE DESIGNED  
BY A PROFESSIONAL ENGINEER  
AND APPROVED BY THE CCWRD

SECTION

ELEVATION

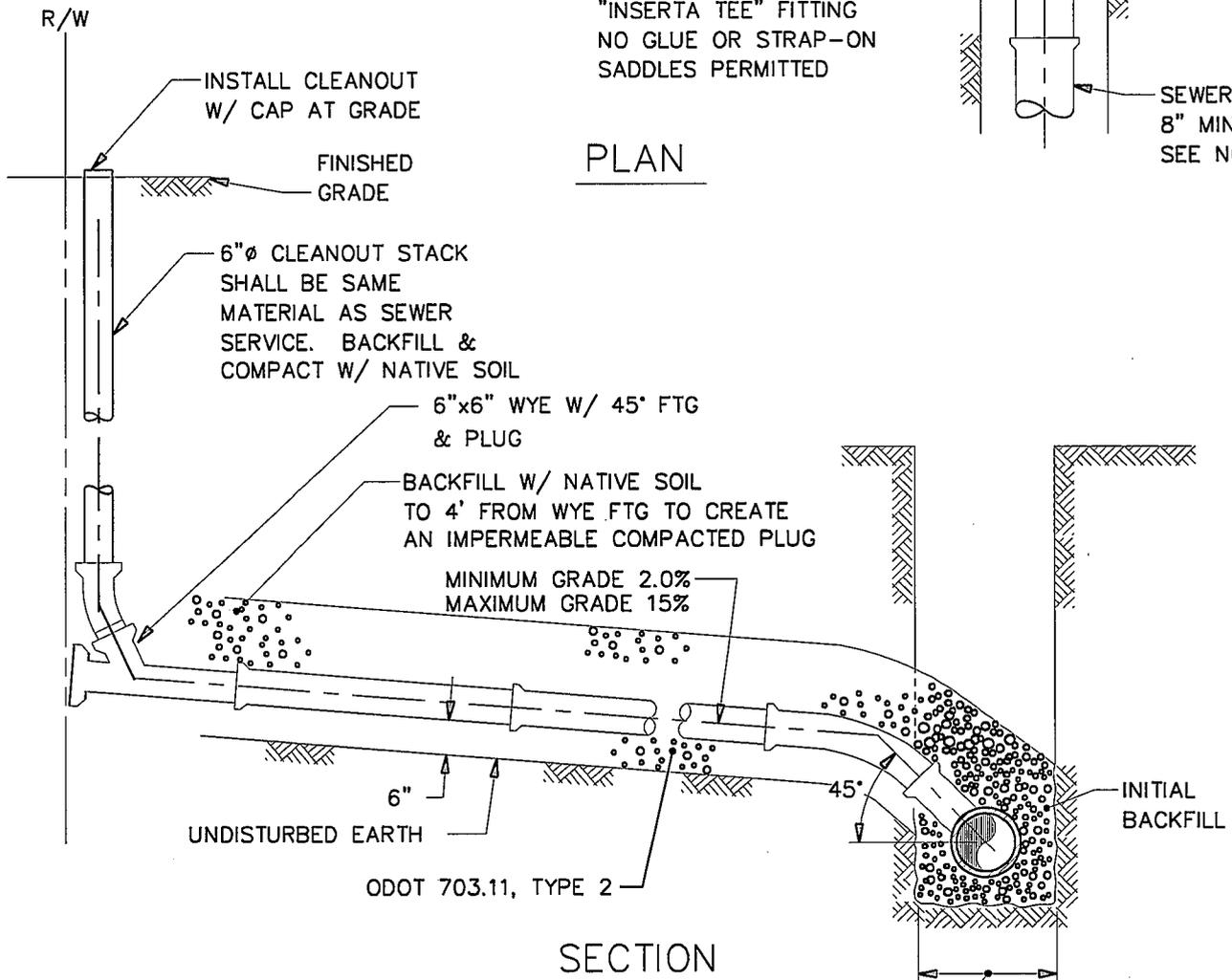
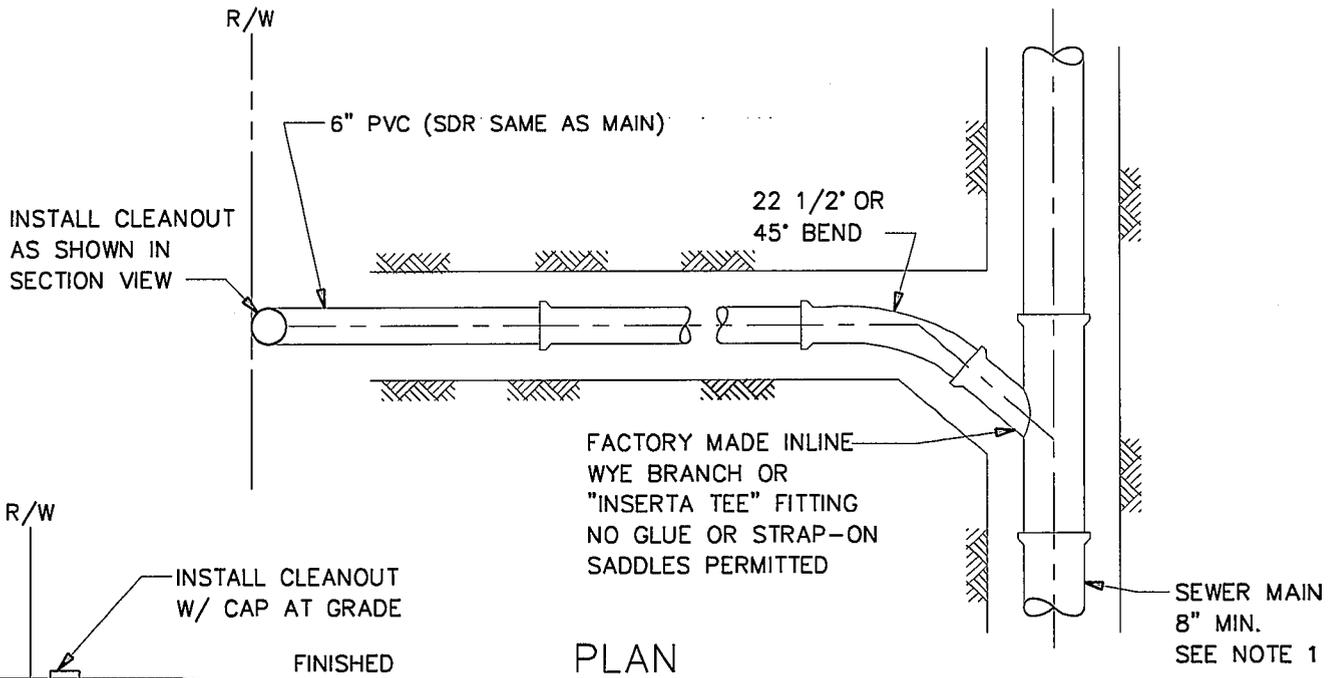
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

SUPPORT PIER

DRAWING NO.  
S2.4

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



**NOTES:**

1. SEWER LATERAL PIPE SHALL BE THE SAME MATERIAL AS THE MAIN (PVC SDR 35, 26, or 17)
2. DURING CONSTRUCTION OF THE SEWER MAIN AND LATERALS THE CLEANOUT SHALL BE BURIED APPROXIMATELY 3 FEET WITH A 2" BY 2" POLE SET ON THE BACK SIDE OF THE CLEAN OUT. WHEN THE STRUCTURE IS CONNECTED, THE CLEANOUT SHALL BE BROUGHT TO GRADE AS DETAILED.

SEE TYPICAL TRENCH DETAIL  
CCWRD STANDARD  
DWG. S2.1

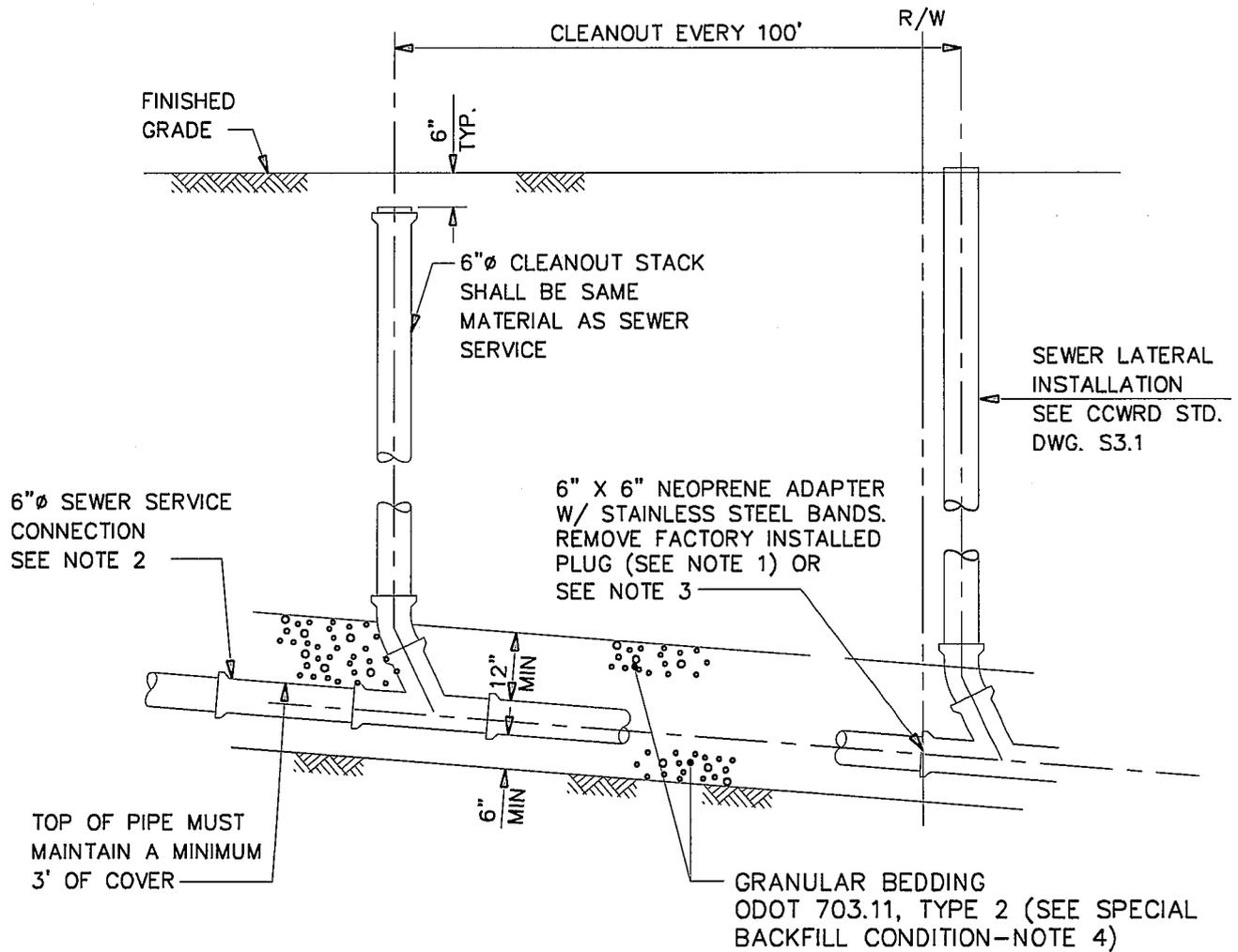
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

SEWER LATERAL  
INSTALLATION

DRAWING NO.  
S3.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



**NOTES:**

1. SEWER SERVICE CONNECTION TO SEWER LATERAL SHALL BE BY MEANS OF FLEXIBLE PIPE CONNECTORS (SHIELDED COUPLING AND DONUT TYPE) WHEN JOINING PIPES OF DIFFERENT MATERIAL.
2. SEWER SERVICE PIPE MATERIAL SHALL BE ANY OF THE FOLLOWING: PVC SCH-40 SOLID WALL, ASTM-D3034 WITH GLUED JOINTS, PVC SDR 35, OR (WHEN SEWER IS 15' OR DEEPER) PVC SDR 26
3. IN LIEU OF CONNECTING TO THE WYE FITTING AT THE R/W LINE, THE BUILDING SEWER MAY BE CONNECTED DIRECTLY TO THE 6" CLEANOUT PIPE, USING THE APPROPRIATE FITTINGS AS EXPLAINED IN NOTE 1.
4. AT A DISTANCE APPROXIMATELY 20' FROM THE STRUCTURE NATIVE SOIL (IN LIEU OF ODOT 703.11) WILL BE USED AS BACKFILL FOR APPROXIMATELY 4' TO CREATE AN IMPERMEABLE COMPACTED PLUG.

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

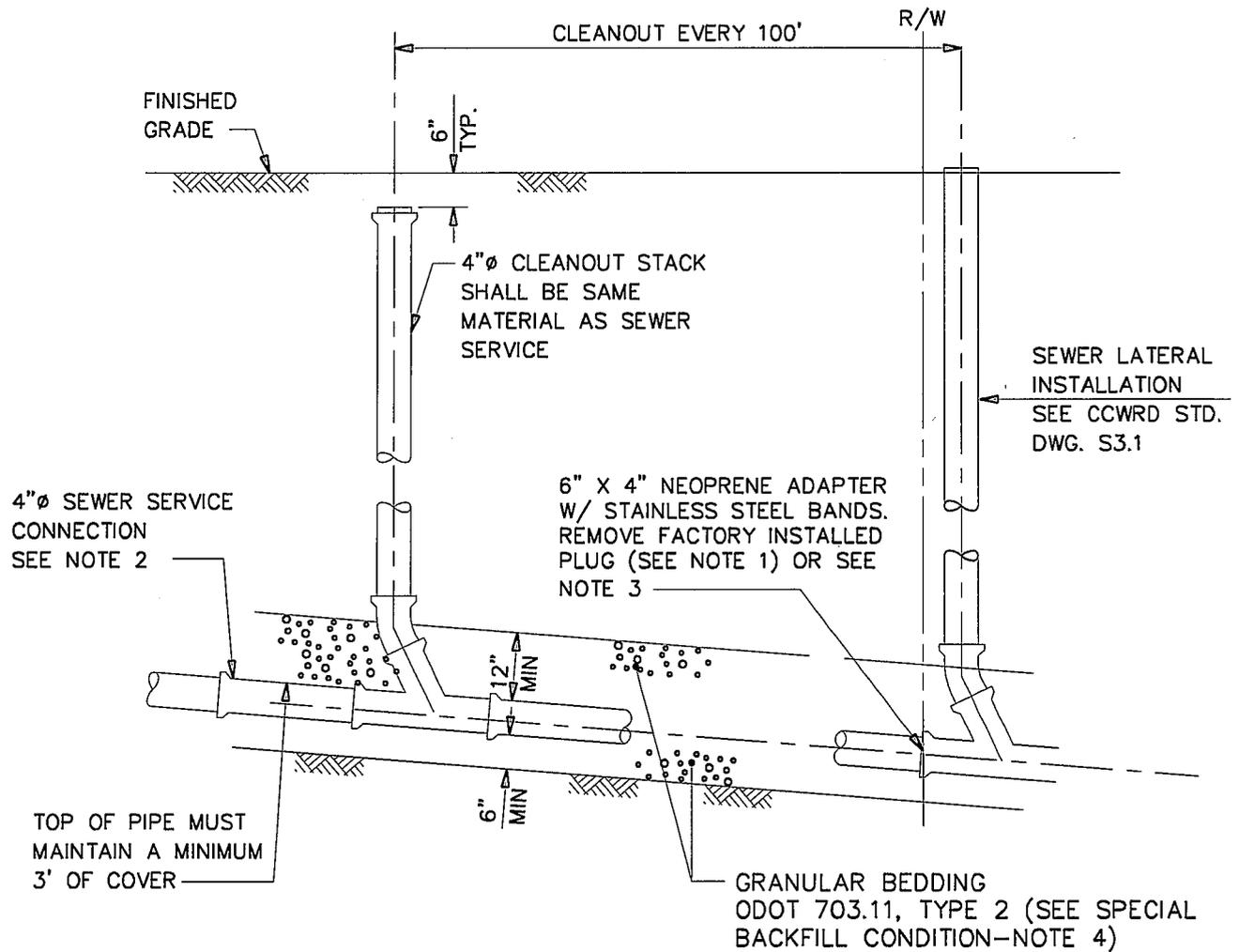
COMMERCIAL  
SEWER SERVICE  
INSTALLATION

DRAWING NO.

S4.1

APPROVED \_\_\_\_\_

DATE

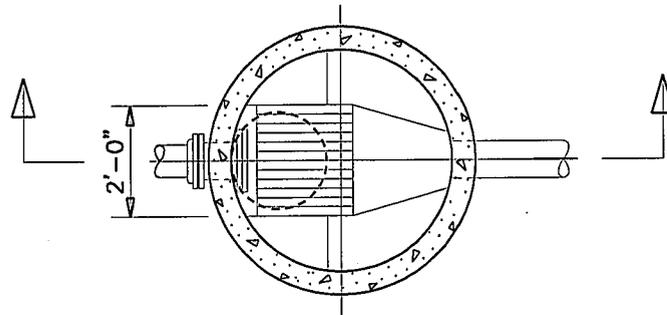


**NOTES:**

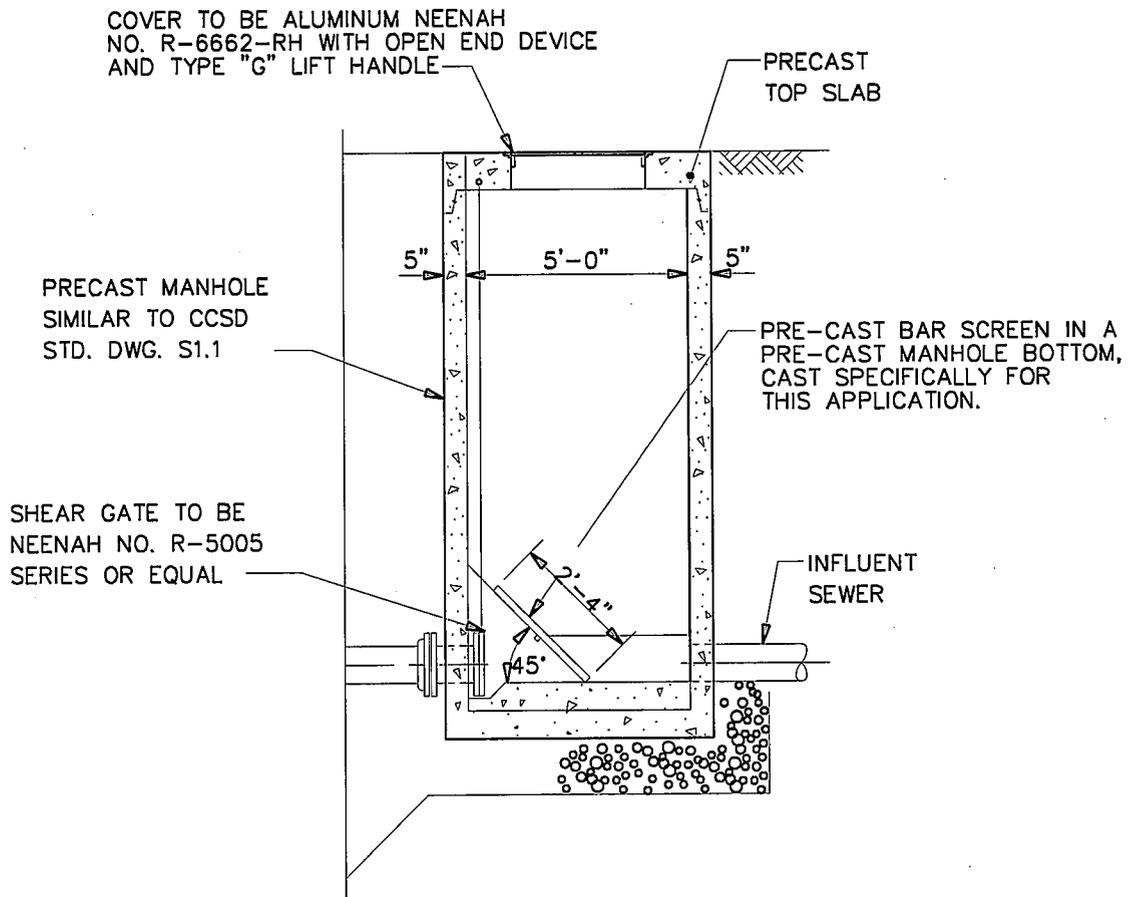
1. SEWER SERVICE CONNECTION TO SEWER LATERAL SHALL BE BY MEANS OF FLEXIBLE PIPE CONNECTORS (SHIELDED COUPLING AND DONUT TYPE) WHEN JOINING PIPES OF DIFFERENT MATERIAL.
2. SEWER SERVICE PIPE MATERIAL SHALL BE ANY OF THE FOLLOWING: PVC SCH-40 SOLID WALL, ASTM-D3034 WITH GLUED JOINTS, PVC SDR 35, OR (WHEN SEWER IS 15' OR DEEPER) PVC SDR 26
3. IN LIEU OF CONNECTING TO THE WYE FITTING AT THE R/W LINE, THE BUILDING SEWER MAY BE CONNECTED DIRECTLY TO THE 6" CLEANOUT PIPE, USING THE APPROPRIATE FITTINGS AS EXPLAINED IN NOTE 1.
4. AT A DISTANCE APPROXIMATELY 20' FROM THE STRUCTURE NATIVE SOIL (IN LIEU OF ODOT 703.11) WILL BE USED AS BACKFILL FOR APPROXIMATELY 4' TO CREATE AN IMPERMEABLE COMPACTED PLUG.

NO SCALE

<p>CLERMONT COUNTY WATER RESOURCES DEPARTMENT</p>	<p>RESIDENTIAL SEWER SERVICE INSTALLATION</p>	<p>DRAWING NO. S4.2</p>
<p>APPROVED _____ DATE</p>		



PLAN



SECTION

NO SCALE

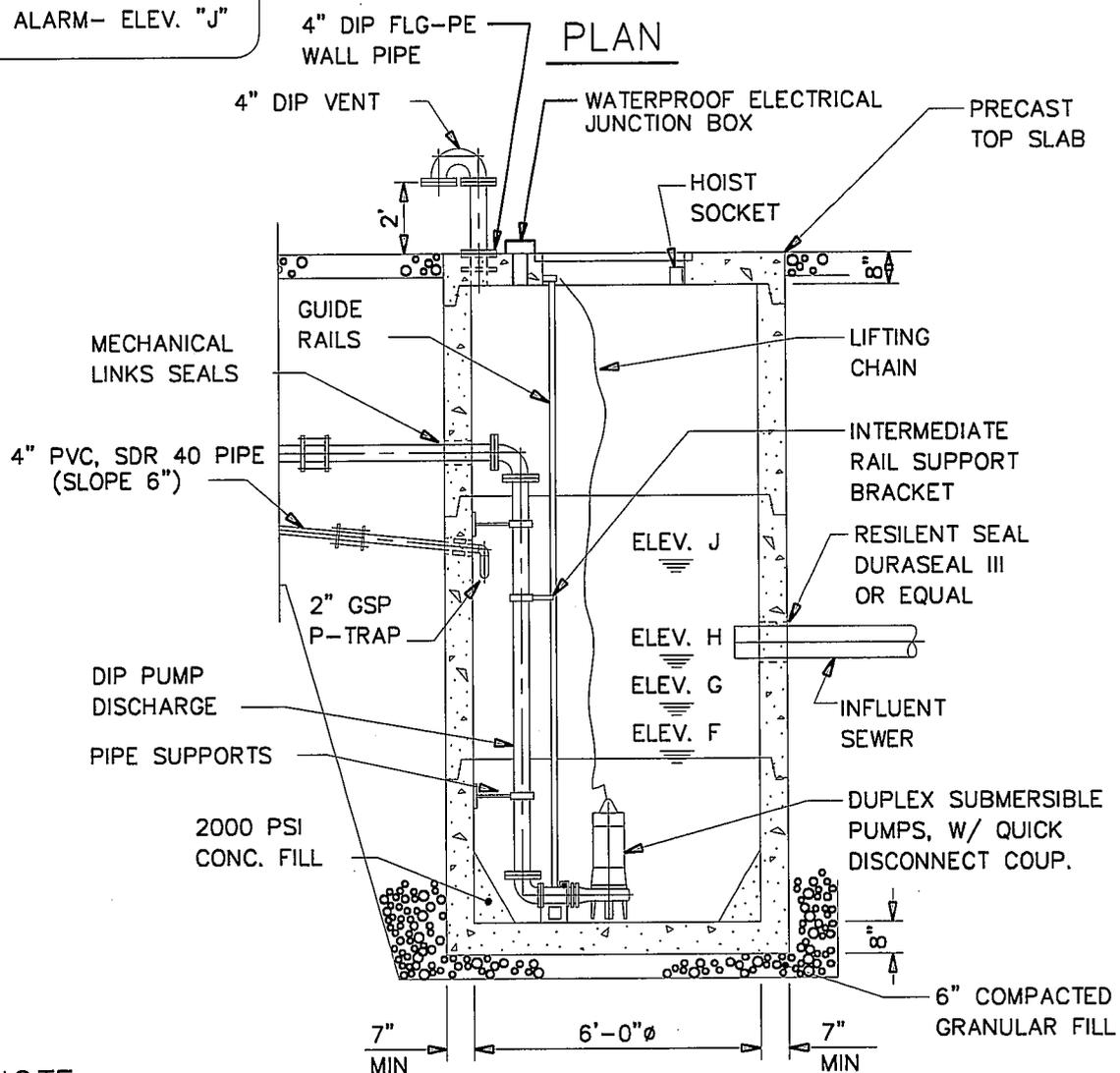
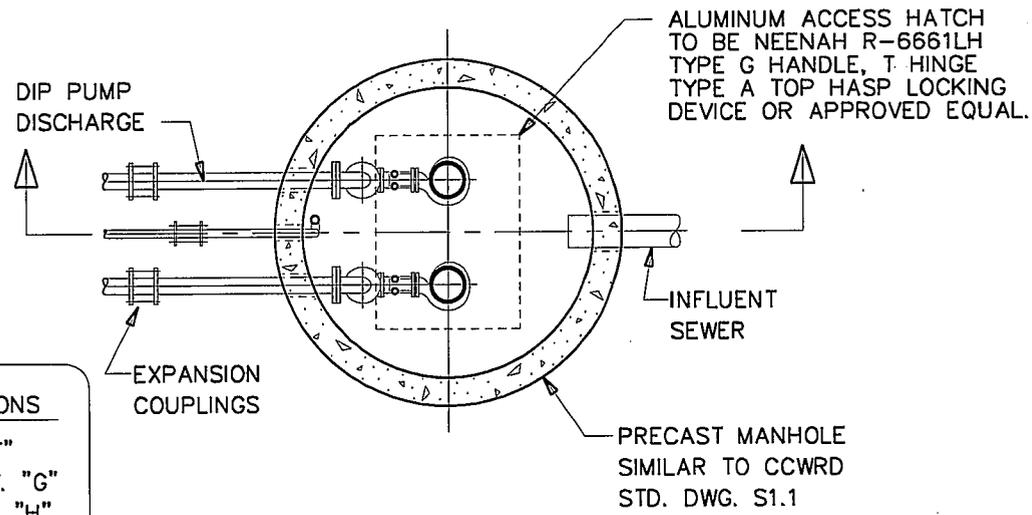
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

BAR SCREEN  
MANHOLE  
DETAIL

DRAWING NO.  
S5.1.1

**PUMP CONTROL ELEVATIONS**  
 PUMPS OFF— ELEV. "F"  
 START LEAD PUMP— ELEV. "G"  
 START LAG PUMP— ELEV. "H"  
 HIGH LEVEL ALARM— ELEV. "J"



**NOTE:**  
 LEVEL CONTROL FLOATS &  
 BRACKET NOT SHOWN.

**SECTION**

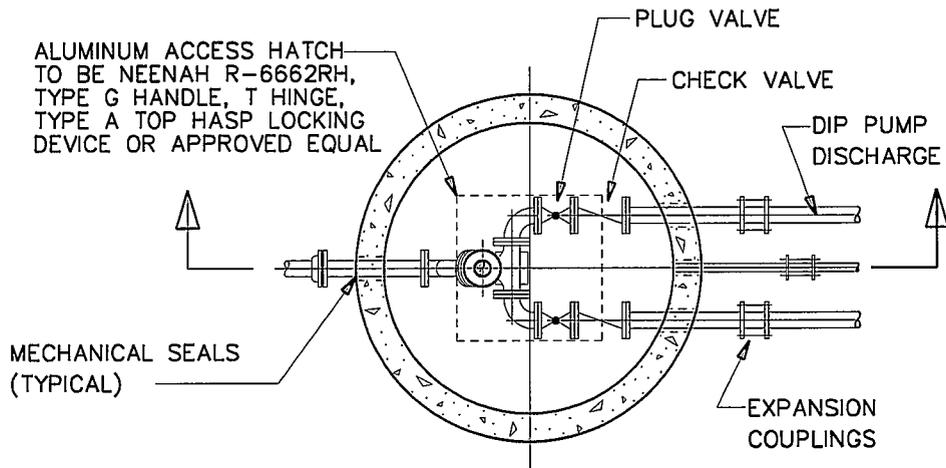
NO SCALE

CLERMONT COUNTY  
 WATER RESOURCES DEPARTMENT

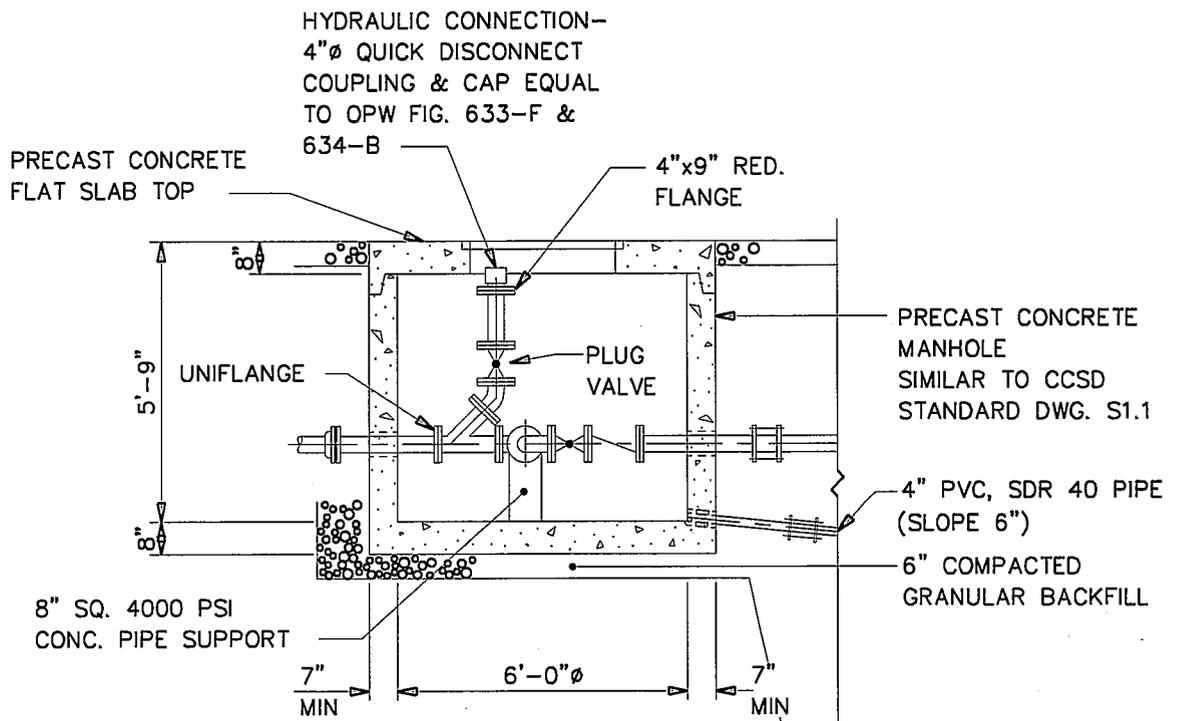
LIFT STATION  
 DETAIL

DRAWING NO.  
 S5.1.2

APPROVED \_\_\_\_\_  
 DATE \_\_\_\_\_



PLAN



SECTION

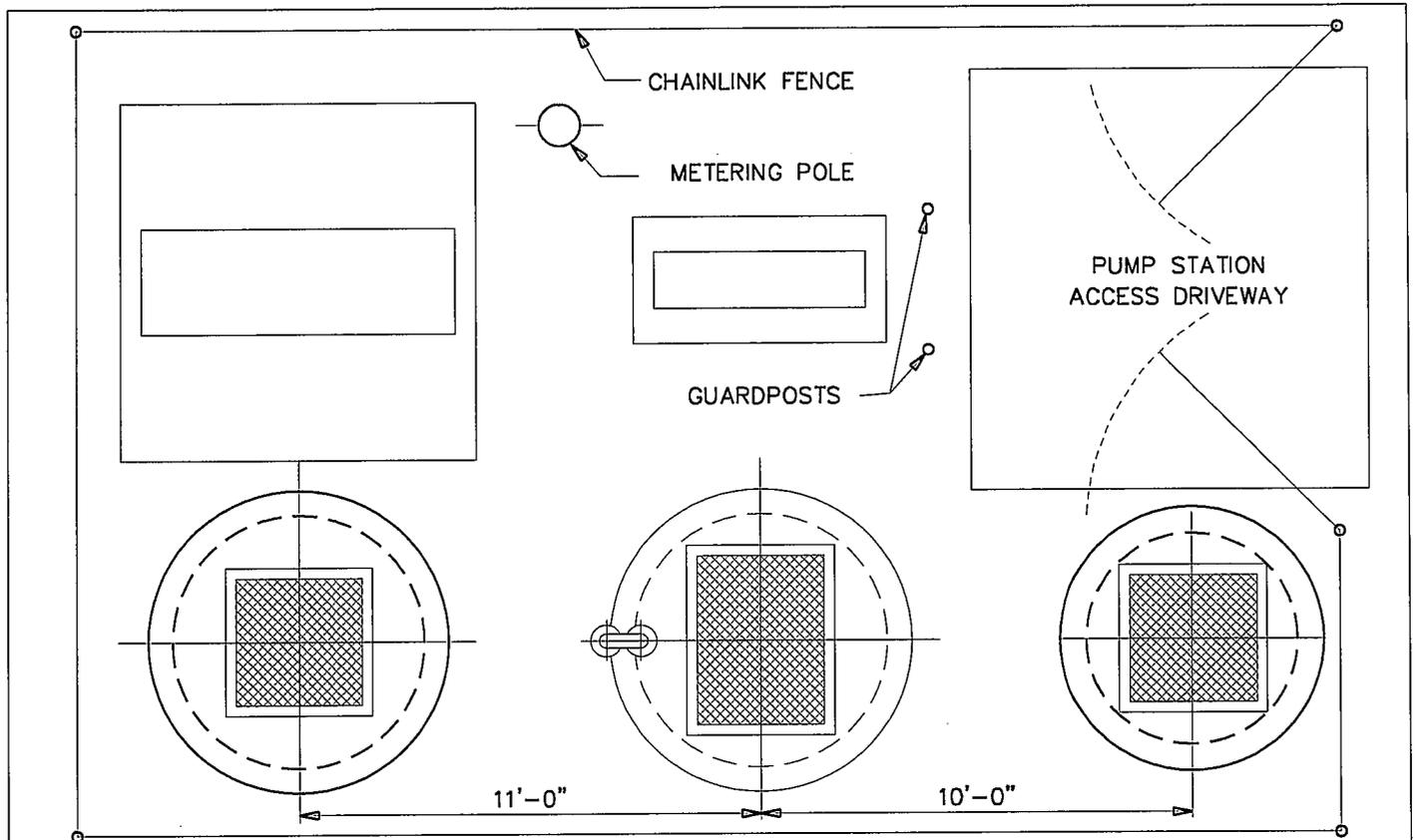
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

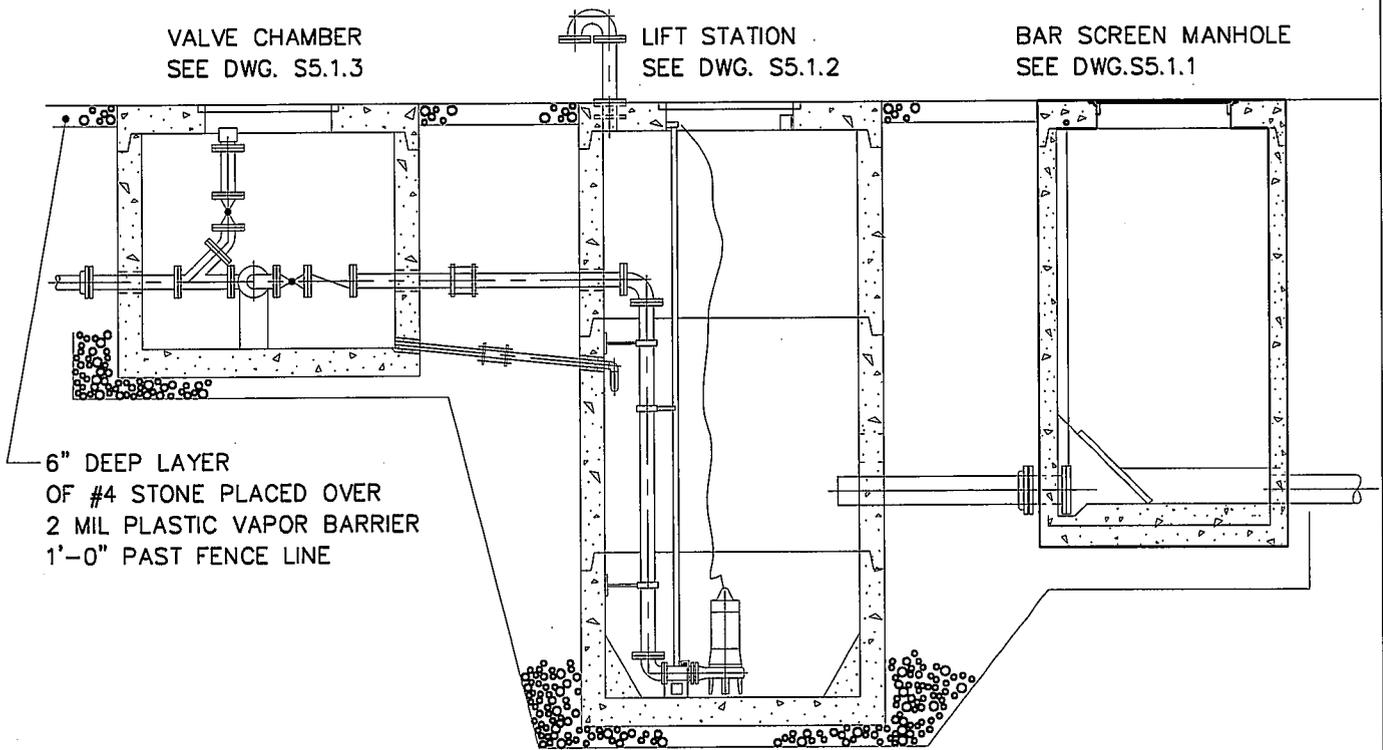
VALVE CHAMBER  
DETAIL

DRAWING NO.  
S5.1.3

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



TOP PLAN



SECTION

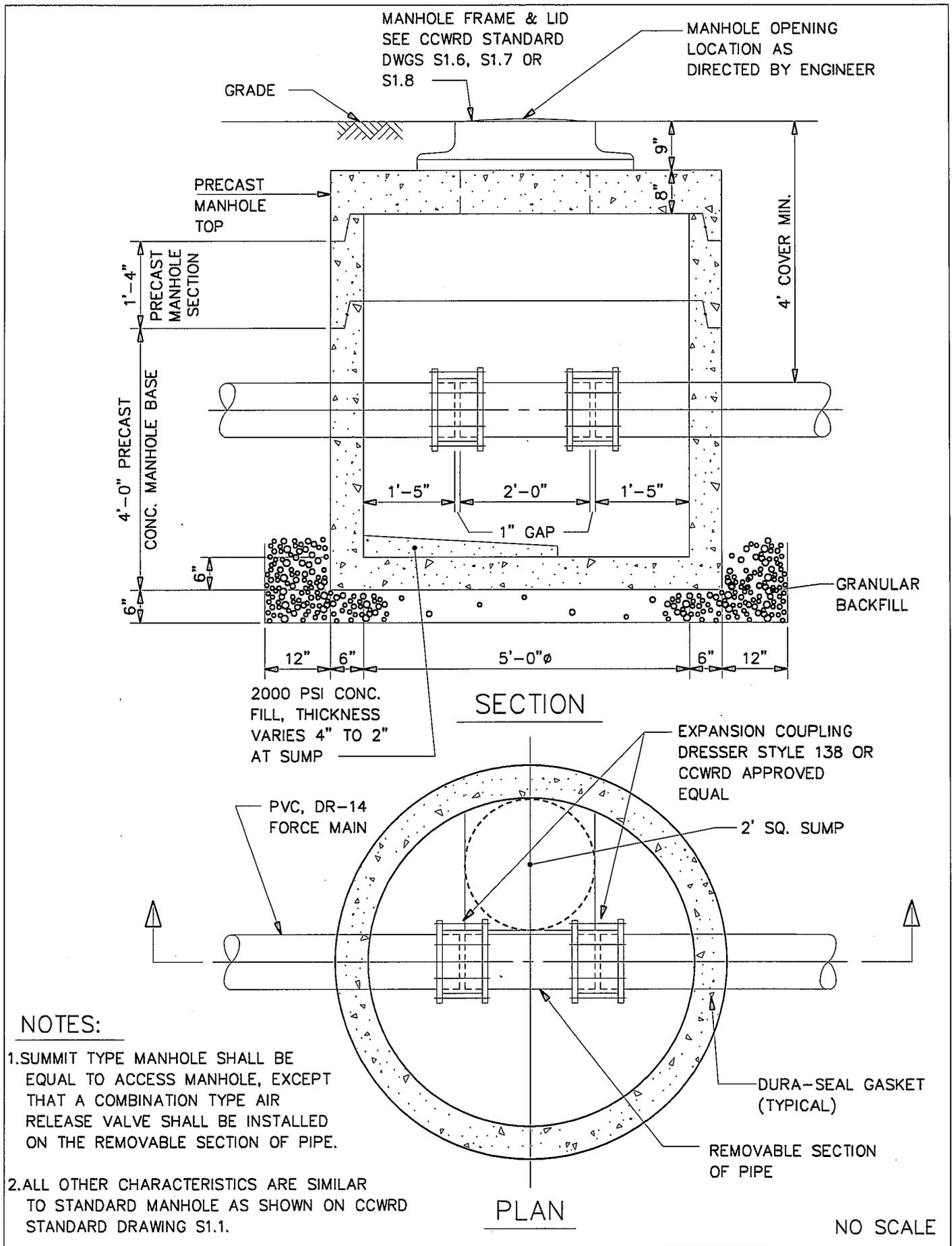
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LIFT STATION  
LAYOUT

DRAWING NO.  
S5.1



**NOTES:**

1. SUMMIT TYPE MANHOLE SHALL BE EQUAL TO ACCESS MANHOLE, EXCEPT THAT A COMBINATION TYPE AIR RELEASE VALVE SHALL BE INSTALLED ON THE REMOVABLE SECTION OF PIPE.

2. ALL OTHER CHARACTERISTICS ARE SIMILAR TO STANDARD MANHOLE AS SHOWN ON CCWRD STANDARD DRAWING S1.1.

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

STANDARD FORCE  
MAIN ACCESS  
MANHOLE

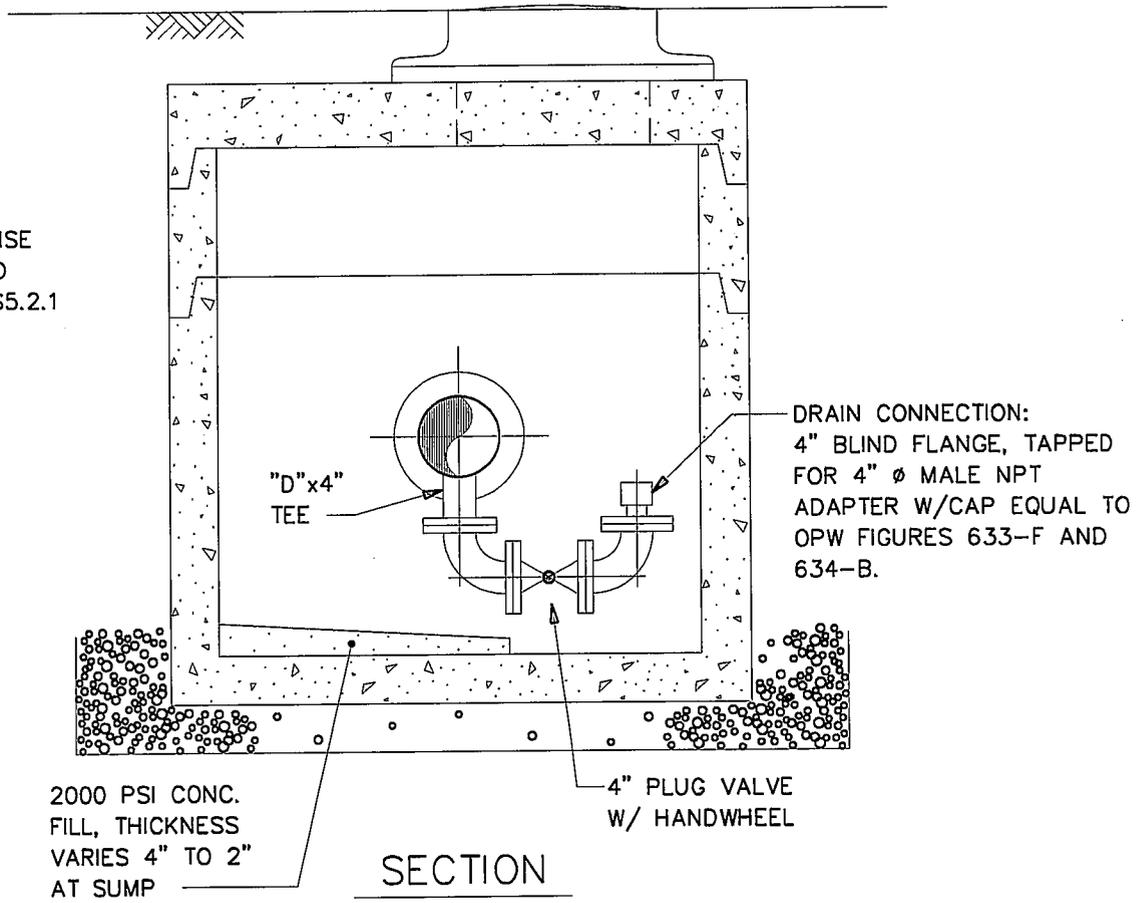
DRAWING NO.  
S5.2.1

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

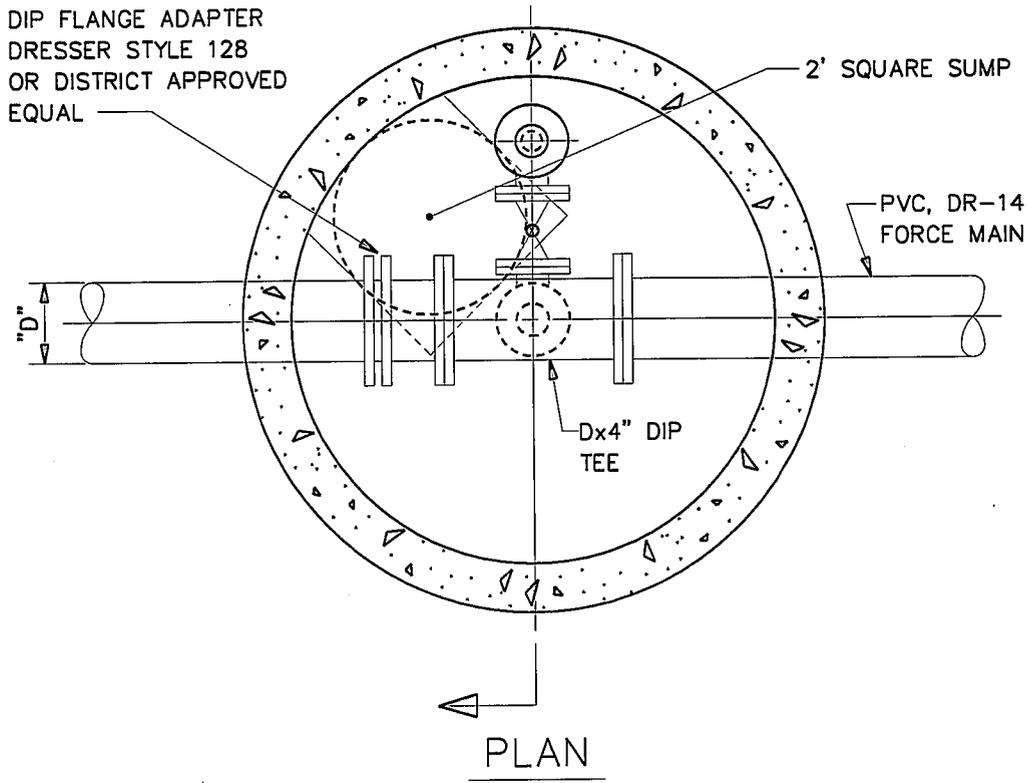
NO SCALE

**NOTE:**

MANHOLE OTHERWISE  
SIMILAR TO CCWRD  
STANDARD DWG. S5.2.1



**SECTION**



**PLAN**

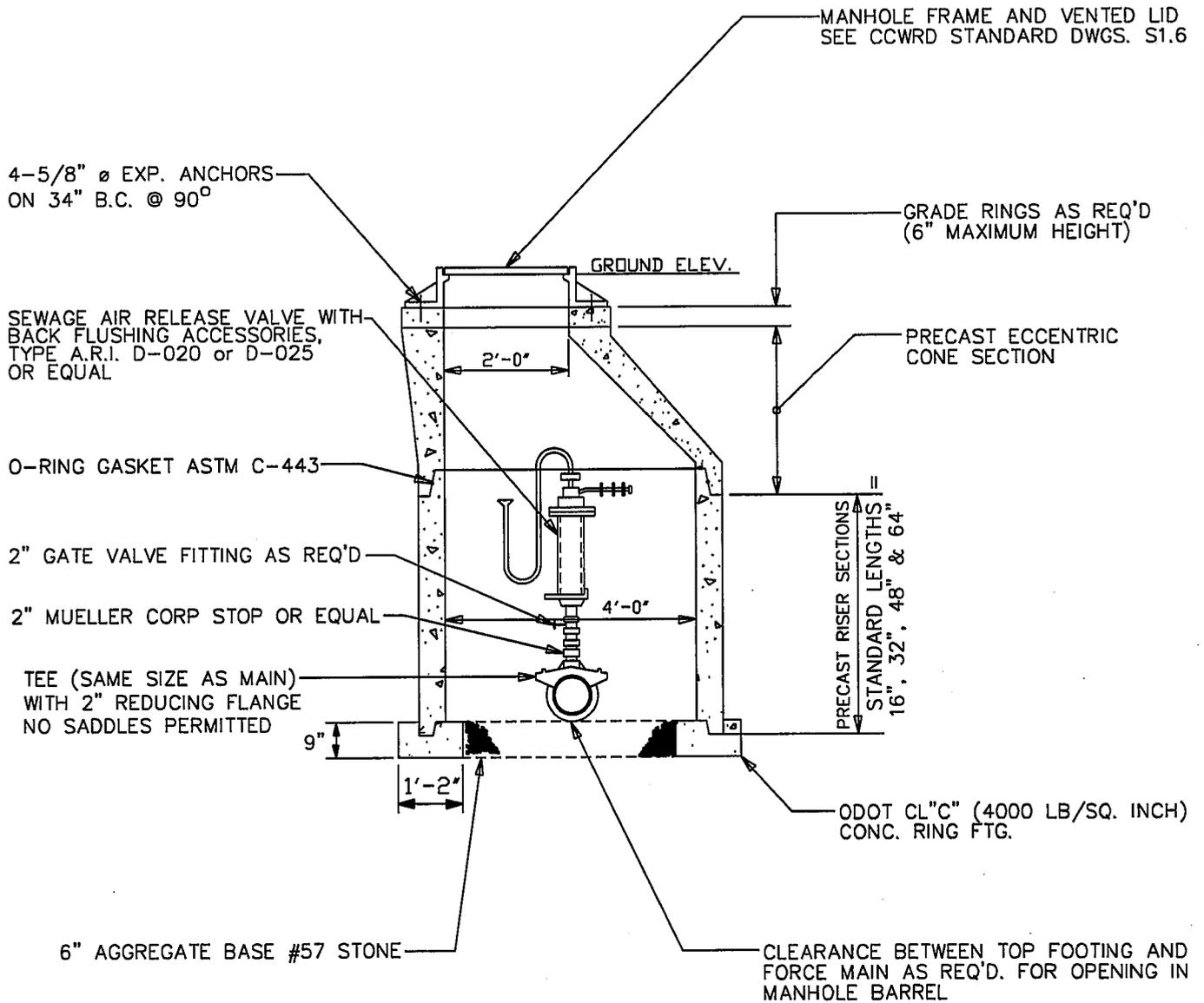
NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

STANDARD  
FORCE MAIN  
LOW POINT MANHOLE

DRAWING NO.  
S5.2.2



**NOTE:**

FLEXIBLE BUTYL RUBBER SEALANT EQUAL TO CONSEAL TYPE CS-302 SHALL BE USED: TO SEAL CASTING TO MANHOLE, TO SEAL ADJUSTING RINGS TOGETHER AND TO RISERS, AND TO SEAL MANHOLE RISER JOINTS.

INSTALL KOR-N-SEAL GASKETS AT MANHOLE INTERFACE WITH PIPE

NO SCALE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

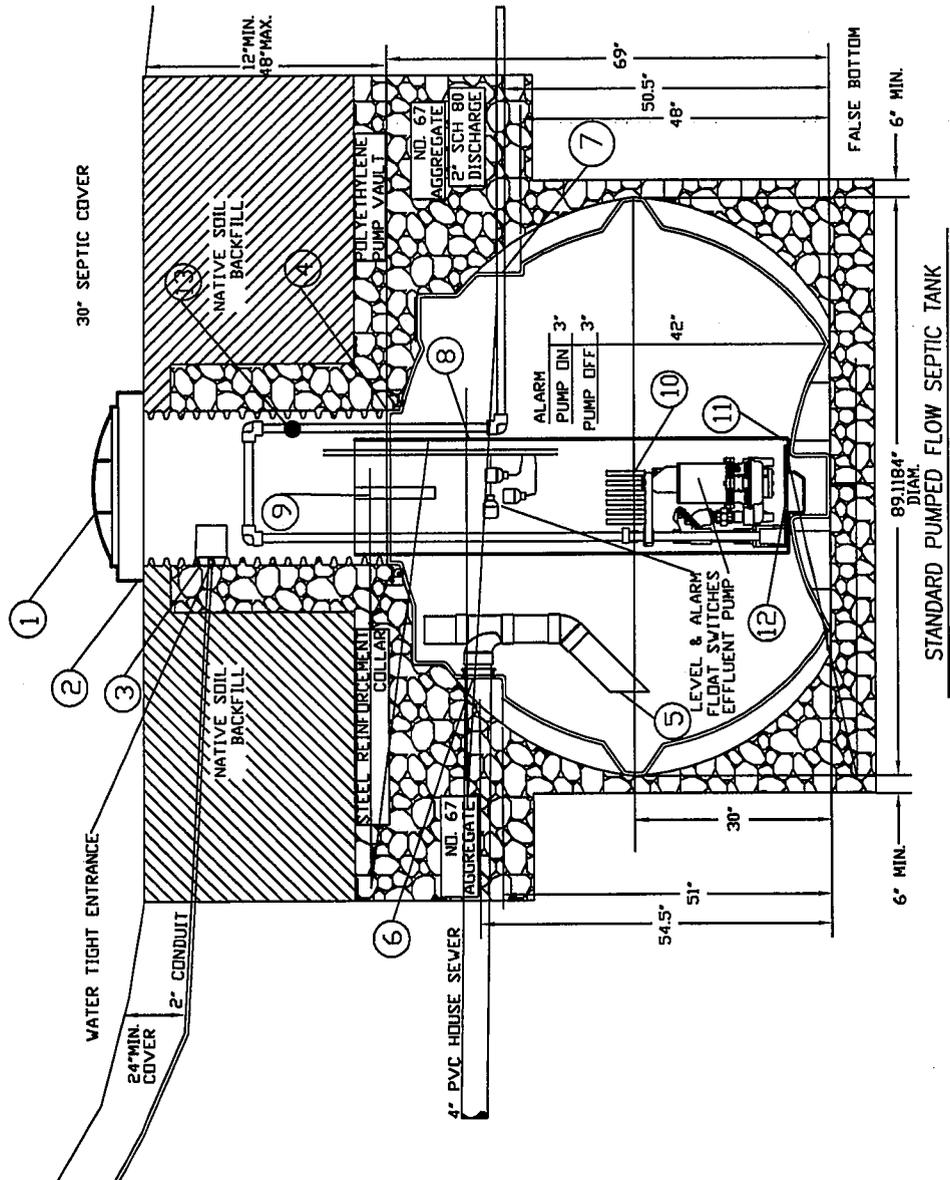
AIR RELEASE  
VALVE IN  
MANHOLE

DRAWING NO.  
S5.2.3

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

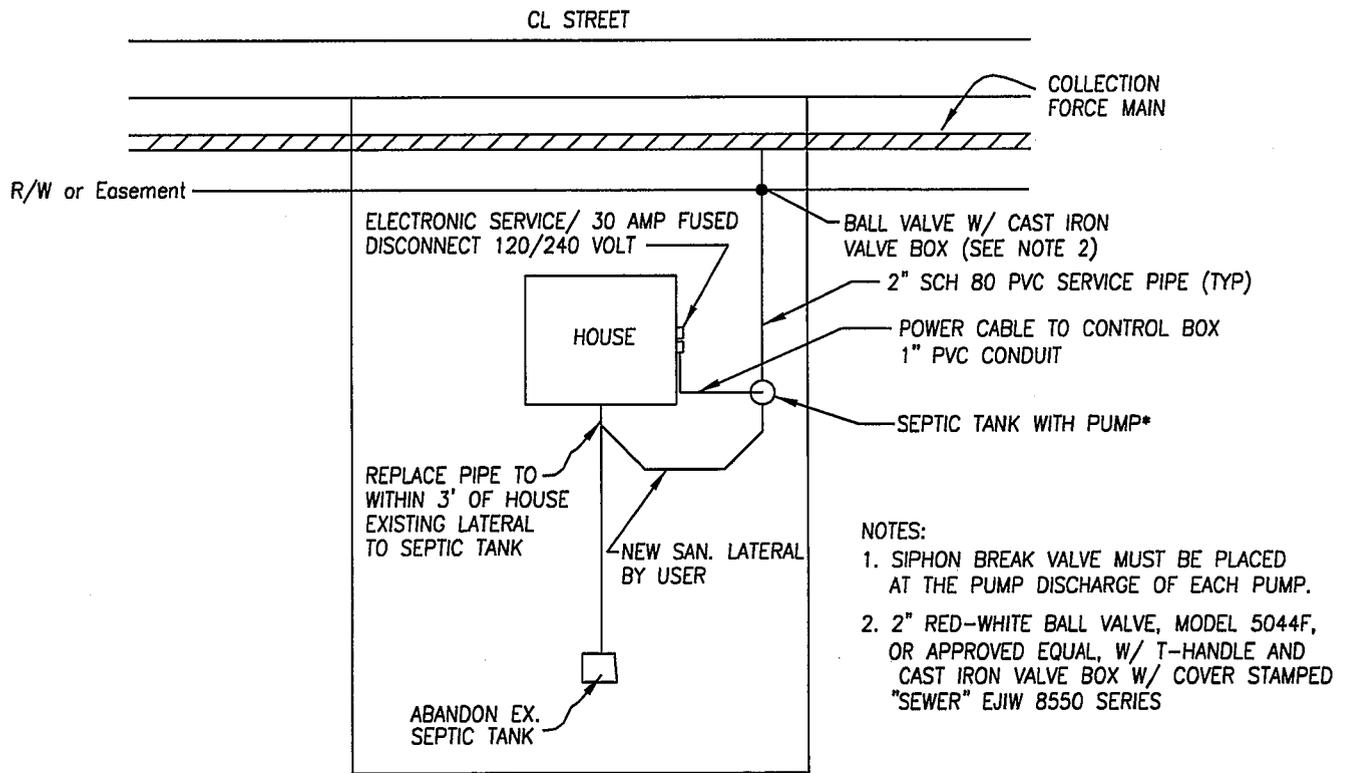
**PUMPED FLOW SEPTIC TANK  
STANDARD FEATURES**

1. High density structure foam polyethylene manhole cover.
2. Overhanging lip on the manhole cover for security and odor prevention.
3. Hi density polyethylene corrugated riser.
4. Water tight riser to tank connection with gasket tape and stainless steel lag screws.
5. Factory installed PVC baffle which meets the requirements of ASTM D2729, sewer and drain pipe.
6. Gasketed bell, field installed. 4" PVC SDR 35 (ASTM D3034).
7. Custom fit neoprene grommet sized for 2" SCH 80 discharge pipe.
8. High density polyethylene pump vault.
9. Pump vault lift-out holes.
10. Pump vault inlet holes located in septic tank clear zone.
11. Guiding flanges to assure proper pump vault alignment.
12. Heavy duty pump support pad, 3/8" thick.
13. 2" Ball Valve and Union



**STANDARD PUMPED FLOW SEPTIC TANK**  
STEP 22/POLY VALVE/SEVERE DUTY

NO SCALE



\* CCWRD shall work with home owners and pump manufacturer to determine septic tank and pump location. Septic tank to be located as close to residence and roadway as possible.

### TYPICAL RESIDENTIAL CONNECTION

NO SCALE

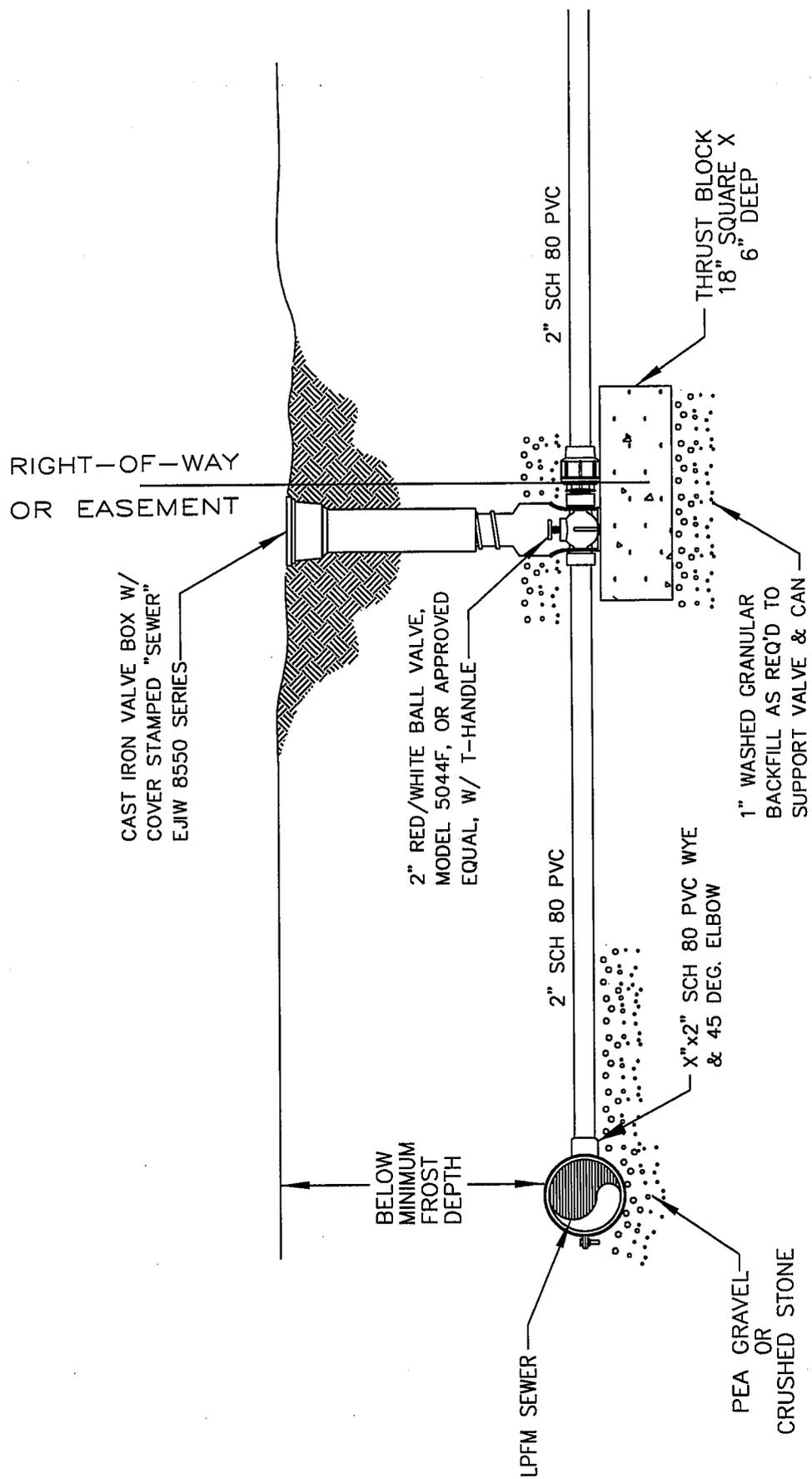
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

TYP. RESIDENTIAL STEP  
CONNECTION TO A LOW  
PRESSURE FORCE MAIN

DRAWING NO.

S6.2



TYPICAL LATERAL INSTALLATION

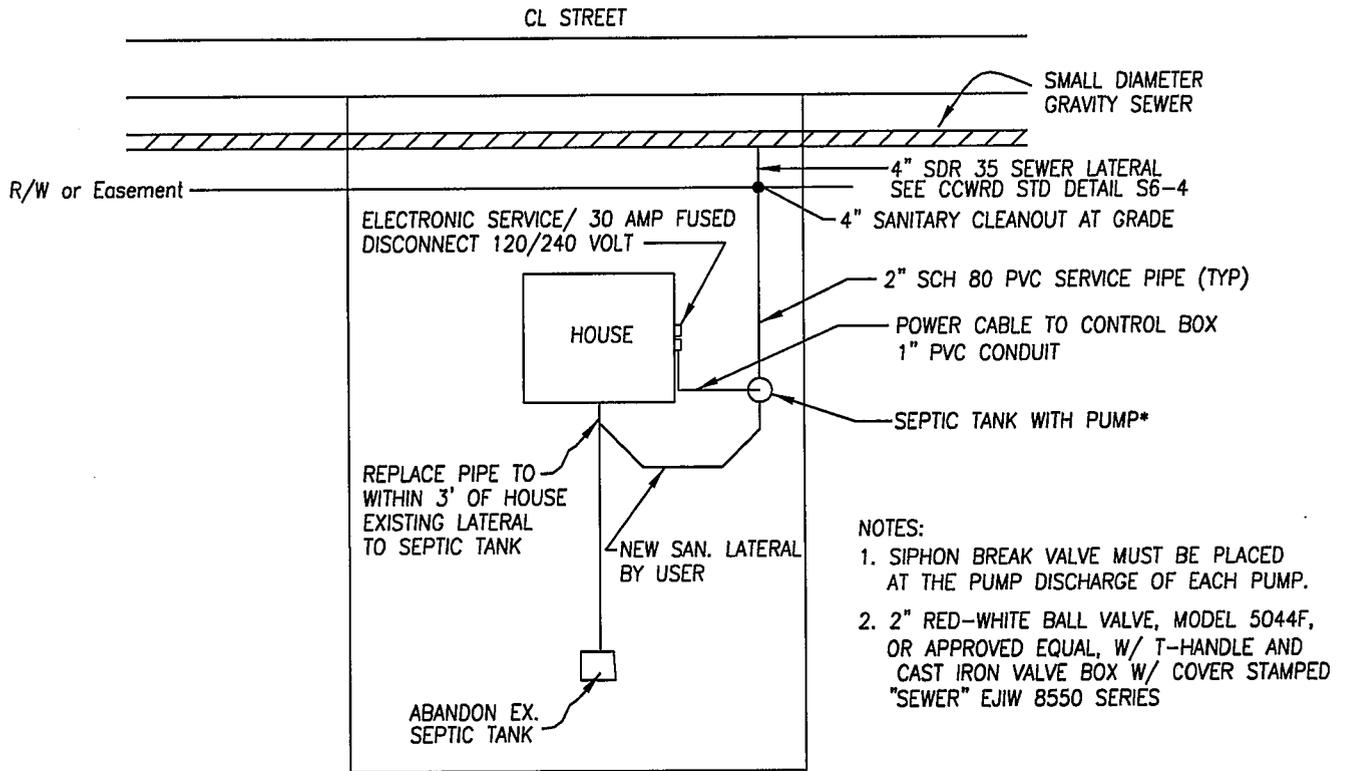
N.T.S.

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LOW PRESSURE FORCE  
MAIN (LPFM)  
LATERAL INSTALLATION

DRAWING NO.  
S6.2.1



- NOTES:
1. SIPHON BREAK VALVE MUST BE PLACED AT THE PUMP DISCHARGE OF EACH PUMP.
  2. 2" RED-WHITE BALL VALVE, MODEL 5044F, OR APPROVED EQUAL, W/ T-HANDLE AND CAST IRON VALVE BOX W/ COVER STAMPED "SEWER" EJIW 8550 SERIES

\* CCWRD shall work with home owners and pump manufacturer to determine septic tank and pump location. Septic tank to be located as close to residence and roadway as possible.

### TYPICAL RESIDENTIAL CONNECTION

NO SCALE

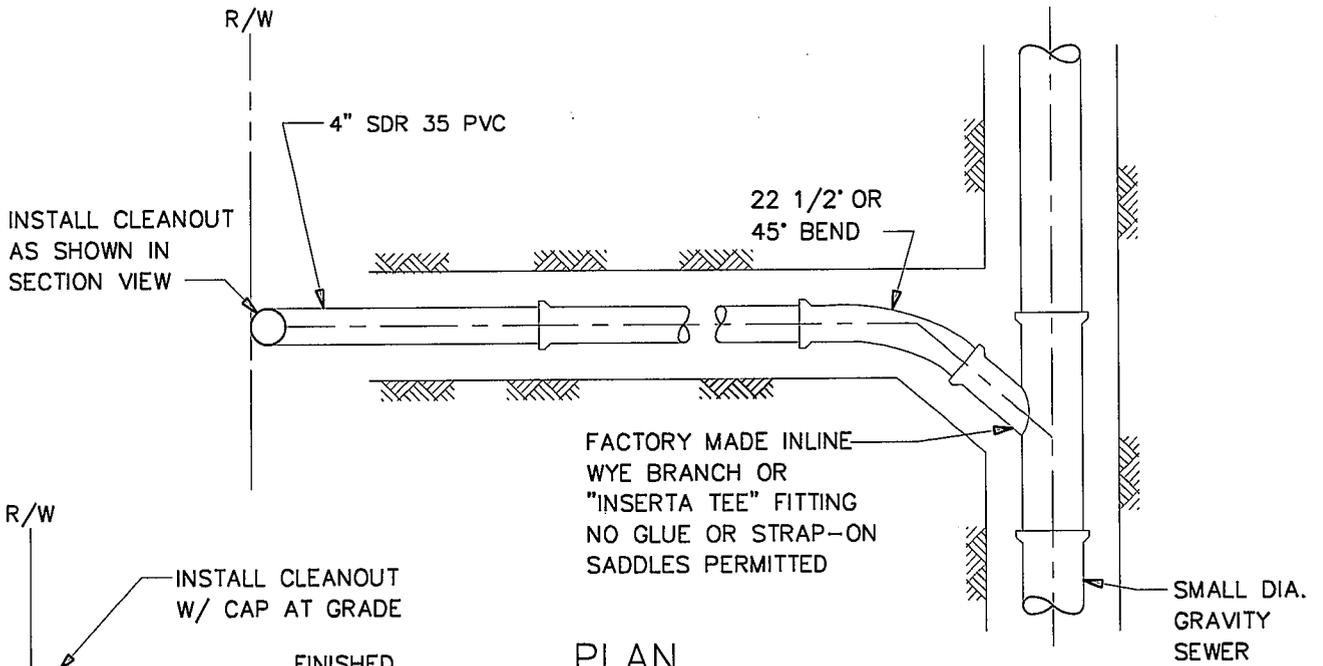
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

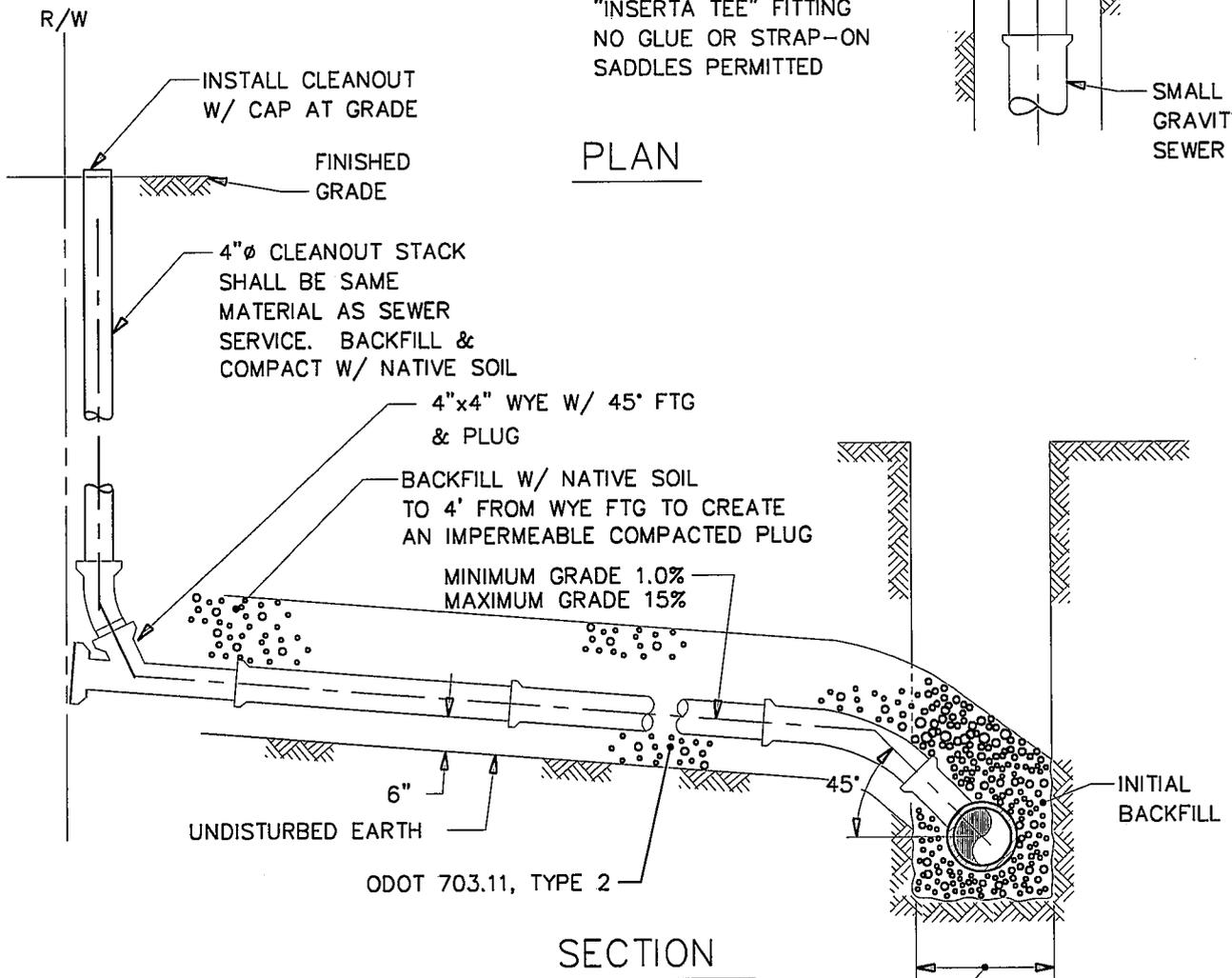
TYP. RESIDENTIAL STEP  
CONNECTION TO SMALL  
DIAMETER GRAVITY SEWER

DRAWING NO.

S6.3



PLAN



SECTION

SEE TYPICAL TRENCH DETAIL  
CCWRD STANDARD  
DWG. S2.1

NOTE:

1. DURING CONSTRUCTION OF THE SEWER MAIN AND LATERALS THE CLEANOUT SHALL BE BURIED APPROXIMATELY 3 FEET WITH A 2" BY 2" POLE SET ON THE BACK SIDE OF THE CLEAN OUT. WHEN THE STRUCTURE IS CONNECTED, THE CLEANOUT SHALL BE BROUGHT TO GRADE AS DETAILED.

NO SCALE

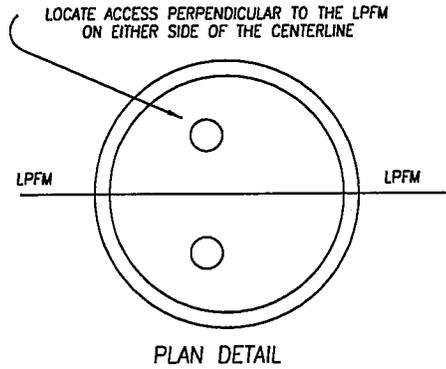
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

SMALL DIAMETER  
GRAVITY SEWER  
LATERAL INSTALLATION

DRAWING NO.

S6.3.1

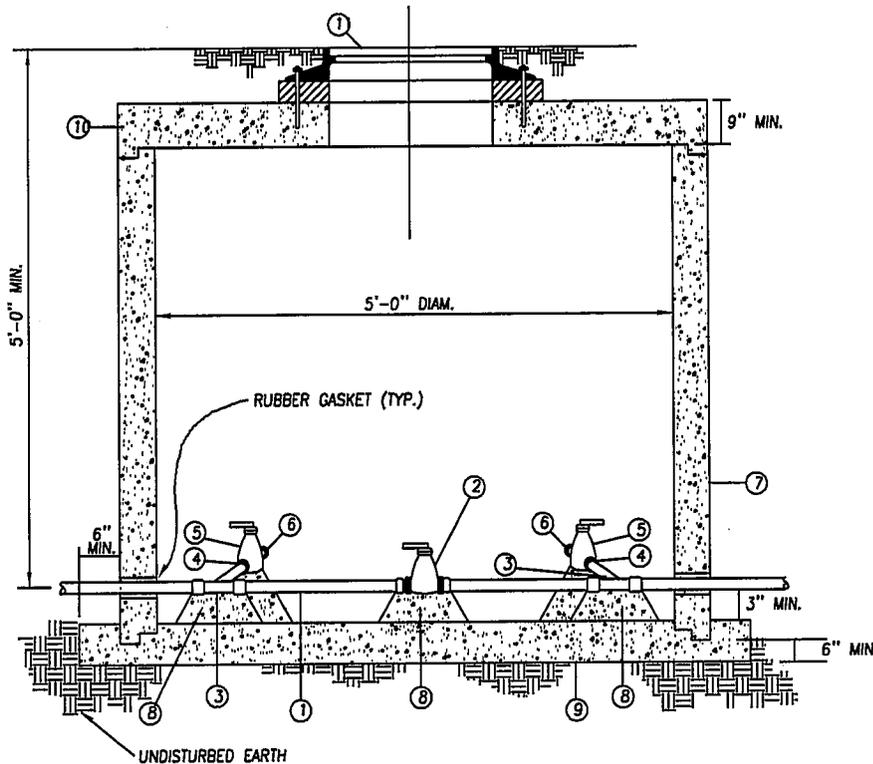
APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_



NOTES: WHERE APPLICABLE, ALL FEATURES NOT NOTED TO BE THE SAME AS SHOWN ON CLERMONT COUNTY STANDARD DETAILS AND SPECIFICATIONS.

ITEMS WITH DESIGNATIONS ③, ④, ⑤, AND ⑥ ARE TO BE ROTATED (ABOUT THE 3" WYE) TO A LOCATION WHICH IS LEVEL WITH THE FLOOR SLAB OR UP TO 30" ABOVE LEVEL AND SUPPORTED IN CONCRETE SUCH THAT NEITHER THE CHAMBER WALLS, FLOOR, OR THE CONCRETE SUPPORT RESTRICT CONNECTION TO THE 3" QUICK DISCONNECT FITTING.

MANHOLE ACCESS TO BE LOCATED PERPENDICULAR TO THE LPFM AS SHOWN IN THE PLAN DETAIL.



FLUSHING CONNECTION MANHOLE  
DESIGNATIONS AND GENERAL NOTES

- ① LOW PRESSURE SEWER SYSTEM
- ② BALL VALVE - FULLY PORTED SIZE OF LPSS MAIN WITH T-HANDLE\*
- ③ WYE - SIZE OF LPSS MAIN W/ 3" BRANCH
- ④ 3" THREADED ADAPTER - SEARS OR EQUAL
- ⑤ 3" BALL VALVE - FULLY PORTED WITH T-HANDLE\*
- ⑥ 3" STAINLESS STEEL OR ALUMINUM QUICK DISCONNECT FITTING WITH CAP
- ⑦ 5' DIAM. MANHOLE
- ⑧ CONCRETE SUPPORT
- ⑨ CONCRETE BOTTOM (CLASS "C")
- ⑩ PRECAST SLAB TOP PER CLERMONT COUNTY DETAILS AND SPECIFICATIONS.
- ⑪ WATERTIGHT COVER AND FRAME ADJUST TO GRADE WITH CONC. MH. ADJUSTMENT RINGS (NO BRICK). MORTAR (INSIDE) AND BUTYL MASTIC SEAL (OUTSIDE) TO BE USED BETWEEN RINGS, MH. TOP AND FRAME.

\*BALL VALVES TO BE RED/WHITE, 600 WOG, 150 WSP, FIG. #5044F OR EQUAL WITH T-HANDLE

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

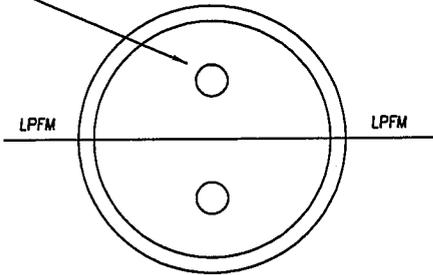
APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LOW PRESSURE FORCE  
MAIN FLUSHING  
CONNECTION MANHOLE

DRAWING NO.

S6.4

LOCATE ACCESS PERPENDICULAR TO THE LPFM  
ON EITHER SIDE OF THE CENTERLINE



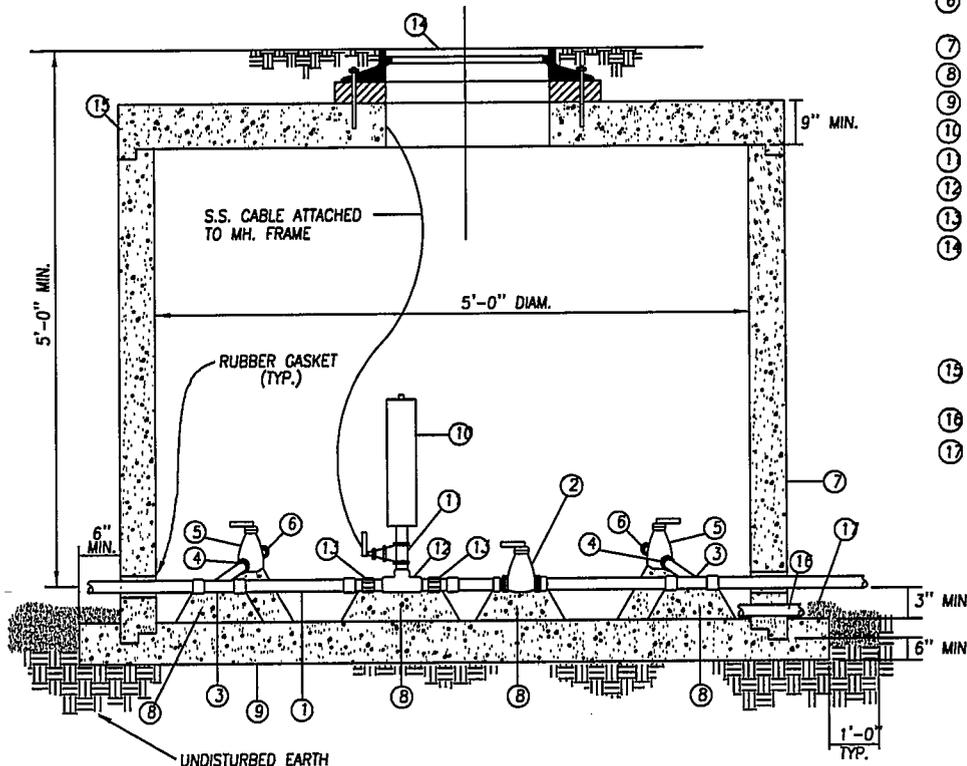
PLAN DETAIL

NOTES: WHERE APPLICABLE, ALL FEATURES NOT NOTED TO BE THE SAME AS SHOWN ON CLERMONT COUNTY STANDARD DETAILS AND SPECIFICATIONS.

MANHOLE ACCESS TO BE LOCATED PERPENDICULAR TO THE LPFM AS SHOWN IN THE PLAN DETAIL.

FLUSHING CONNECTION MANHOLE DESIGNATIONS AND GENERAL NOTES

- ① LOW PRESSURE SEWER SYSTEM
- ② BALL VALVE - FULLY PORTED SIZE PER LPFM WITH T-HANDLE\*
- ③ WYE - SIZE OF LPFM MAIN W/ 3" BRANCH
- ④ 3" THREADED ADAPTOR - SEARS OR EQUAL
- ⑤ 3" BALL VALVE - FULLY PORTED WITH T-HANDLE\*
- ⑥ 3" STAINLESS STEEL OR ALUMINUM QUICK DISCONNECT FITTING W/ CAP
- ⑦ 5' DIAM. MANHOLE
- ⑧ CONCRETE SUPPORT
- ⑨ CONCRETE BOTTOM (CLASS "C")
- ⑩ AIR-RELEASE VALVE\*\*
- ⑪ BALL VALVE W/ S.S. CABLE WITH T-HANDLE\*
- ⑫ TEE-SIZE PER LPFM
- ⑬ UNION-SIZE PER LPFM
- ⑭ VENTED COVER AND FRAME CLERMONT COUNTY DETAILS AND STANDARDS. ADJUST TO GRADE WITH CONC. MH. ADJUSTMENT RINGS (NO BRICK). NORTAR (INSIDE) AND BUTYL MASTIC SEAL (OUTSIDE) TO BE USED BETWEEN RINGS, MH. TOP AND FRAME.
- ⑮ PRECAST SLAB TOP PER CLERMONT COUNTY DETAILS AND STANDARDS.
- ⑯ 3" PVC DRAIN PIPE FROM FLOOR TO GRAVEL AREA
- ⑰ GRAVEL



\*BALL VALVES TO BE RED-WHITE, 600 WOG, 150 WSP, FIG. #5044F OR EQUAL W/ T-HANDLE

\*\*AIR-RELEASE VALVES TO BE APCO, MODEL 443WA OR EQUAL PAINTED WITH EITHER CHLORINATED RUBBER OR EPOXY PAINT IN ACCORDANCE WITH 708.

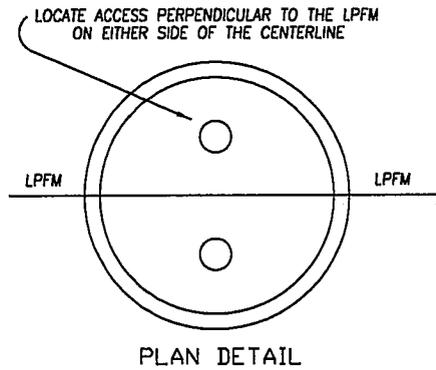
CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LOW PRESSURE FORCE  
MAIN FLUSHING MH W/  
AIR RELEASE VALVE

DRAWING NO.

S6.5



NOTES: WHERE APPLICABLE, ALL FEATURES NOT NOTED TO BE THE SAME AS SHOWN ON CLERMONT COUNTY STANDARD DETAILS AND SPECIFICATIONS.

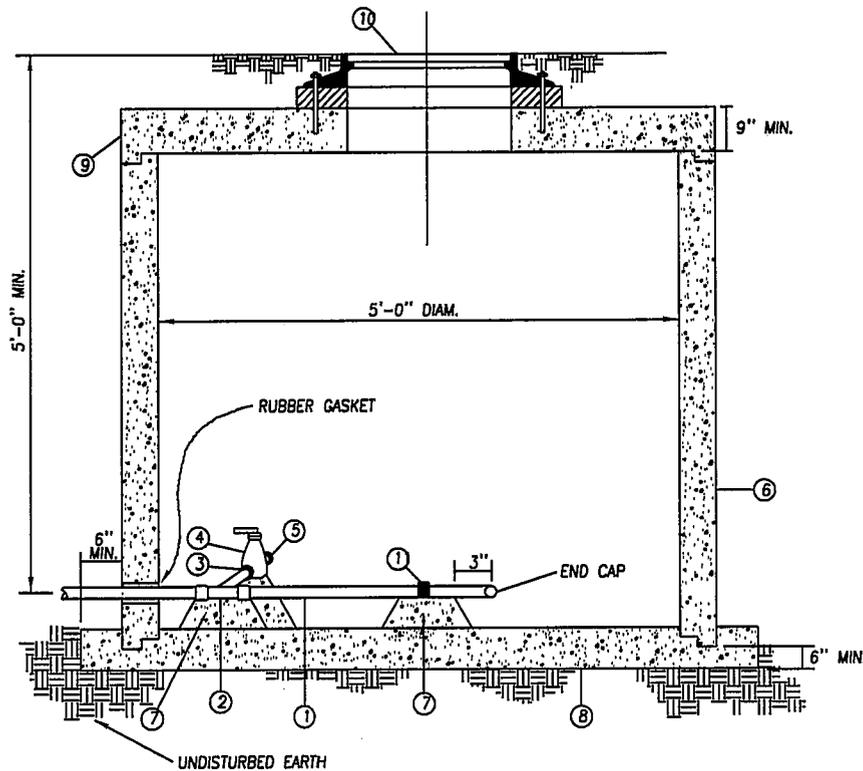
ITEMS WITH DESIGNATIONS ②, ③, ④ AND ⑤ ARE TO BE ROTATED (ABOUT THE 3" WYE) TO A LOCATION WHICH IS LEVEL WITH THE FLOOR SLAB OR UP TO 30" ABOVE LEVEL AND SUPPORTED IN CONCRETE SUCH THAT NEITHER THE CHAMBER WALLS, FLOOR, OR THE CONCRETE SUPPORT RESTRICT CONNECTION TO THE 3" QUICK DISCONNECT FITTING.

MANHOLE ACCESS TO BE LOCATED PERPENDICULAR TO THE LPFM AS SHOWN IN THE PLAN DETAIL.

### TERMINAL MANHOLE DESIGNATIONS AND GENERAL NOTES

- ① LOW PRESSURE SEWER SYSTEM
- ② WYE - SIZE OF LPSS MAIN W/ 3" BRANCH
- ③ 3" THREADED ADAPTOR - SEARS OR EQUAL
- ④ 3" BALL VALVE - FULLY PORTED WITH T-HANDLE\*
- ⑤ 3" QUICK DISCONNECT FITTING W/ CAP
- ⑥ 5' DIAM. MANHOLE
- ⑦ CONCRETE SUPPORT
- ⑧ CONCRETE BOTTOM (CLASS "C")
- ⑨ PRE-CAST SLAB TOP
- ⑩ WATERTIGHT COVER AND FRAME ADJUST TO GRADE WITH CONC. MH. ADJUSTMENT RINGS (NO BRICK), MORTAR (INSIDE) AND BUTYL MASTIC SEAL (OUTSIDE) TO BE USED BETWEEN RINGS, MH. TOP AND FRAME.
- ⑪ FASTEN LPFM SECURELY TO BASE AND SUPPORT USING STAINLESS STEEL HARDWARE. STRAPS-2" WIDE, 1/4" THICK. BOLTS-3/8" X 2 1/4" LONG. ANCHORS MAY BE BULL DOG, RED HEAD, WEDGE IT OR QUICK BOLT.

\*BALL VALVE TO BE RED/WHITE, 600 WOG, 150 WSP, FIG. #5044F OR EQUAL WITH T-HANDLE.



MANHOLE ACCESS TO BE LOCATED PERPENDICULAR TO THE LPFM AS SHOWN IN THE PLAN DETAIL.

CLERMONT COUNTY  
WATER RESOURCES DEPARTMENT

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_

LOW PRESSURE FORCE  
MAIN TERMINAL  
MANHOLE

DRAWING NO.

S6.6