

## 1. THE MAX. DROP FROM THE INVERT OF ANY PIPE TO THE CONCRETE CHANNEL UNDER THAT PIPE SHALL BE 8". TABLE BELOW.

- 2. MANHOLES LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY SHALL BE MARKED WITH A STEEL FENCE POST AS DIRECTED. 3. ALL NEW MANHOLES SHALL BE VACUUM TESTED PER A.S.T.M.
- C-1244 PRIOR TO ACCEPTANCE. 4. ALL BARREL JOINTS SHALL BE SEALED WITH 3 ½" x ¾" PRE-FORMED
- RUBBER BUTYL JOINT SEALANT ON THE LOWER SHIPLAP. 5. ALL BARREL JOINTS SHALL BE SEALED WITH AN EXTERNAL BARREL SEAL CENTERED ON THE JOINT (MAR MAC MACWRAP, OR
- APPROVED EQUAL) 6. MANHOLE STRUCTURE SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS IN
- ACCORDANCE WITH A.S.T.M. C478-90 OR THE LATEST DESIGNATION
- 7. PRECAST FLAT TOPS ARE NOT APPROVED FOR USE. 8. SEE 'MANHOLE ADJUSTMENT DETAIL' FOR ADJUSTMENT
- PIPE CONNECTIONS TO NEW MANHOLES SHALL BE MADE BY MEANS OF EITHER RUBBER GASKET SEAL (A-LOK OR APPROVED EQUAL) CONFORMING TO ASTM F-477 CAST INTEGRALLY IN MANHOLE WALL OR RUBBER GASKET SEAL AND STAINLESS STEEL CLAMP (PSX SERIES SIX OR APPROVED EQUAL) CONFORMING TO ASTM C-923. FOR PIPE CONNECTIONS WITH A DEPTH OF >20 FT., A RUBBER GASKET SEAL (A-LOK OR APPROVED EQUAL) CONFORMING TO ASTM F-477 CAST INTEGRALLY IN MANHOLE WALL SHALL BE USED 10.PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY MEANS OF CORE DRILLING MANHOLE WALL AND INSTALLING RUBBER GASKET SEAL AND STAINLESS STEEL CLAMP (PSX SERIES SIX OR APPROVED EQUAL) CONFORMING TO ASTM C-923.
- 11. THE MAXIMUM DISTANCE FROM ANY INLET PIPE INVERT TO THE OUTLET PIPE INVERT SHALL BE 2'. DISTANCES GREATER THAN 2' WILL REQUIRE AN INSIDE DROP CONNECTION PER 'INSIDE DROP CONNECTION DETAIL'.
- 12. MANHOLE STEPS SHALL BE NEENAH R-1982-F OR M.A. IND. PS-1 OF APPROVED EQUAL INSTALLED AT 16" CENTERS, AND SHALL BE ORIENTED ABOVE THE OUTLET PIPE UNLESS OTHERWISE SPECIFIED.

- 1. MANHOLE FRAMES & LIDS SHALL BE PER THE
- 2. FOR MANHOLES CONNECTED TO MAINS 18" DIAMETER OR LARGER, OR FOR MANHOLES LOCATED IN FLOOD PRONE AREAS, FRAMES & LIDS SHALL BE THE BOLT DOWN TYPE.
- B. ALLOWABLE TYPES OF ADJUSTING RINGS INCLUDE PRECAST CONCRETE (4" HEIGHT MIN.), & EXPANDED POLYPROPYLENE (EPP). THESE CAN BE USED IN CONJUNCTION WITH EACH OTHER, EXCEPT THAT A PRECAST RING SHALL NOT BE PLACED OVER AN EPP RING.
- 4. FOR PRECAST ADJUSTING RINGS, ALL ADJUSTING RING JOINTS AS WELL AS THE FRAME TO ADJUSTING RING JOINT SHALL BE SEALED WITH TWO 1" BEADS OF PRE-FORMED RUBBER BUTYL JOINT SEALANT, INCLUDING FRAME TO CONCRETE JOINT. WHEN A FRAME REQUIRES PITCHING, A MIN. OF 3 SHIMS EQUALLY SPACED SHALL BE INSTALLED BETWEEN THE FRAME AND CONCRETE AND
- THE VOID BETWEEN THE FRAME & CONCRETE FOR EPP ADJUSTING RINGS, RINGS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. WHEN A FRAME REQUIRES PITCHING, THE TOP RING SHALL BE A TAPERED ADJUSTMENT RING PER MANUFACTURER'S INSTRUCTIONS.

HYDRAULIC CEMENT SHALL BE USED TO FILL

- NO TARRING OR GROUTING IS ALLOWED ON THE INSIDE OF MANHOLE OR ADJUSTMENT . MAXIMUM MANHOLE ADJUSTMENT IS 12".
- MINIMUM ADJUSTMENT IS 4" UNLESS OFF-ROAD OR IN CURB & GUTTER ROADWAY 8. MANHOLE FRAMES SHALL BE SET  $\frac{1}{4}$ " MIN. TO 3/8" MAX. BELOW PAVED SURFACES, AND AT FINAL GRADE IN TURF AREAS.

REASONABLE CARE SHALL BE USED WHEN BACKFILLING OVER SEWER. NO MATERIALS

LOOSE MATERIAL TO BE REMOVED OR COMPACTED PRIOR TO PLACING PIPE BEDDING.

3. BEDDING SHALL BE WELL HAUNCHED ALONG PIPE TO ENSURE VOIDS ARE ELIMINATED.

PIPE. NO MATERIAL LARGER THAN 8" DIA. SHALL BE USED IN THE BACKFILL.

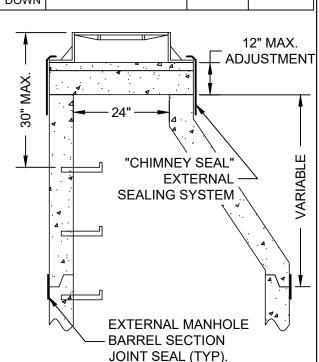
SUCH AS ROCKS OR BOULDERS SHALL BE PLACED WITHIN 24" OF THE CROWN OF THE

## 9. WHEN ADJUSTING EXISTING MANHOLES, THE ENTIRE EXISTING ADJUSTMENT SHALL BE REMOVED AND REPLACED.

- 10. THE COMBINATION OF NEW ADJUSTING RINGS SHALL BE SUCH THAT THE MINIMUM NUMBER
- OF RINGS POSSIBLE ARE USED. 11.FLAT-TOPS ARE NOT PERMITTED ON 4' OR 5'
- DIA. MANHOLES. 12. REPLACEMENT OF EXISTING BARREL SECTIONS MAY BE REQUIRED TO MEET THE
- 13. MANHOLE ADJUSTMENT INSERT RISER RINGS ARE NOT APPROVED FOR USE.

ABOVE REQUIREMENTS.

APPROVED FRAME & LID TABLE					
TYPE	NEENAH FRAME	NEENAH LID	EAST JORDAN FRAME	EAST JORDAN LID	
REGULAR	1670-2004	R-1670-0358	00111711	00111732	
LOW PROFILE	1670-2008	R-1670-0358			
BOLT DOWN	1915JT08				



# **DROP BOWL & DROP PIPE SIZING**

INLET PIPE DIA.	DROP PIPE DIA. (MIN.)			
4-6 INCH	4 INCH			
8 INCH	6 INCH			
10 INCH	8 INCH			
>10 INCH	*			

PER MFG. OR AS DIRECTED BY FRSA



LUGS PER MFR.'S RECOMMENDATIONS. 6. THE DROP BOWL SHALL BE PLACED AT A HEIGHT SO THAT THE FLOW LINE OF THE BOWL IS 2 INCHES BELOW THE INVERT OF THE INCOMING PIPE.

7. CUT A 1" DEEP BY 3" WIDE "V" NOTCH IN INVERT OF INLET

1. INSIDE DROP TYPE MANHOLES SHALL BE 5' MIN. INSIDE

2. ALL INSIDE DROP CONNECTIONS FOR SERVICES AND

3. SEE TABLE FOR DROP BOWL AND DROP PIPE SIZES.

5. ATTACH THE ROUND BACK DROP BOWL AND EACH

4. ALL INSIDE DROP PIPING SHALL BE PVC SDR35

RELINER-DURAN INC., OR EQUAL

ASTM-D3034.

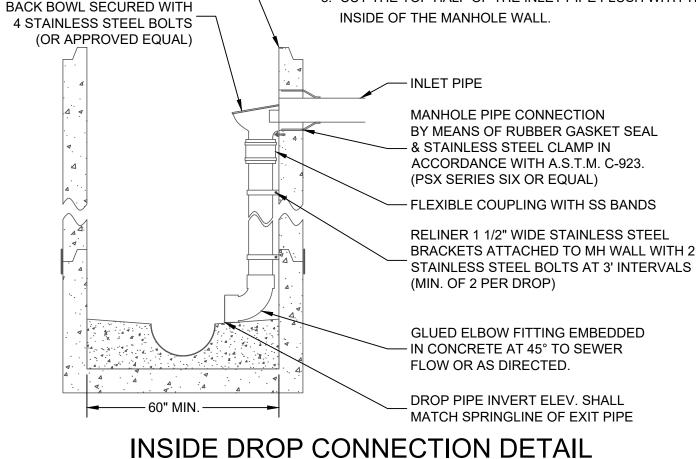
COLLECTOR SEWERS SHALL USE THE DROP AS MFG. BY

8. CUT THE TOP HALF OF THE INLET PIPE FLUSH WITH THE

INSIDE OF THE MANHOLE WALL

SANITARY SEWER MAINLINE SHALL BE INSTALLED

PER 'FLEXIBLE PIPE BEDDING DETAIL' OR 'RIGID



('STANDARD MANHOLE DETAIL' SHALL APPLY)

CLAMPING BRACKET TO THE MANHOLE WALL WITH 3/8" x 1" . FOR NEW MAINLINE, FACTORY PVC MIN. STAINLESS STEEL BOLTS AND EPOXY IMPREGNATED WYE FITTING SHALL BE USED. P. FOR EX. MAINLINE, HOLE SHALL BE <sup>1</sup>/<sub>2</sub>" IRON PIN 12" LONG MIN. ATTACHED TO CORE DRILLED IN THE MAINLINE SCH 40 DWV GLUE CAP PIPE PER MFR.'S REQUIREMENTS. LOCATION OF CORE SHALL BE APPROVED BY THE ENGINEER. PIPE BEDDING FOR SANITARY SERVICE PIPING SHALL BE PER 'FLEXIBLE PIPE BEDDING DETAIL' 6" BELOW AND 12" ABOVE PIPING THE REMAINDER OF SERVICE TO PROPERTY/EASEMENT LINE SHALL BE INSTALLED PER STANDARD **PVC RISER SUPPORT** SERVICE & ALTERNATE SERVICE - SPOOL (ADAPTER) IS DETAIL. REQUIRED. THE COMPRESSION FITTING SHALL BE A WATER-TIGHT FLEXIBLE TEE CONNECTOR OF SPECIFIED SIZE. (INSERT-A-TEE OR APPROVED EQUAL). COMPRESSION FITTING MAINLINE SEWER -VERTICAL SERVICE RISER DETAIL (FOR MAINLINE DIA. 8" - 18"; CONNECTION TO >18" MAIN PROHIBITED)

GROUND OR ROADWAY SURFACE -

## STANDARD MANHOLE DETAIL

**CONFINED & STABLE TRENCH WALL** 

GRANULAR MATERIAL COMPACTED

DENSITY 12" MIN. ABOVE CROWN OR

MAINTAINED IN A DEWATERED

TO 90% STANDARD PROCTOR

IDOT CA-7 OR APPROVED EQUAL

CONFORMING TO ASTM C12 CLASS

B, 6" BELOW BOTTOM OF PIPE TO

SPRINGLINE TO BOTTOM OF PIPE)

SPRINGLINE. (HAUNCHED FROM

CA-1 BEDDING FOUNDATION

AS DIRECTED BY F.R.S.A.

PIPE BEDDING:

(IF REQUIRED)

UNDISTURBED EARTH

('MANHOLE ADJUSTMENT DETAIL' SHALL APPLY)

# MANHOLE ADJUSTMENT DETAIL

TRENCH BACKFILL &

MAX. EXCAVATED TRENCH WIDTH

PIPE O.D. + 18 INCHES FOR 8"-24" PIPE

PIPE O.D. + 24 INCHES FOR PIPE>24"

**CONFINED & STABLE TRENCH WALL** 

MAINTAINED IN A DEWATERED

**IDOT CA-7 OR APPROVED EQUAL** 

CLASS 1A, 6" BELOW BOTTOM OF

PIPE TO 12" ABOVE PIPE CROWN.

(HAUNCHED FROM SPRINGLINE TO

CONFORMING TO ASTM D2321

**CA-1 BEDDING FOUNDATION** 

CONDITION

PIPE BEDDING:

BOTTOM OF PIPE)

- UNDISTURBED EARTH

PVC SDR26 'WMQ'

FLEXIBLE SADDLE WYE

ASTM D2241, ASTM D3139

(IF REQUIRED)

**COMPACTION PER** 

(FOR ADJUSTMENT OF BOTH NEW & EXISTING MANHOLES)

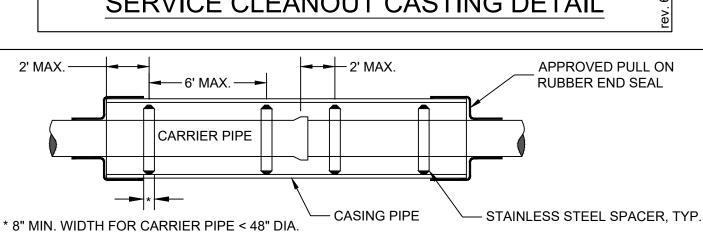
## SIDEWALK OR DRIVEWAY PAVEMENT, VAR. THICKNESS - AGGREGATE BASE, VAR, THICKNESS CLEAR SPACE FRAME & LID - NEENAH R-1974-A OR EAST JORDAN 00157410 & 00157421 SOLID BRICK (2"x3"x8") SET

(4 EA. MIN.) **DWV THREADED CAP** - SELECT TRENCH BACKFILL 4" OR 6" PVC CLEANOUT

SERVICE CLEANOUT CASTINGS ARE REQUIRED FOR ALL CLEANOUTS LOCATED IN PAVED AREAS, DRIVEWAYS, OR SIDEWALKS.

- 2. THE LOCATION OF THE CLEANOUT SHALL BE APPROVED BY FOUR RIVERS SANITATION **AUTHORITY (FRSA)**
- THE FRAME SHALL BE SET ON BRICKS THAT ARE PLACED IN A CIRCULAR PATTERN THE ENTIRE CIRCUMFERENCE OF THE FRAME. THE BRICKS SHALL BE SET ON COMPACTED TRENCH BACKFILL
- . THE FRAME SHALL BE SET TO AN ELEVATION THAT PROVIDES 4"-6" CLEAR SPACE BETWEEN THE TOP OF THE CLEANOUT CAP AND THE BOTTOM OF THE CASTING LID.
- THE CONTRACTOR SHALL ENSURE THAT THE CLEANOUT CAP CAN BE UNSCREWED AND REMOVED AND REPLACED WITHOUT HINDRANCE.
- 8. THE FRAME SHALL BE SET 4" MIN. TO  $rac{3}{6}$ " MAX. BELOW FINAL PAVEMENT ELEVATION

## SERVICE CLEANOUT CASTING DETAIL



12" MIN. WIDTH FOR CARRIER PIPE ≥ 48" DIA.

RECOMMENDATION.

- CASING END SEALS & SPACERS SHALL BE AS MFD. BY CASCADE MFG., OR APPROVED EQUAL .. FOR FLEXIBLE CARRIER PIPE, SPACING OF SPACERS TO BE AS SHOWN, OR PER MFR.'S
- 3. FOR RIGID CARRIER PIPE, SPACING SHALL BE PER MFR.'S RECOMMENDATION.

**CASING & SPACER DETAIL** 

### PIPE BEDDING DETAIL'. . PIPE BEDDING FOR SANITARY SERVICE PIPING FINAL GRADE SHALL BE PER 'FLEXIBLE PIPE BEDDING DETAIL', 6" BELOW AND 12" ABOVE PIPING. 3. ALL SCH 40 PVC PIPE & FITTINGS SHALL BE PER ASTM D-1785/D-2665 GREEN PAINTED 2x4 WOOD POST SHALL B . ALL SDR26 WMQ PVC PIPE & FITTINGS SHALL BE 6 IN. FOR EX. DEVELOPMENT **INSTALLED VERTICALLY TO 2' ABOVE GRADE** PER ASTM D-2241/D-3139. 4 FT. NEW DEVELOPMENT ON THE BACKSIDE OF THE CLEANOUT ON ALL DWV FITTINGS SHALL BE CLEANED, PRIMED, & VACANT LOTS ONLY OR AS DIRECTED GLUED. 1/2" IRON PIN 12" LONG MIN. . MIN. DEPTH OF COVER SHALL BE 5'. ATTACHED TO SCH 40 CAP (SEE NOTE 7) CLEANOUT CAP SHALL BE SCH 40 DWV GLUED CAP FOR NEW DEVELOPMENT OR SCH 40 GLUED SCREW CAP FOR EX. DEVELOPMENT CLEANOUT RISERS LOCATED IN PAVED AREAS, DRIVEWAYS, OR SIDEWALKS SHALL WILL REQUIRE A CLEANOUT FRAME & LID PER THE FRSA 'SERVICE ALT. POINT OF CONNECTION; CLEANOUT CASTING DETAIL' ALTERNATE SERVICE - WYE FITTING W/ VERTICAL STUB SDR 26 WMQ PVC, ASTM D-2241, AT TIME OF CONNECTION BY PLUMBER - ASTM D-3139, WITH SLIP-JOINTS @ 1.0% MIN. SLOPE, 9.0% MAX. SLOPE SANITARY SEWER MAINLINE WYE FITTING PER SIZE INDICATED ON PLANS 3' MAX., TYP. 45° BEND-SDR26 WMQ OR SCH 40 ASTM D-1785 45° BEND - HUB x SPIGOT, TYP. SCH 40 DWV GLUE CAP, TYP 18" MIN., TYP. SDR26 WMQ OR SCH 40 ASTM D-1785 -6" MIN. WYE FITTING - HUB x HUB, TYP. STANDARD SERVICE PVC 45° BEND SDR 26 WMQ PVC, ASTM D-2241, **GASKET x SPIGOT** ASTM D-3139, WITH SLIP-JOINTS @

# Four Rivers Sanitation Authority

- UNDISTURBED EARTH

**FOUR RIVERS SANITATION AUTHORITY** (FRSA) STANDARD DETAIL SHEET

STANDARD SERVICE & ALTERNATE SERVICE DETAIL

(FOR MAINLINE DIA. 8" - 18"; CONNECTION TO >18" MAIN PROHIBITED)

(NOT TO SCALE) 3501 KISHWAUKEE ST. ROCKFORD, ILLINOIS 61109 PH. (815) 387-7660

ISSUE

06/01/2022

1.0% MIN. SLOPE, 9.0% MAX. SLOPE

**SPRINGLINE** 

SADDLE TEE OR SADDLE WYE ARE PVC SDR26 'WMQ' BOTH ACCEPTABLE FOR VCP MAIN. ASTM D2241, ASTM D3139 CORE DRILL HOLE IN MAIN OR MODIFY EX. VCP FITTING FOR SADDLE DIMENSIONS. APPLY 2 BEADS OF SILICONE CAULK TO UNDERSIDE OF SADDLE AROUND OPENING. STAINLESS STEEL CLAMP FLOW DIRECTION EX. VCP MAIN -FLEXIBLE SADDLE TEE OR WYE FITTING

RIGID PIPE BEDDING DETAIL

NON-PVC SANITARY MAIN FLEXIBLE SADDLE CONNECTION DETAIL (FOR SERVICE CONNECTIONS TO NON-PVC SANITARY MAINS LESS THAN 18" DIA.) . ONLY A SADDLE WYE IS ACCEPTABLE

SPRINGLINE

- GROUND SURFACE

FOR A PVC MAIN. CORE DRILL HOLE IN MAIN FOR SADDLE DIMENSIONS. APPLY 2 BEADS OF SILICONE CAULK TO UNDERSIDE OF SADDLE AROUND

OPENING. STAINLESS STEEL → FLOW DIRECTION

FLEXIBLE PIPE BEDDING DETAIL

FLEXIBLE SADDLE CONNECTION DETAIL (FOR SERVICE CONNECTIONS TO PVC SANITARY MAINS LESS THAN 18" DIA.)

PVC SANITARY MAIN