

PART 4

STANDARD CONSTRUCTION DETAILS

PART 4

STANDARD CONSTRUCTION DETAILS

A. STANDARD CONSTRUCTION DETAILS

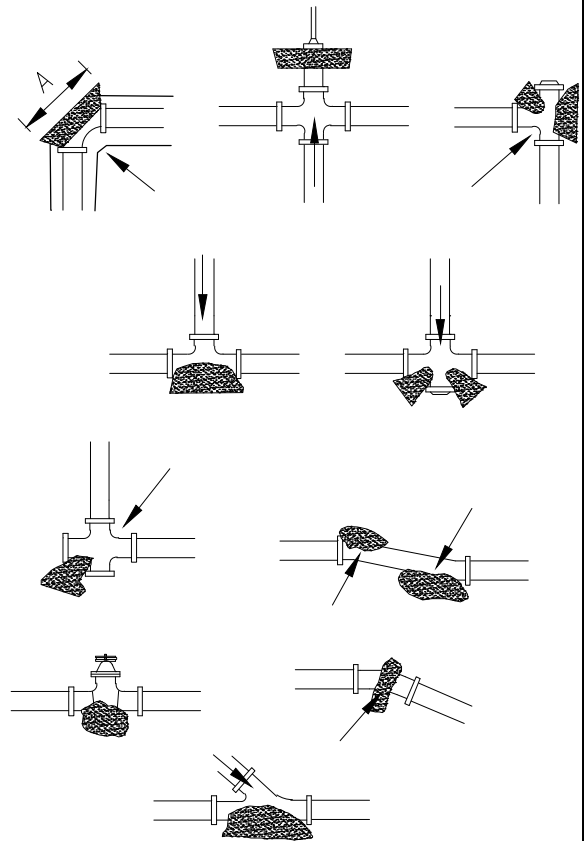
1. Typical Thrust Block Placement
2. Pipe Bend Anchor
3. Pipe Envelope - Water Mains
4. Valve & Valve Box
5. Fire Hydrant Assembly
6. Standard Blow Off Assembly
7. Special Blow Off Assembly
8. Air Release Valve Manhole
9. Water Service Tap
10. Tie Rod Assembly
11. Water/Sewer Pipe Crossing
12. Pipe Envelope- Sanitary Sewer
13. Sanitary Sewer Manhole
14. Manhole Cover Details
15. Drop Manhole
16. Force Main Air Valve Manhole
17. Sewer Service Wye- Plan View
18. Sewer Service Connection- Section View
19. Sewer Service Riser Detail
20. Sewer Cleanout Detail
21. Sewer Service Connection For Grinder-Pump Discharge into a Pressure Sewer Main.
22. Sewer Service Connection For Grinder-Pump Discharge into a Gravity Sewer Manhole.
23. Gravity Sewer Service Line Details
24. Utility Service Line Details
25. Type A Grease Interceptor
26. Type I Waste Interceptor
27. Typical Outside Meter Box

BEARING AREA OF BLOCK "A" SQ. FT.

PIPE SIZE	TEE & END	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
4	4.9	6.9	3.8	1.9	1.0
6	8.4	11.8	6.4	3.3	1.8
8	13.7	19.3	10.5	5.4	2.7
10	19.4	27.3	14.9	7.7	3.9
12	26.3	37.0	20.2	10.3	5.3
14	34.0	47.9	26.1	13.3	6.8
16	44.0	62.0	33.6	17.1	10.3

NOTES:

1. BEAR THRUST BLOCKS AGAINST UNDISTURBED EARTH.
2. DO NOT EXTEND CONCRETE BEYOND BELL FITTING.
3. ARROWS INDICATE DIRECTION OF THRUST
4. REQUIRED THRUST BLOCK AREAS "A" ARE BASED ON A SOIL BEARING PRESSURE OF 2000 PSF AND A DESIGN PRESSURE OF 250 PSI.
5. THRUST BLOCKS SHALL BE PLACED SO AS TO ALLOW FULL ACCESS TO FITTING BOLTS ON THE ASSEMBLY.

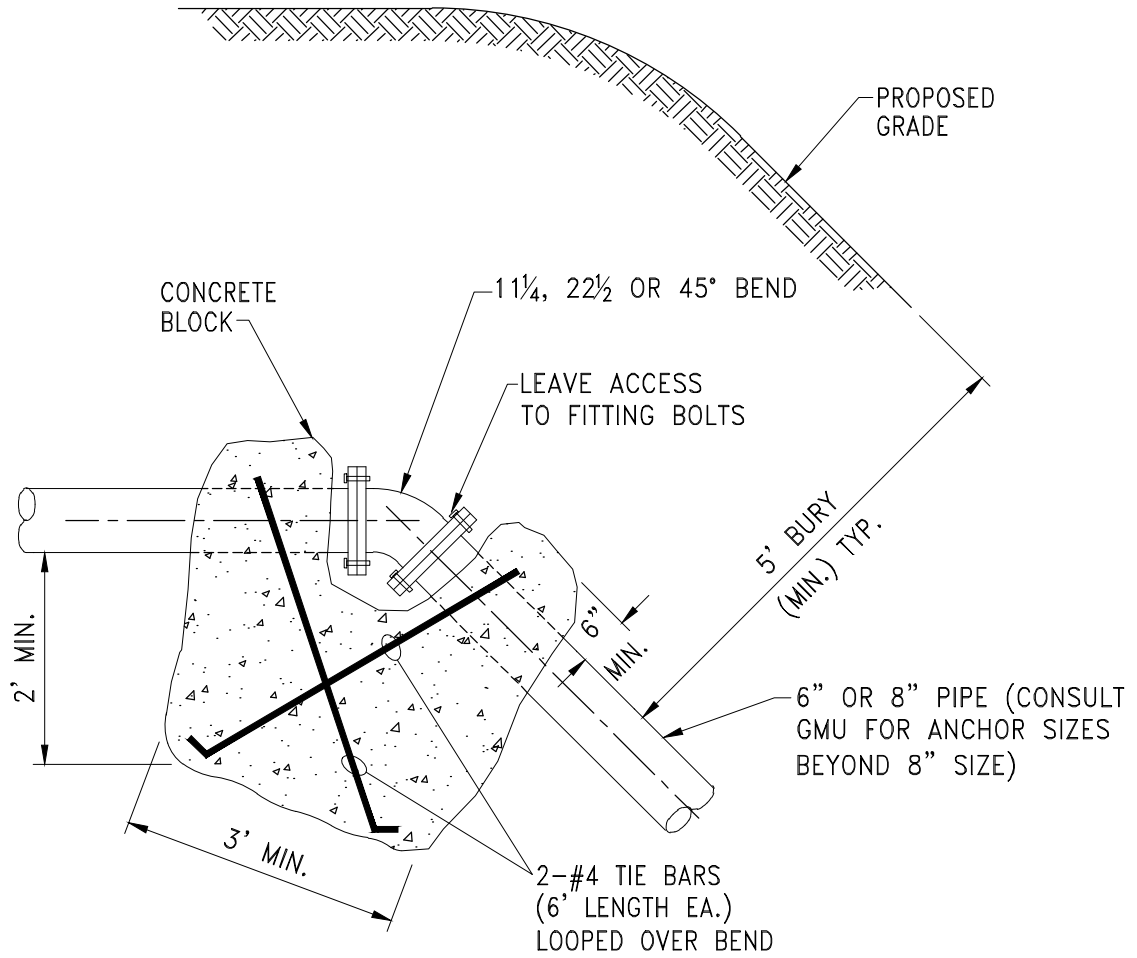


REV.	DATE
DATE: August 2008	
OLMSTED & PERRY CONSULTING ENGINEERS INC.	

TYP. THRUST BLOCK
PLACEMENT

GMU -1

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



REV.	DATE

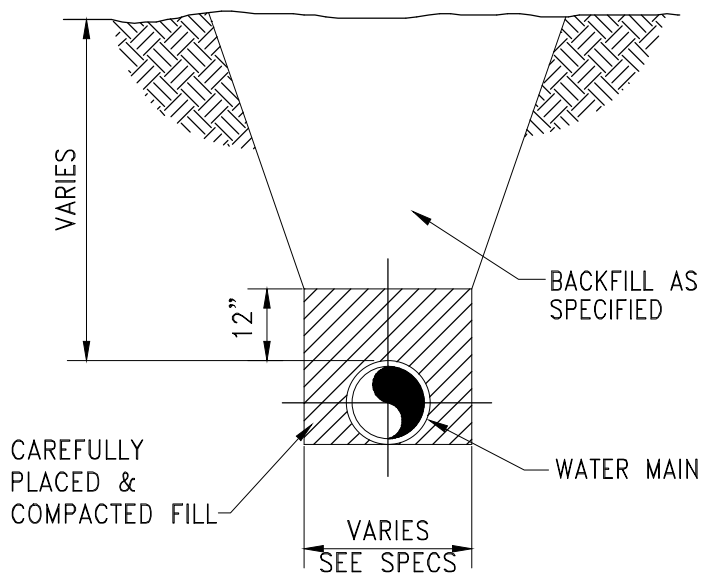
DATE: May 2008

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PIPE BEND ANCHOR

GMU -2

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



NOTE:

1. TRENCH SHALL BE BRACED, SHEETED OR SLOPED AS NECESSARY FOR THE SAFETY OF THE WORKMAN & PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.

REV.	DATE

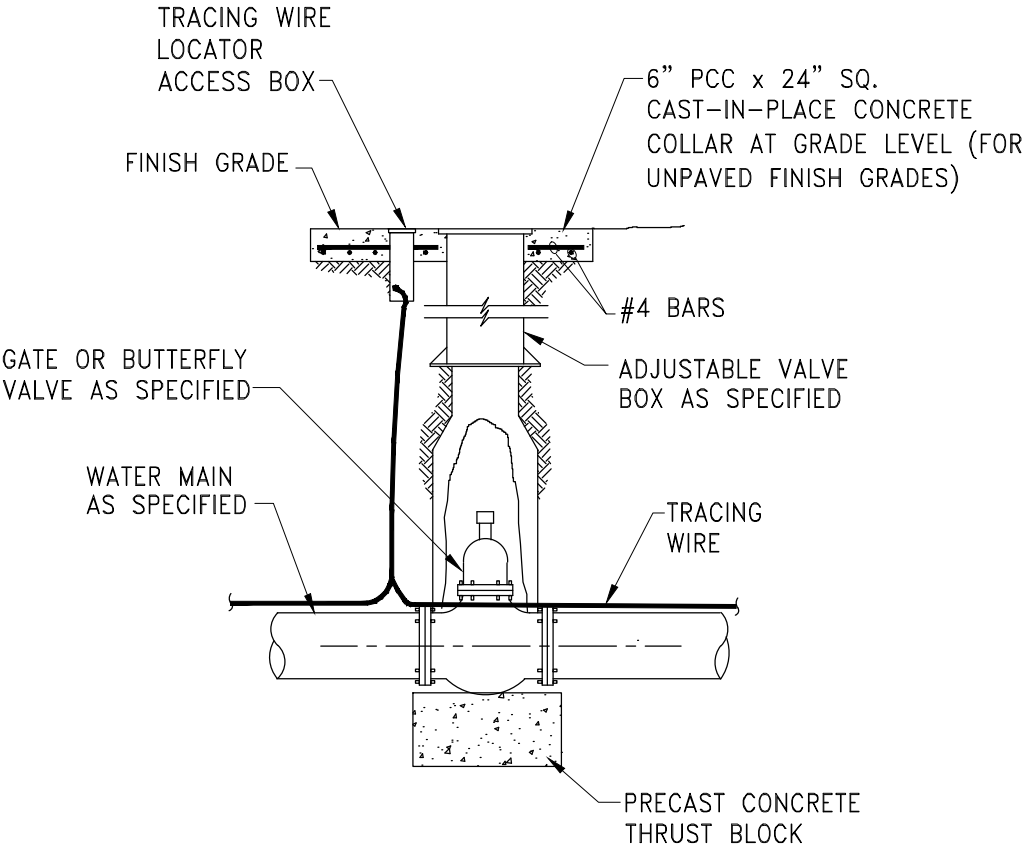
DATE: May 2008

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PIPE ENVELOPE - WATER

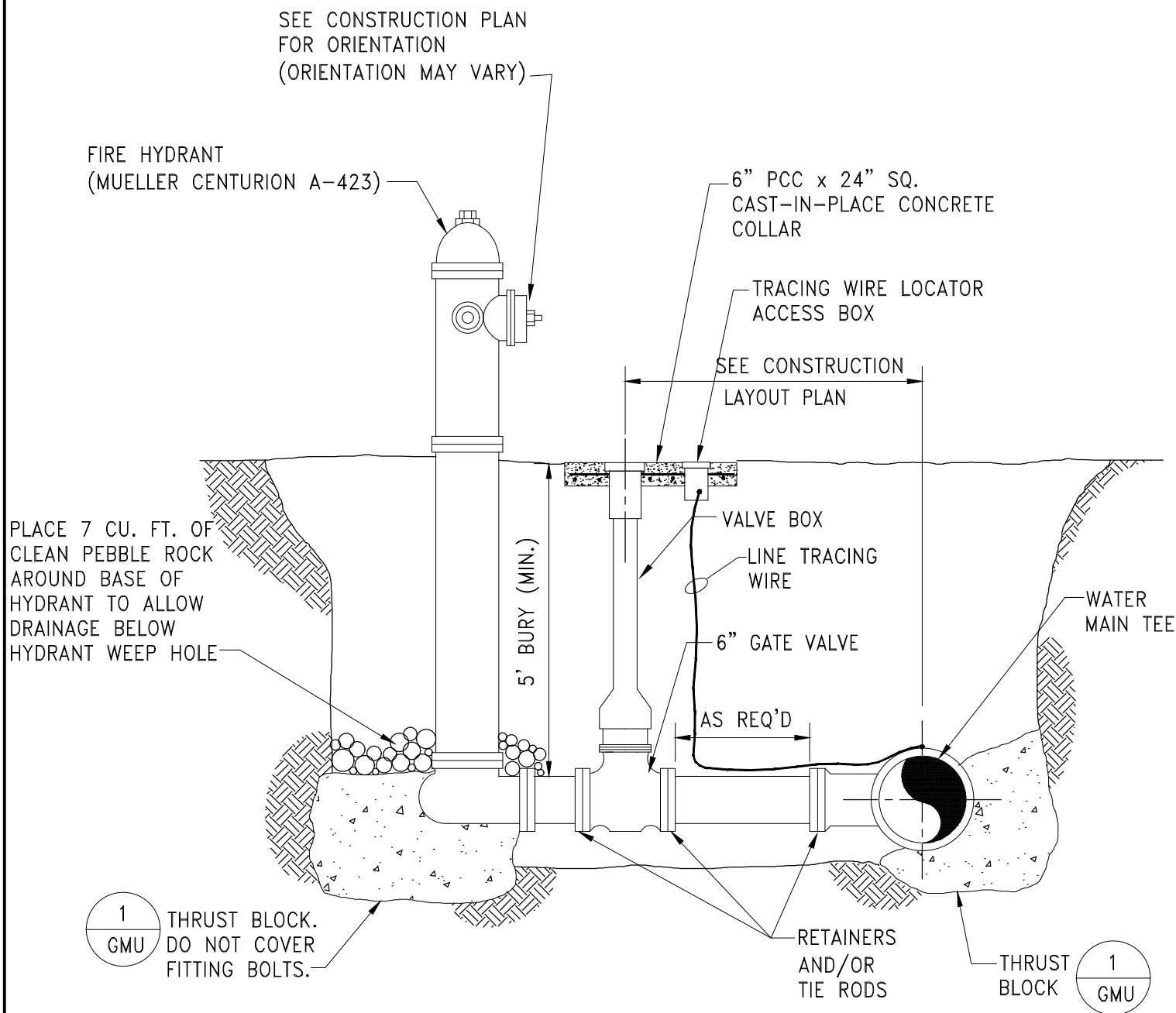
GMU -3

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



REV.	DATE
DATE: May 2008	
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VALVE & VALVE BOX



NOTE: SPECIAL FITTINGS & EXTENSIONS SHALL BE ALLOWED FOR DEEP SETTINGS OR FOR ALIGNMENTS REQUIRED ON SLOPES.

REV.	DATE

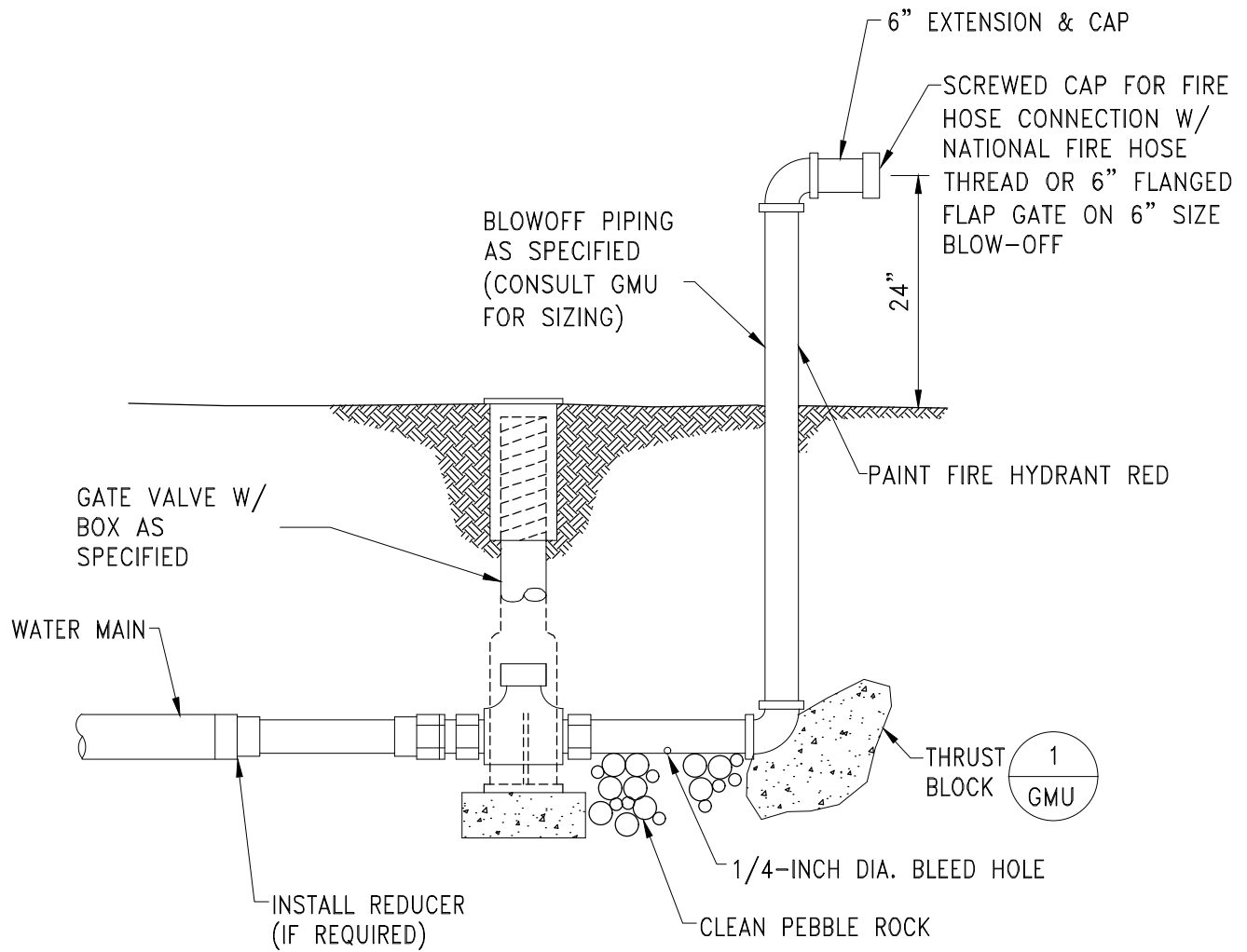
DATE: August 2008

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FIRE HYDRANT ASSEMBLY

GMU -5

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



NOTE: GMU SHALL DETERMINE SIZE OF BLOWOFF ASSEMBLY. IF 3-INCH SIZE, PIPE SHALL BE 3-INCH FLANGED D.I.P. W/ 2½" NPT DISCHARGE THREAD. IF 6-INCH SIZE, PIPE SHALL BE 6-INCH FLANGED D.I.P. W/ 6-INCH FLANGED FLAP GATE ON DISCHARGE.

REV.	DATE

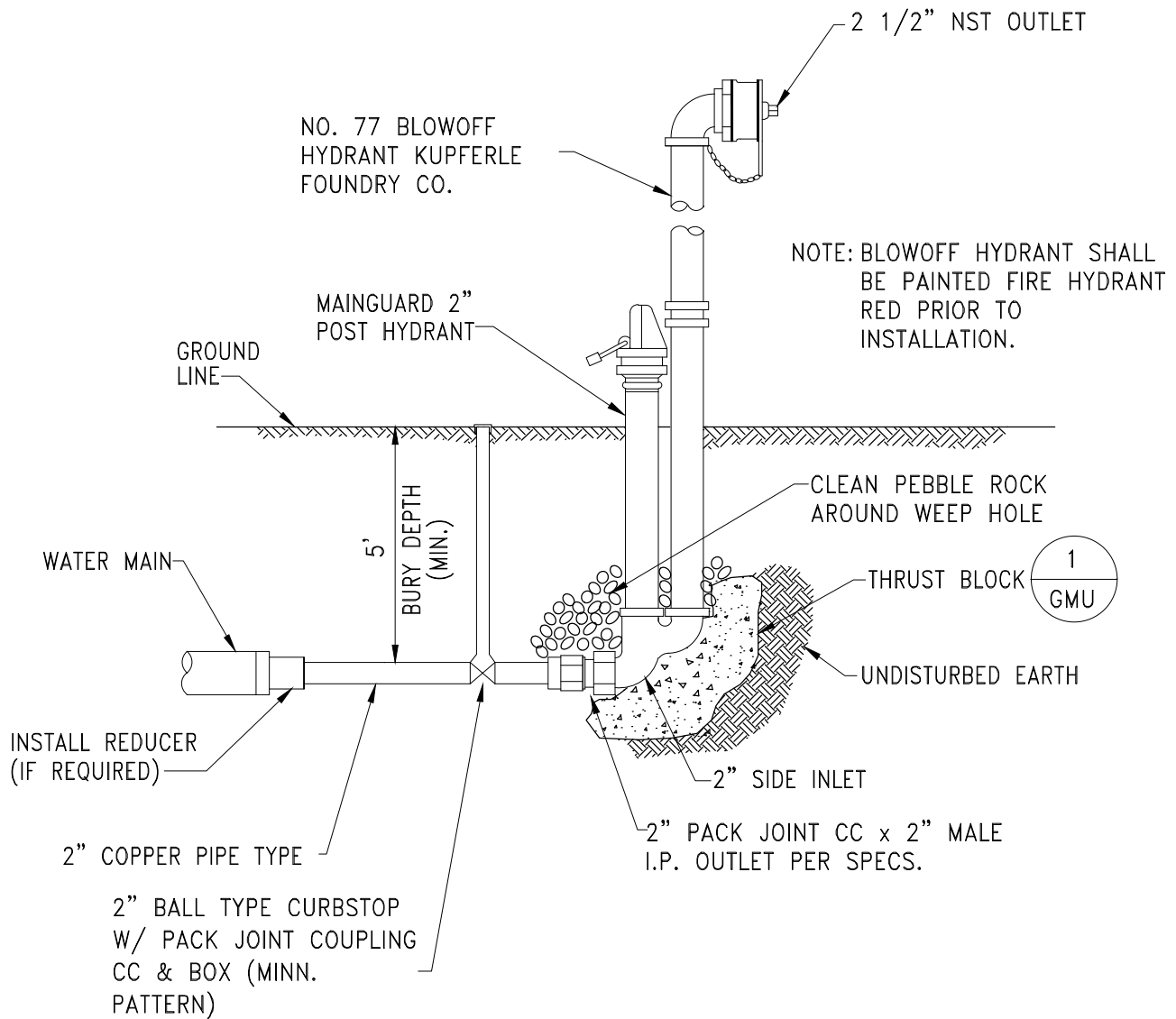
DATE: August 2008

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STD. BLOWOFF ASSEMBLY

GMU -6

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



REV.	DATE

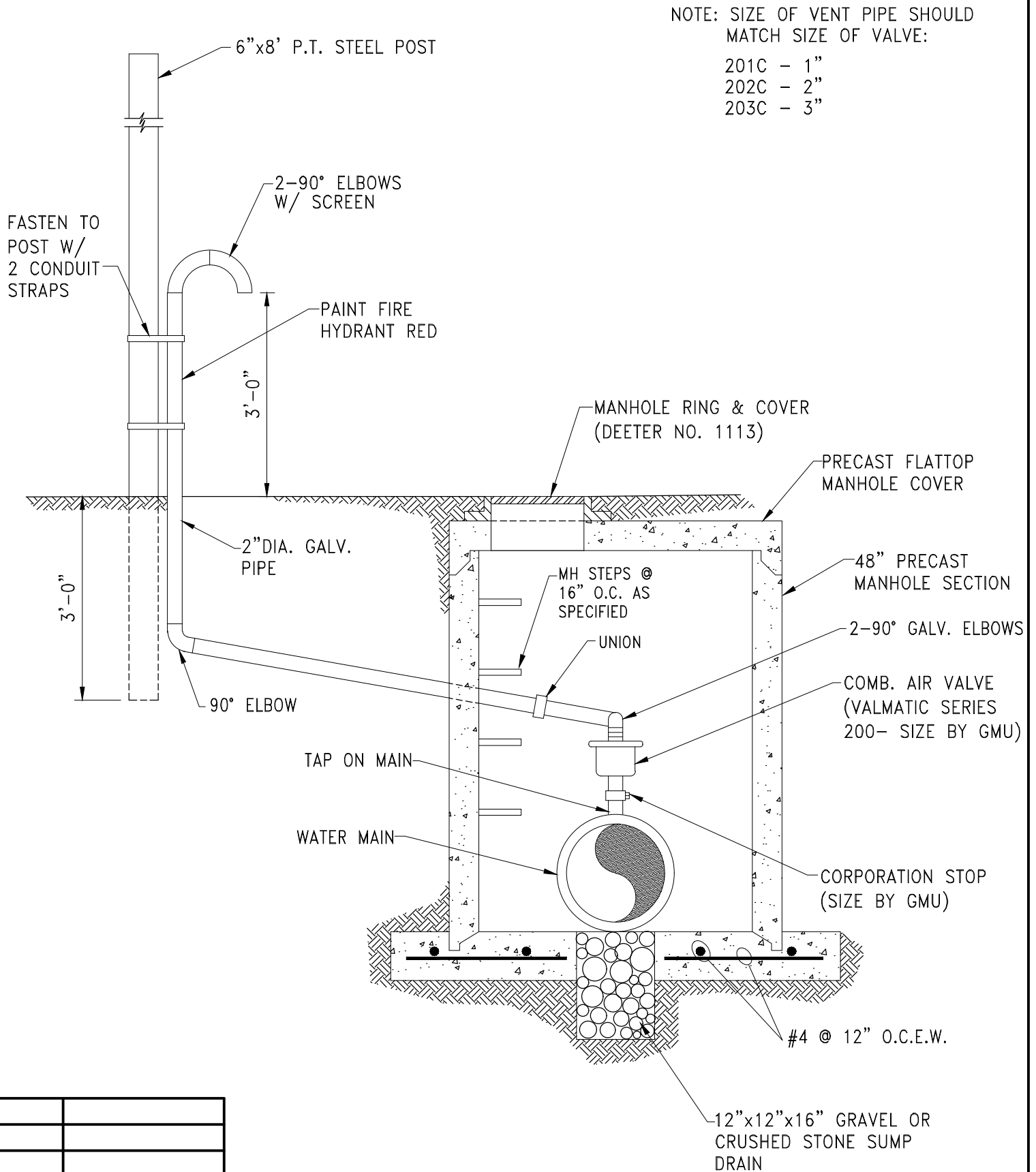
DATE: August 2008

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CONSULTING ENGINEERS INC.

SPECIAL BLOWOFF ASSEMBLY

GMU -7

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



REV.	DATE

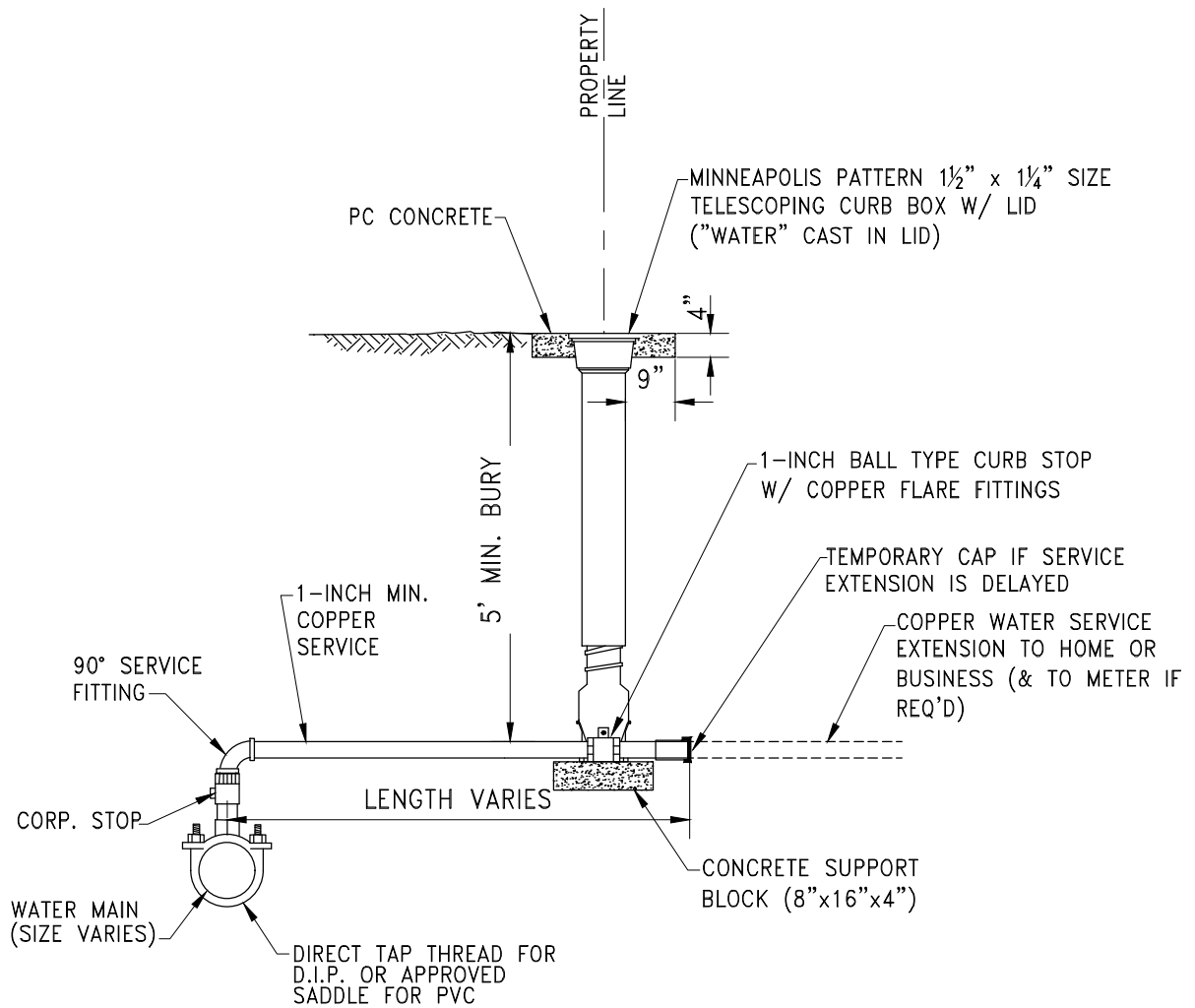
DATE: August 2008

OLMSTED & PERRY
CONSULTING ENGINEERS INC.

AIR RELEASE VALVE MANHOLE

GMU -8

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



SECTION

NOTES:

1. TAPPING SADDLE, CORPORATION STOP, SERVICE FITTING, CURB STOP & BOX AND METER MUST BE OBTAINED FROM THE GLENWOOD MUNICIPAL UTILITIES (GMU) AT PREVAILING COST.
2. TAPPING OF DUCTILE IRON MAINS MAY BE PERFORMED WITHOUT TAPPING SADDLES.
3. MINIMUM SIZE OF WATER SERVICE IS 1-INCH DIAMETER (3/4-INCH AT ELEVATIONS BELOW 1080). CONTACT GMU FOR DETAILS IF LARGER SIZE SERVICE IS REQUIRED.
4. BACKFILL UNDER PIPE TO LIMITS OF EXCAVATION W/ CAREFULLY COMPACTED & GRADED CRUSHED ROCK.
5. CONTACT GMU FOR METER PLACEMENT. FOR SERVICE EXTENSIONS GREATER THAN 100 FEET, METER SHALL BE PLACED IN A METER PIT AT THE PROPERTY LINE.
6. AN APPLICATION FOR WATER SERVICE MUST BE MADE WITH THE GMU BEFORE ANY WORK IS PERFORMED. APPLICANT MUST PAY ALL REQUIRED CONNECTION & IMPACT FEES.
7. CONTACT GMU FOR METER SIZES, METER SETTINGS, EXPANSION TANK REQUIREMENTS & OTHER DETAILS OF SERVICE.

REV.	DATE

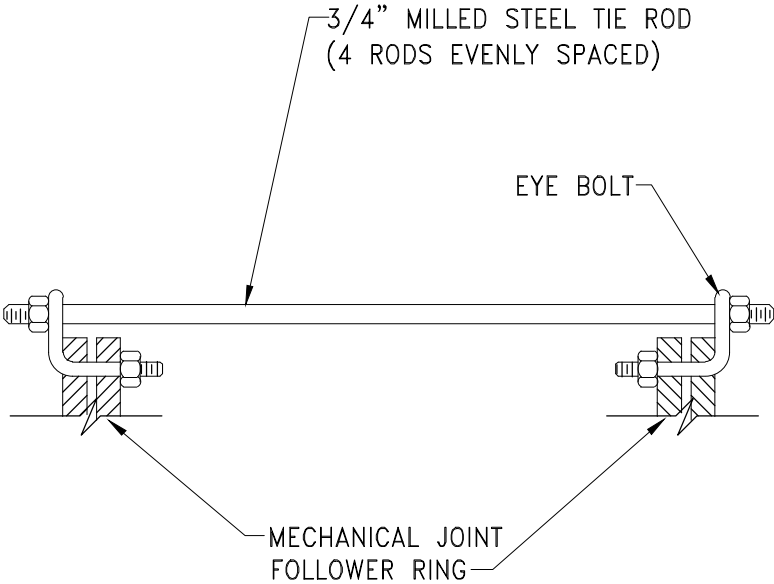
DATE: August 2008

WATER SERVICE TAP

OLMSTED & PERRY
CONSULTING ENGINEERS INC.

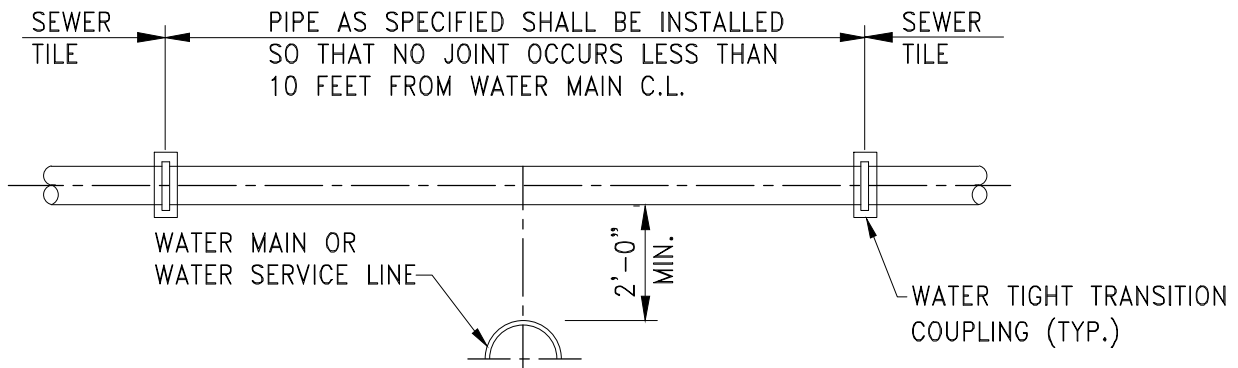
GMU -9

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



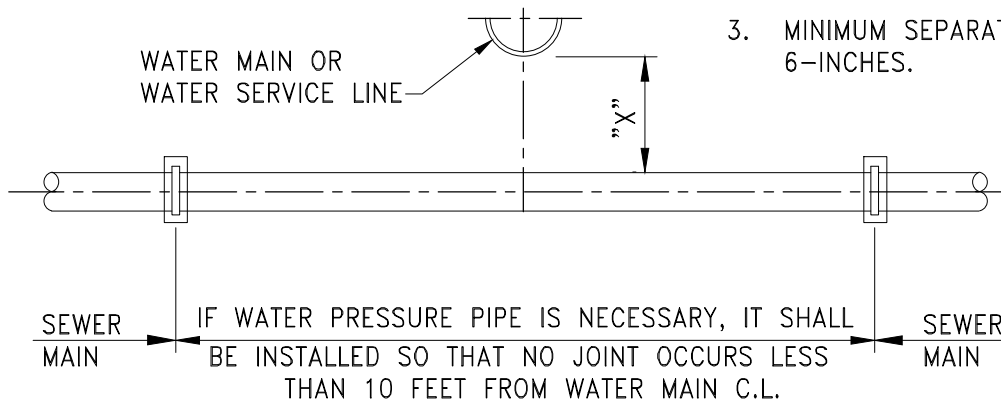
REV.	DATE
DATE: May 2008	
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TIE ROD ASSEMBLY	GMU -10
	GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



SEWER OVER WATER MAIN

1. WHEN "X" IS 18" OR MORE, SANITARY SEWER MAIN SPECIFIED MAY BE USED THROUGHOUT.
2. WHEN "X" IS LESS THAN 18", SEWER MAIN SHALL BE CONSTRUCTED OF 150 PSI WATER PRESSURE PIPE.
3. MINIMUM SEPARATION ALLOWED SHALL BE 6-INCHES.



SEWER UNDER WATER MAIN

REV.	DATE

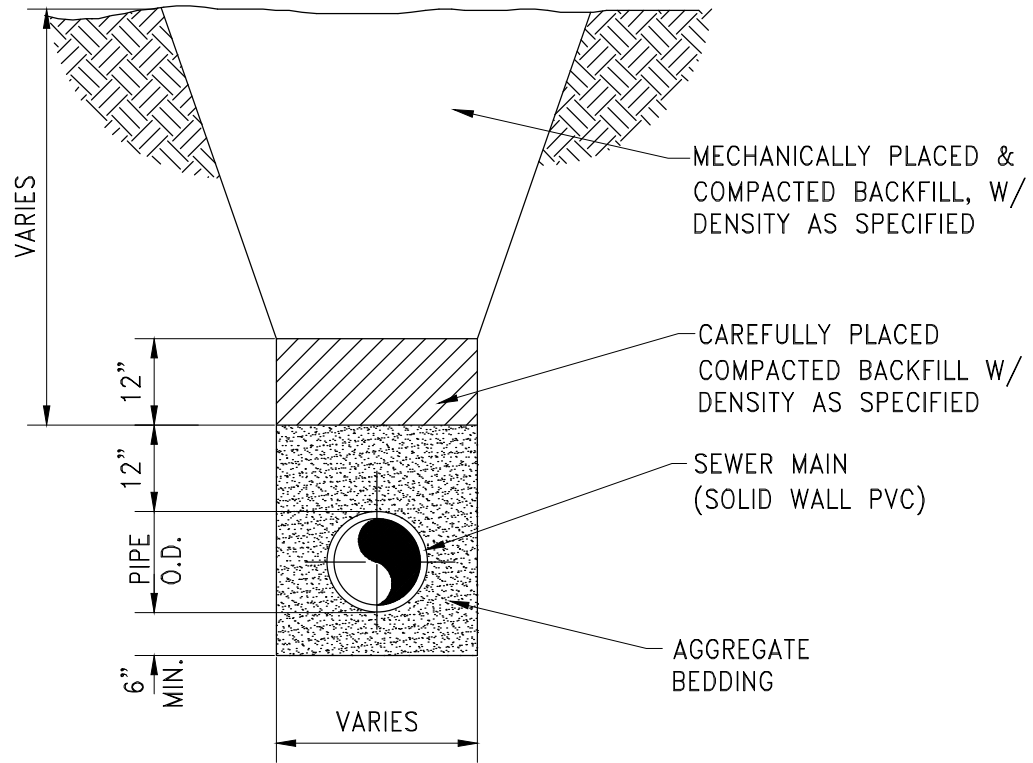
DATE: August 2008

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CONSULTING ENGINEERS INC.

WATER/SEWER PIPE CROSSING

GMU -11

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



NOTE:

1. TRENCH SHALL BE BRACED, SHEETED OR SLOPED AS NECESSARY FOR THE SAFETY OF THE WORKMAN & PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.

REV.	DATE

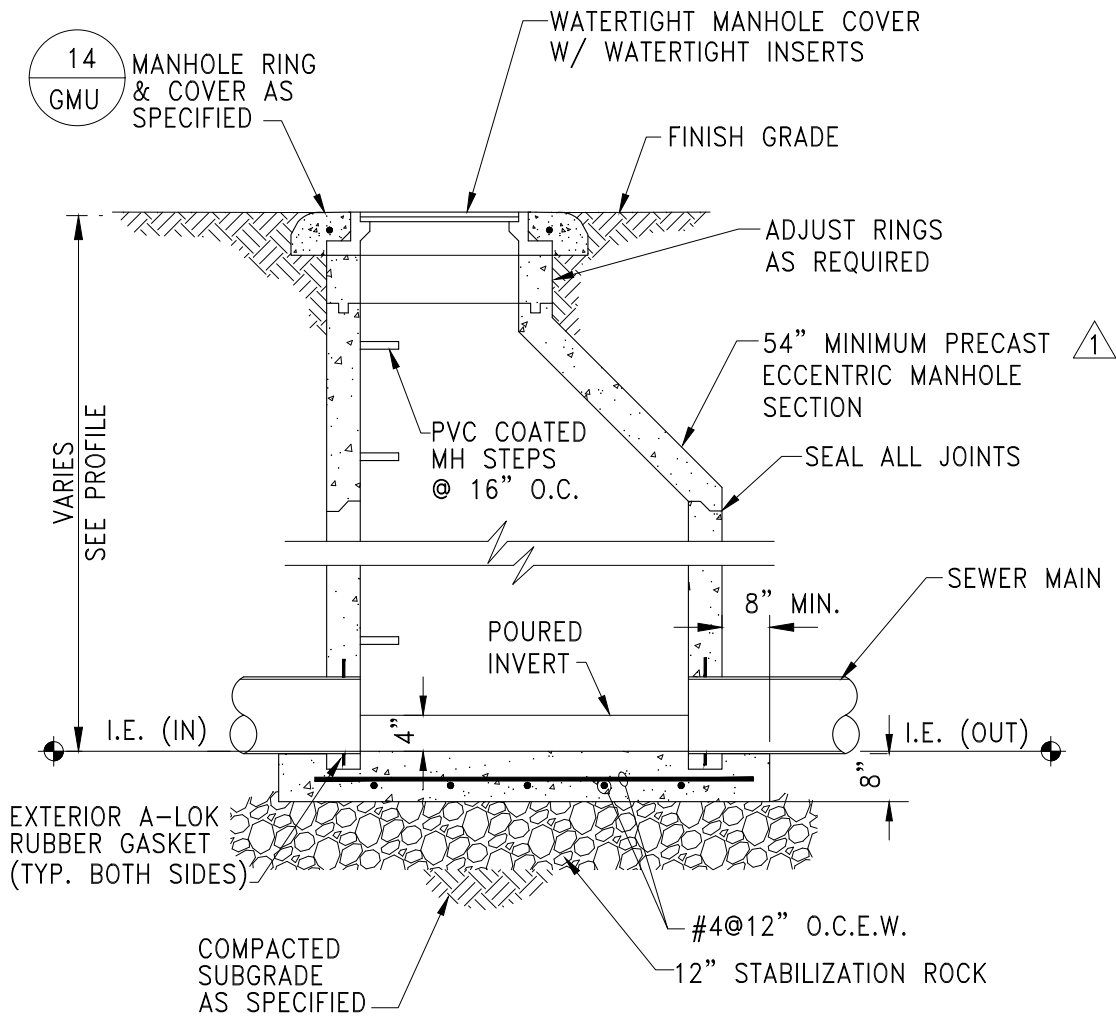
DATE: August 2008

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CONSULTING ENGINEERS INC.

PIPE ENVELOPE - GRAVITY
SANITARY SEWER

GMU -12

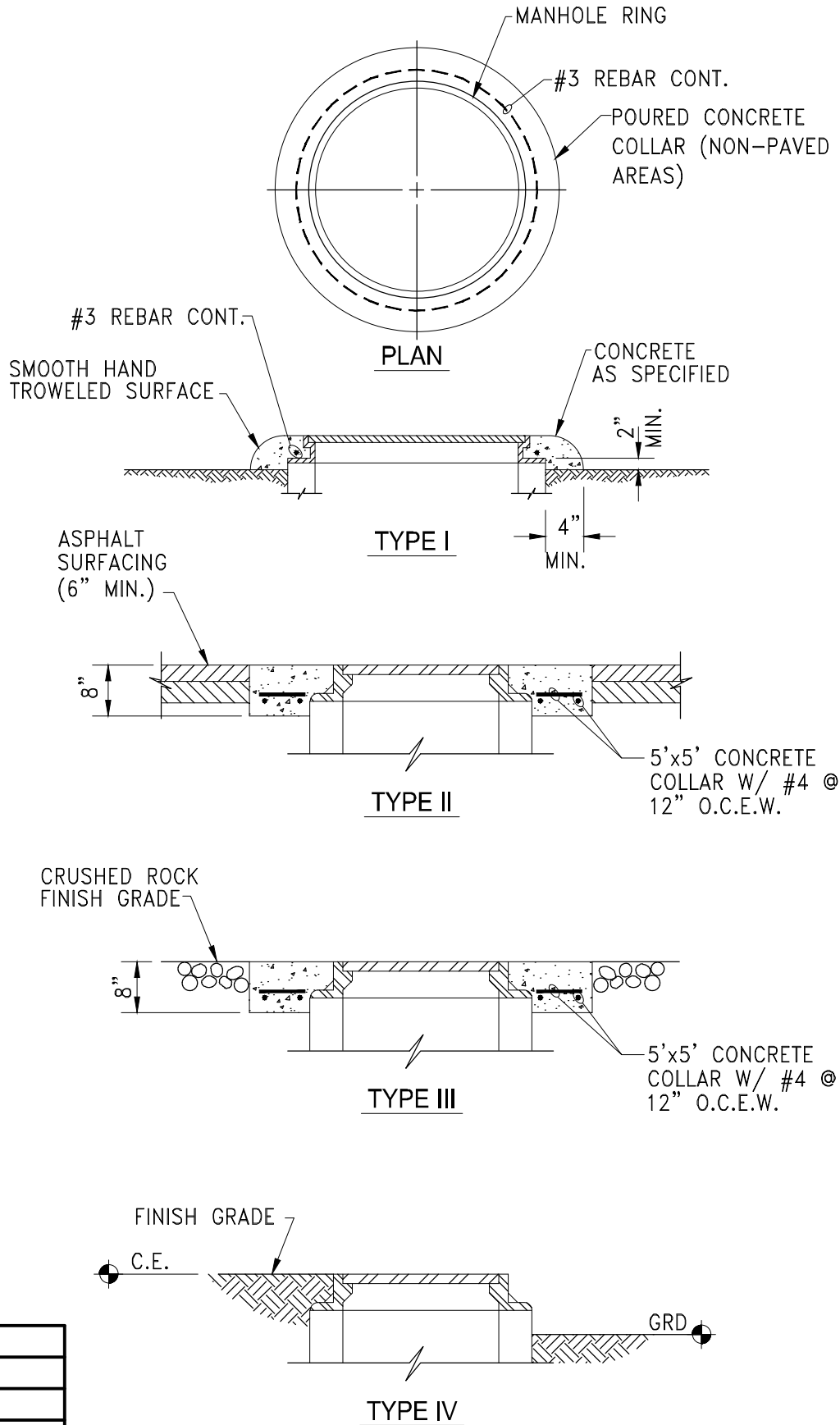
GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



NOTE: BASES SHALL BE MONOLITHIC
WITH 1ST RISER SECTION, OR
CAST-IN-PLACE FOR MANHOLES
PLACED OVER EXISTING SEWERS.

1	02/14/22
REV.	DATE
DATE: May 2008	
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SANITARY SEWER MANHOLE	GMU -13
	GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



REV.	DATE

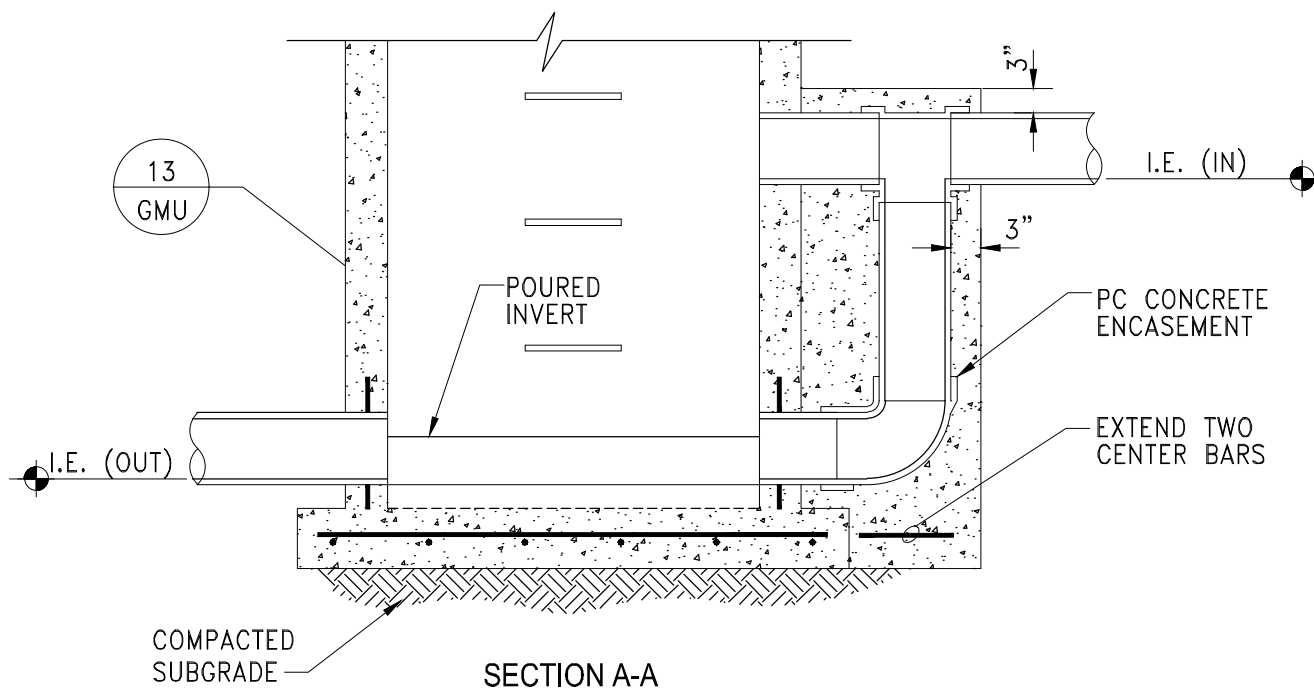
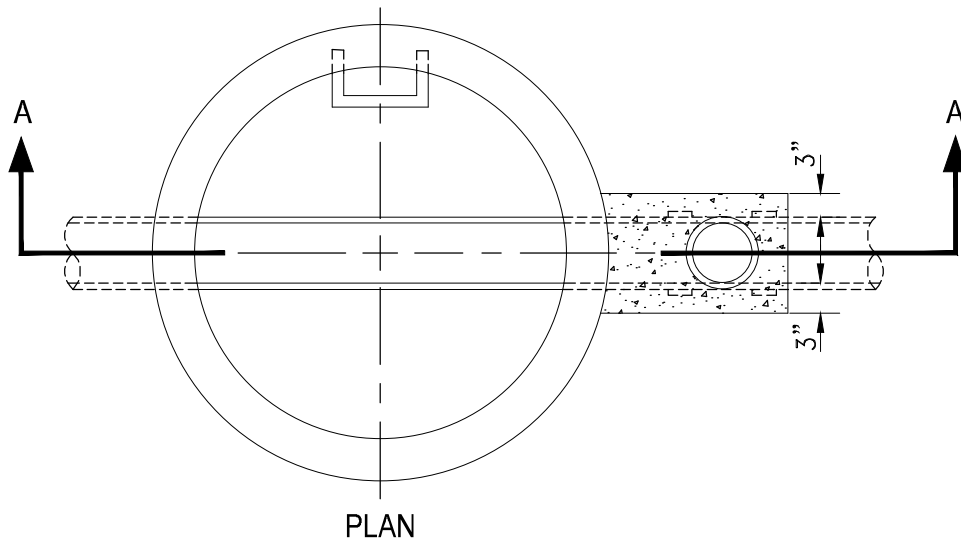
DATE: May 2008

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MANHOLE COVER DETAILS

GMU -14

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



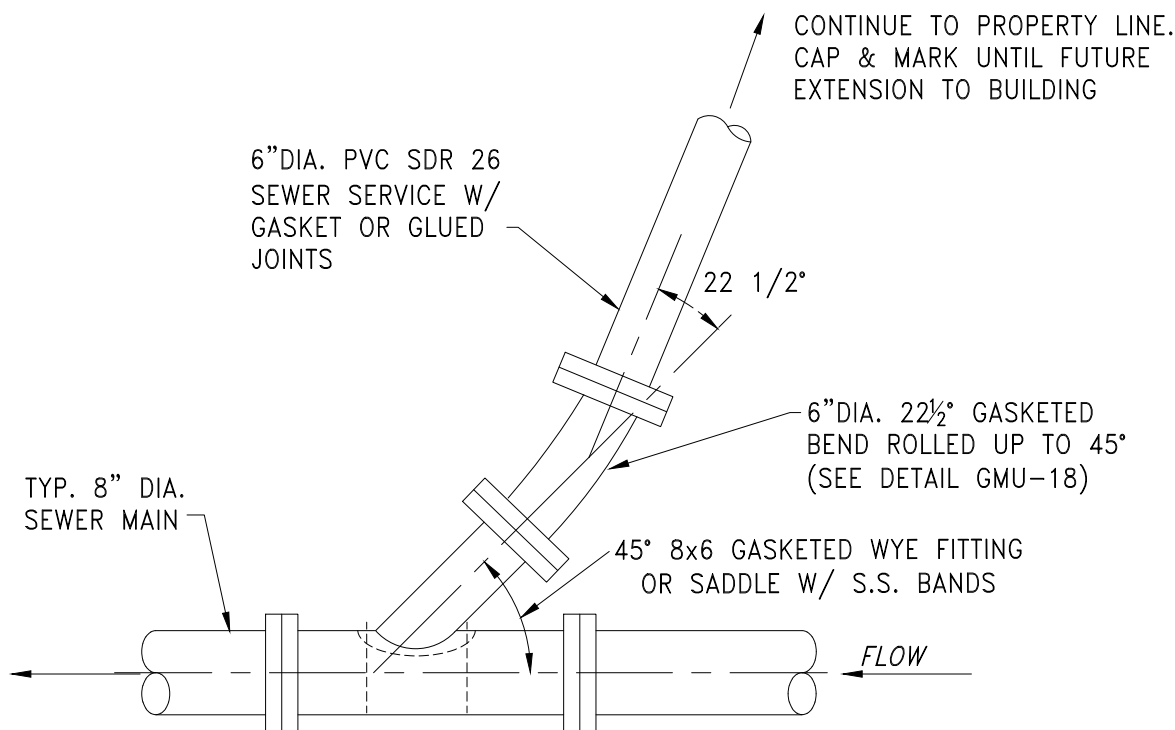
REV.	DATE
DATE: May 2008	
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DROP MANHOLE

GMU -15

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA

REV.	DATE
DATE: August 2008	
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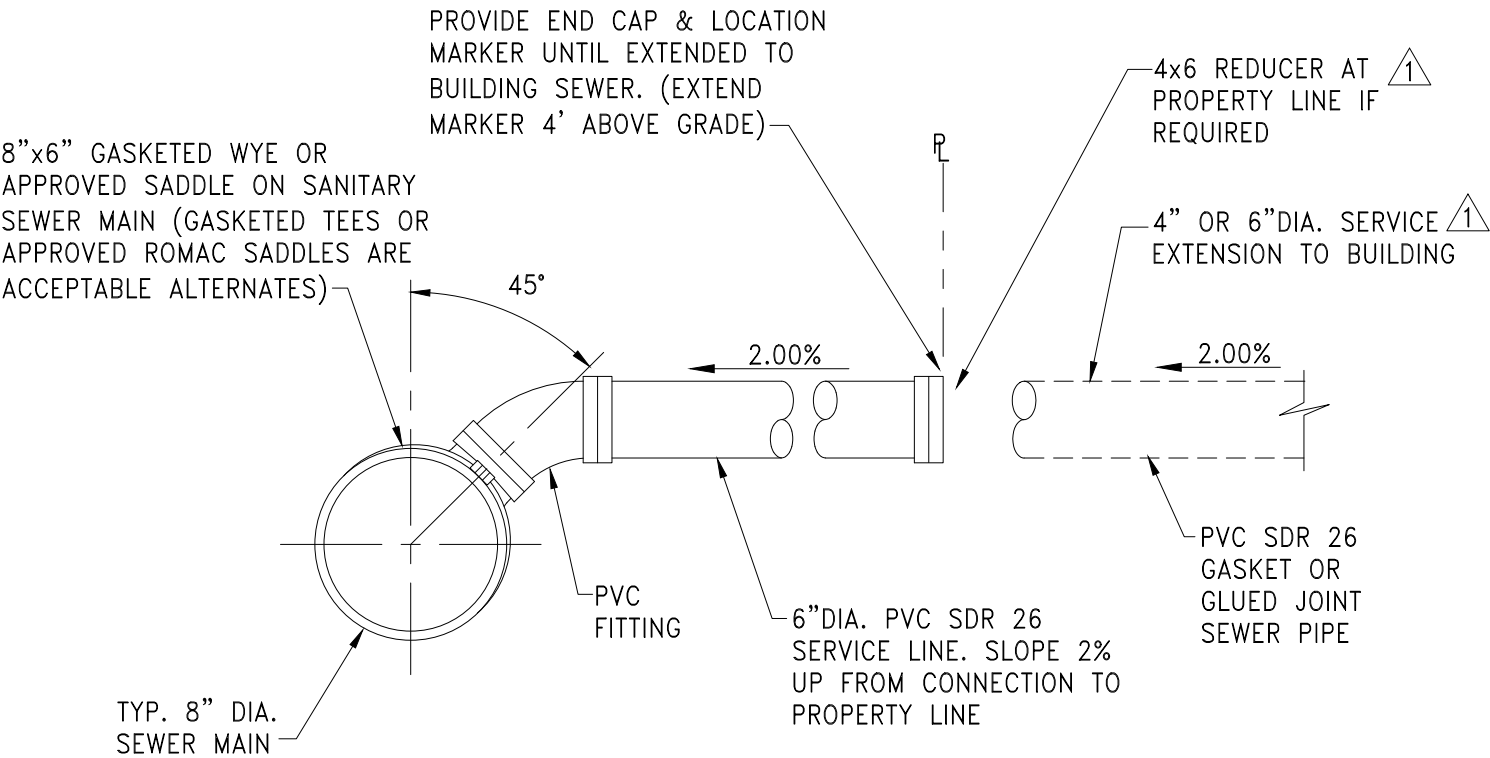


PLAN

- NOTES:
- 1. USE GASKETED 8X6 REDUCING WYE FITTING ON NEW CONSTRUCTION. USE APPROVED ROMAC GASKETED SADDLE W/ S.S. BANDS WHEN CONNECTING TO EXG. SEWER MAINS.
 - 2. GASKETED 8X6 REDUCING TEES MAY BE USED IN LIEU OF WYES ON NEW CONSTRUCTION. USE APPROVED ROMAC GASKETED SADDLE W/ S.S. BANDS WHEN CONNECTING TO EXG. SEWER MAINS.
 - 3. ALL SERVICE LINE PIPING & FITTINGS SHALL HAVE GASKETED OR GLUED JOINTS.
 - 4. THE SERVICE LINE EXTENSION FROM THE PROPERTY LINE TO THE BUILDING SHALL BE PVC SDR 26 GASKET OR GLUED JOINT PIPE. 6-INCH SIZE IS RECOMMENDED. MINIMUM SIZE ALLOWED IS 4-INCH W/ 4X6 INCREASER AT THE PROPERTY LINE.
 - 5. AN APPLICATION FOR SERVICE MUST BE MADE WITH GMU BEFORE ANY WORK IS PERFORMED. THE APPLICANT MUST PAY ALL REQUIRED CONNECTION & IMPACT FEES.

REV.	DATE
DATE: FEB. 2022	
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GRAVITY SERVICE SEWER CONNECTION PLAN VIEW	GMU -17
	GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



SECTION

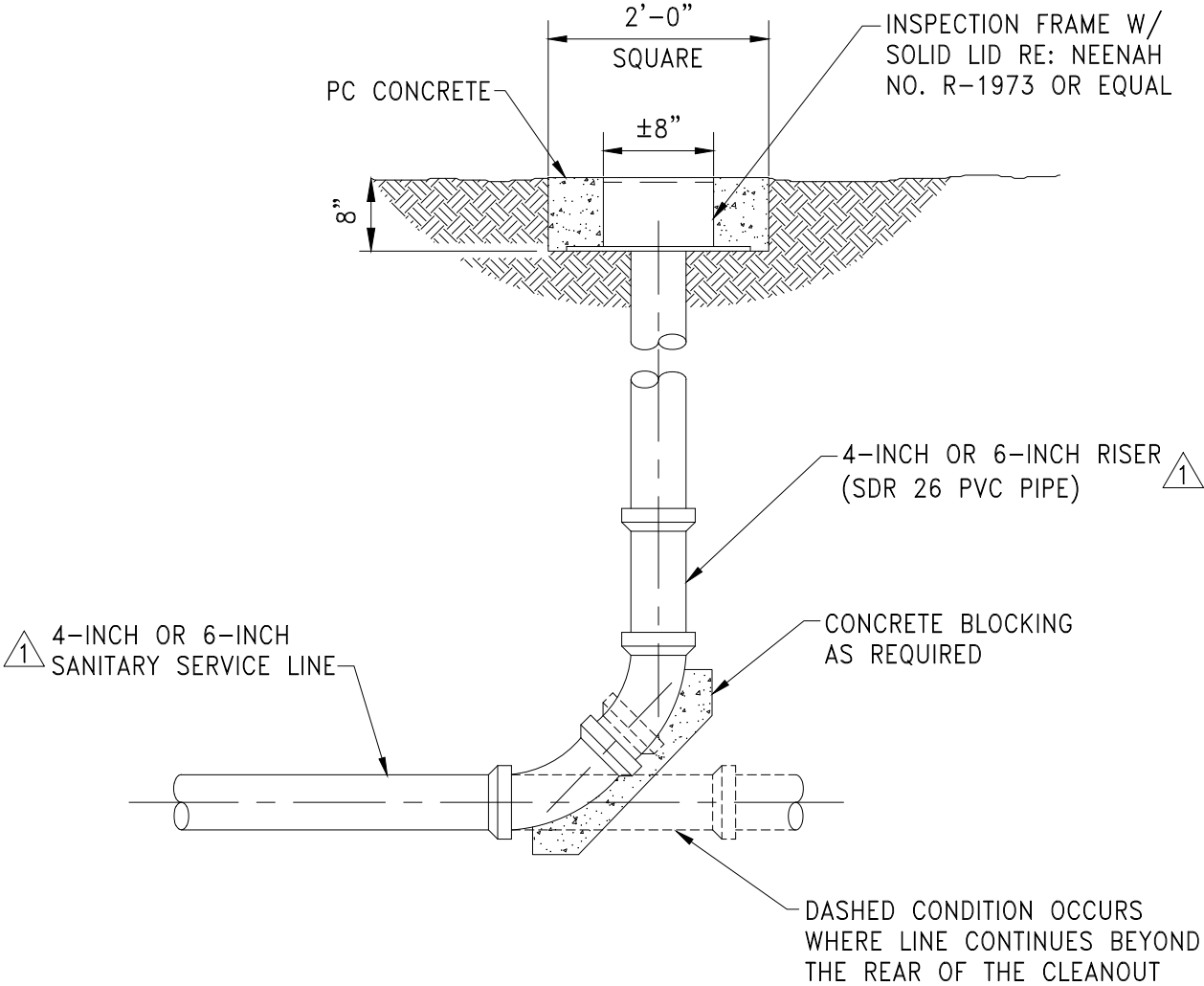
NOTES:

1. USE GASKETED 8x6 REDUCING WYE ON NEW CONSTRUCTION. USE APPROVED ROMAC GASKETED SADDLE W/ S.S. BANDS WHEN CONNECTING TO EXG. SEWER MAINS.
2. ALL SERVICE LINE PIPING & FITTINGS SHALL HAVE GASKETED OR GLUED JOINTS.
3. THE SERVICE LINE EXTENSION FROM THE PROPERTY LINE TO THE BUILDING SHALL BE PVC SDR 26 GASKET OR GLUED JOINT PIPE. MINIMUM SIZE ALLOWED IS 4-INCH (6-INCH RECOMMENDED). PROVIDE TRANSITION BUSHING AT BUILDING TO CONNECT TO SCH. 40 BUILDING SEWER.
4. AN APPLICATION FOR SERVICE MUST BE MADE WITH GMU BEFORE ANY WORK IS PERFORMED. THE APPLICANT MUST PAY ALL REQUIRED CONNECTION & IMPACT FEES.

1	04/23/09
REV.	DATE
DATE: FEB 2022	
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GRAVITY SERVICE SEWER RISER SECTION VIEW

GMU -19
GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA

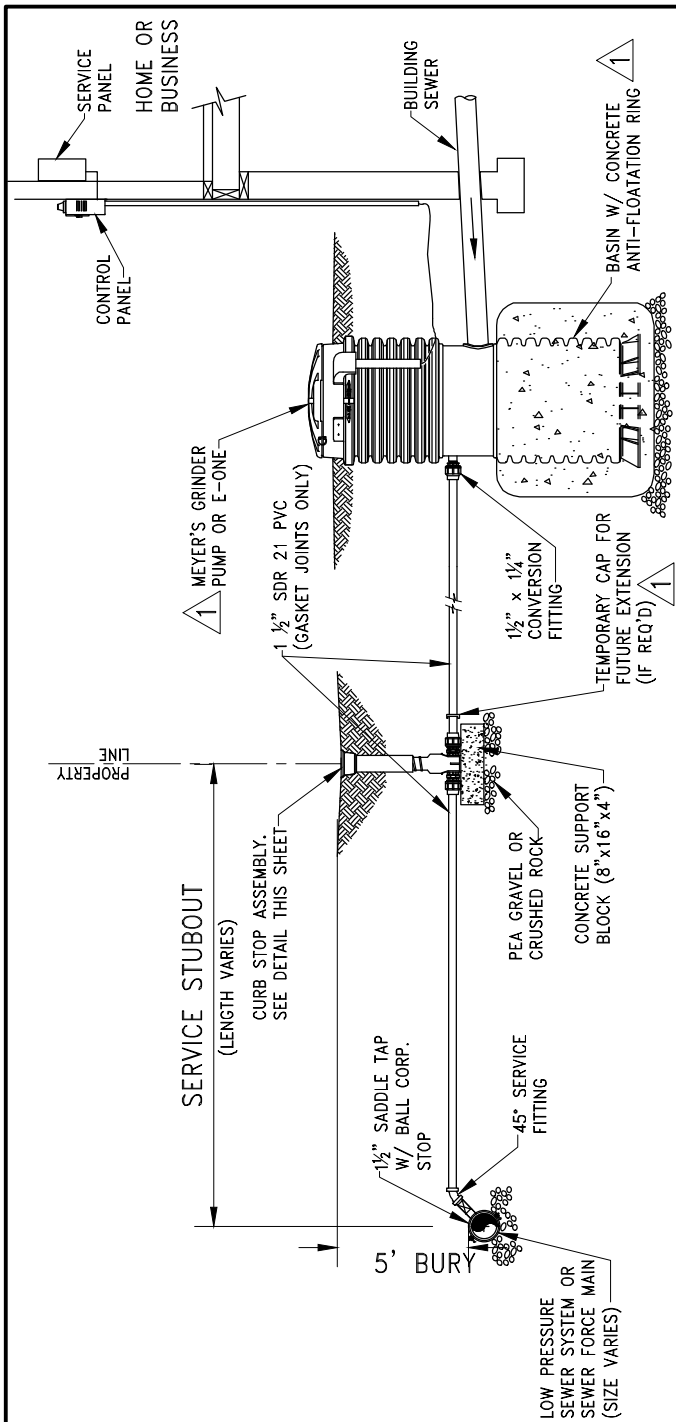


NOTE: SEWER CLEANOUTS ARE REQUIRED ON ALL NEW SERVICE LINES TO HOMES & BUSINESSES. LOCATE CLEANOUT AS CLOSE TO THE BUILDING AS PRACTICAL. CONFIGURATION MAY VARY DEPENDING ON LOCATION & DIRECTION OF SERVICE LINE.

1	04/23/09
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DATE: FEB 2022	
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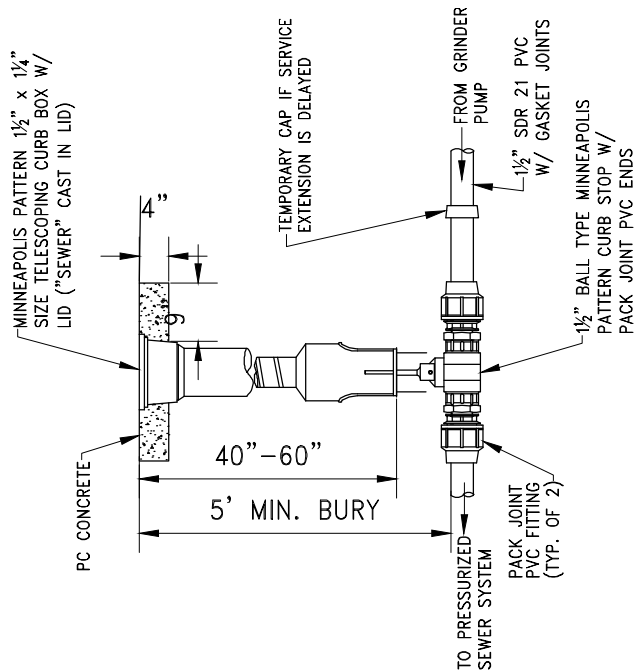
SEWER CLEANOUT DETAIL

GMU -20
GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



NOTES:

1. THE SERVICE STUBOUT INCLUDES A TAPPING SADDLE, TAP, CORPORATION STOP, SERVICE FITTING, PVC PIPE, CURB STOP & BOX, AND A TEMPORARY CAP (SEE NOTE 6).
2. 1 1/2-INCH DIA. PIPE SHALL BE SDR 21 PVC (200 PSI RATING) W/ GASKET JOINTS.
3. SADDLE SIZE VARIES ACCORDING TO SIZE OF MAIN TO BE TAPPED.
4. LOW PRESSURE SEWER SIZES ARE: 2", 2 1/2", 3" & 4".
5. FORCE MAIN SIZES ARE: 4", 6" OR 8".
6. A TEMPORARY CAP SHALL BE INSTALLED BEYOND THE CURB STOP ASSEMBLY UNTIL THE 1 1/2" SERVICE LINE IS EXTENDED TO THE GRINDER PUMP.
7. THE GRINDER PUMP SHALL BE MYERS WGL20 OR E-ONE GP2010. NO OTHER BRANDS ARE ALLOWED. GRINDER PUMP SHALL BE OBTAINED & PURCHASED FROM THE GMU.
8. SADDLES, CORPORATION STOP, SERVICE FITTING, CURB STOP & CURB BOX SHALL BE OBTAINED FROM THE GLENWOOD MUNICIPAL UTILITIES (GMU).
9. ARRANGEMENTS MUST BE MADE W/ THE GMU FOR PAYMENT OF ALL CONNECTION FEES AND IMPACT FEES. CONNECTION FEES MUST BE PAID AT THE TIME INSTALLATION OF THE SERVICE STUBOUT. IMPACT FEES MUST BE PAID, AND AN APPLICATION FOR NEW SEWER SERVICE MUST BE MADE, PRIOR TO INSTALLATION OF THE GRINDER PUMP.

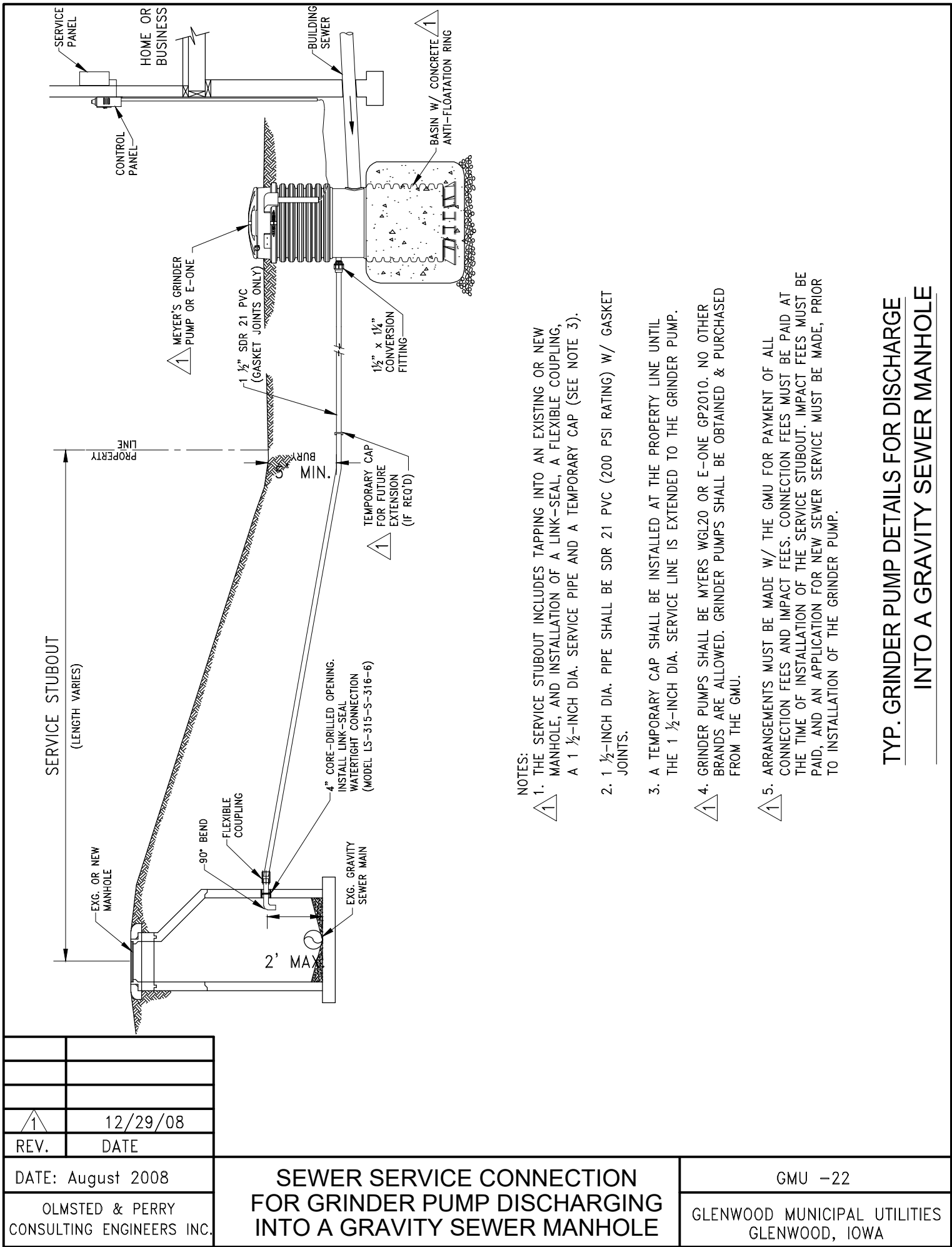


TYP. GRINDER PUMP DETAILS FOR DISCHARGE
INTO A PRESSURIZED SEWER SYSTEM

CURB STOP ASSEMBLY

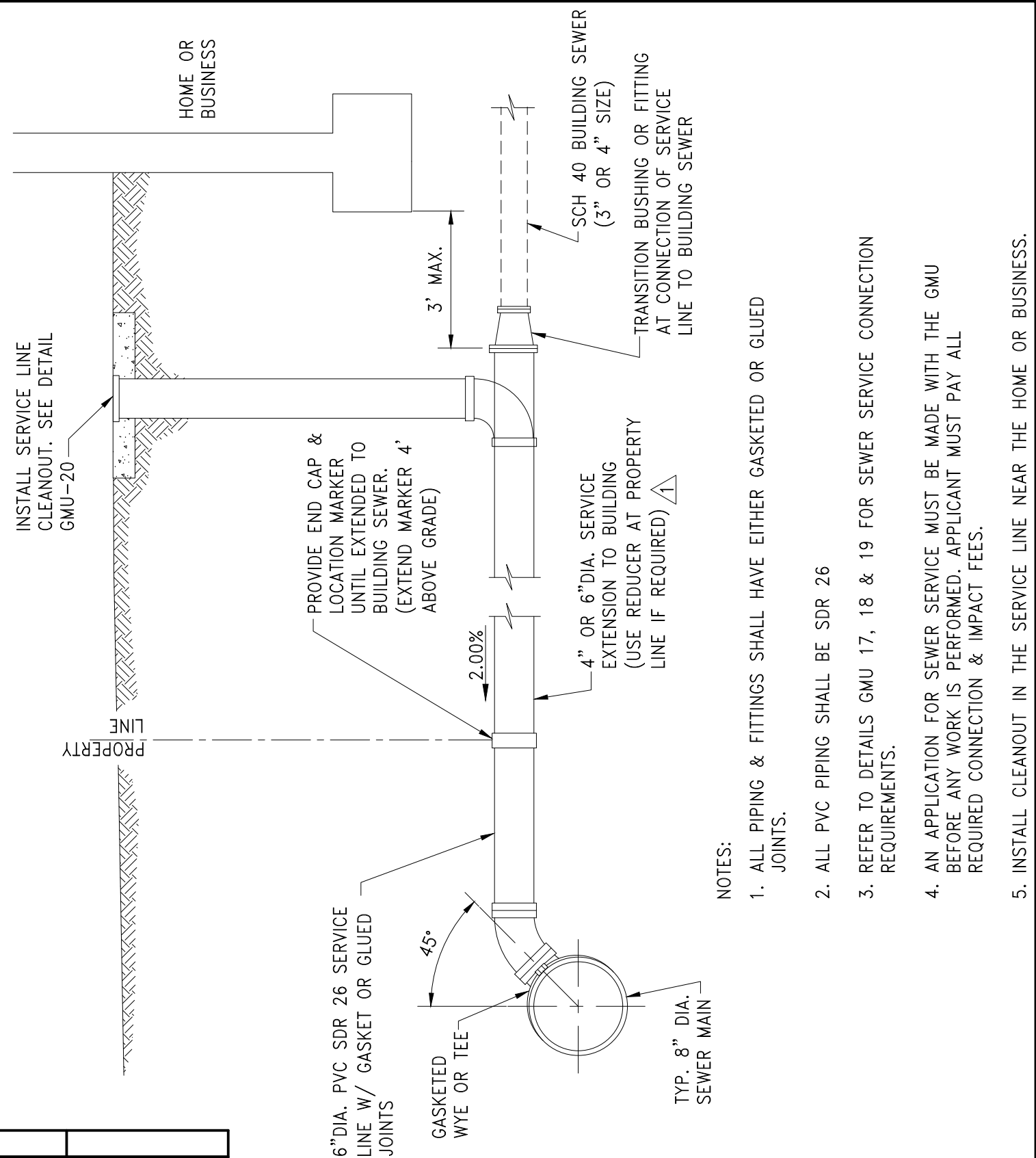
1	12/29/08
REV.	DATE
DATE: August 2008	
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SEWER SERVICE CONNECTION
FOR GRINDER PUMP DISCHARGING
INTO A PRESSURE SEWER MAIN



1	12/29/08
REV.	DATE
DATE: August 2008	
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SEWER SERVICE CONNECTION FOR GRINDER PUMP DISCHARGING INTO A GRAVITY SEWER MANHOLE		GMU -22
		GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA

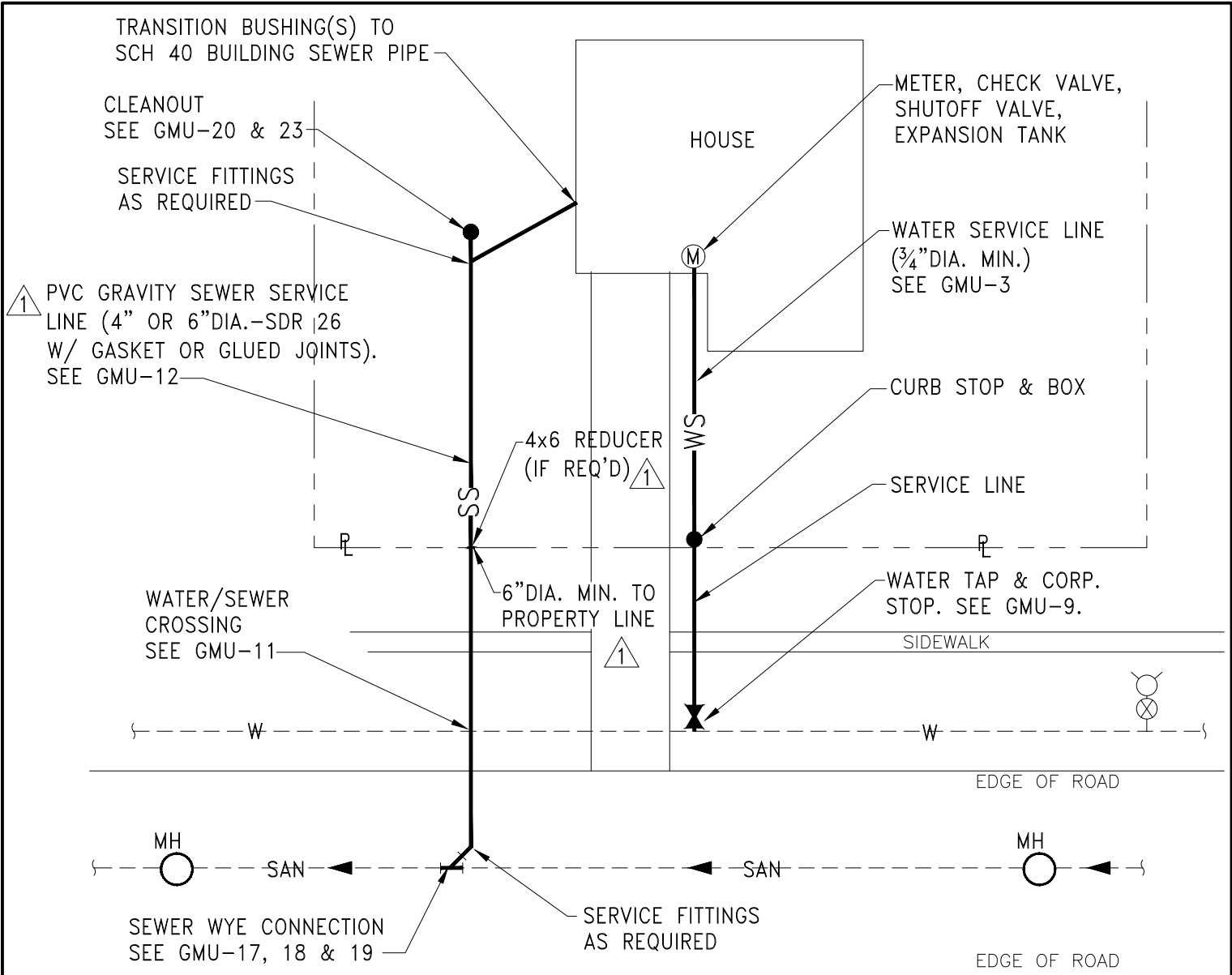


NOTES:

- 1. ALL PIPING & FITTINGS SHALL HAVE EITHER GASKETED OR GLUED JOINTS.
- 2. ALL PVC PIPING SHALL BE SDR 26
- 3. REFER TO DETAILS GMU 17, 18 & 19 FOR SEWER SERVICE CONNECTION REQUIREMENTS.
- 4. AN APPLICATION FOR SEWER SERVICE MUST BE MADE WITH THE GMU BEFORE ANY WORK IS PERFORMED. APPLICANT MUST PAY ALL REQUIRED CONNECTION & IMPACT FEES.
- 5. INSTALL CLEANOUT IN THE SERVICE LINE NEAR THE HOME OR BUSINESS.

1	04/23/09
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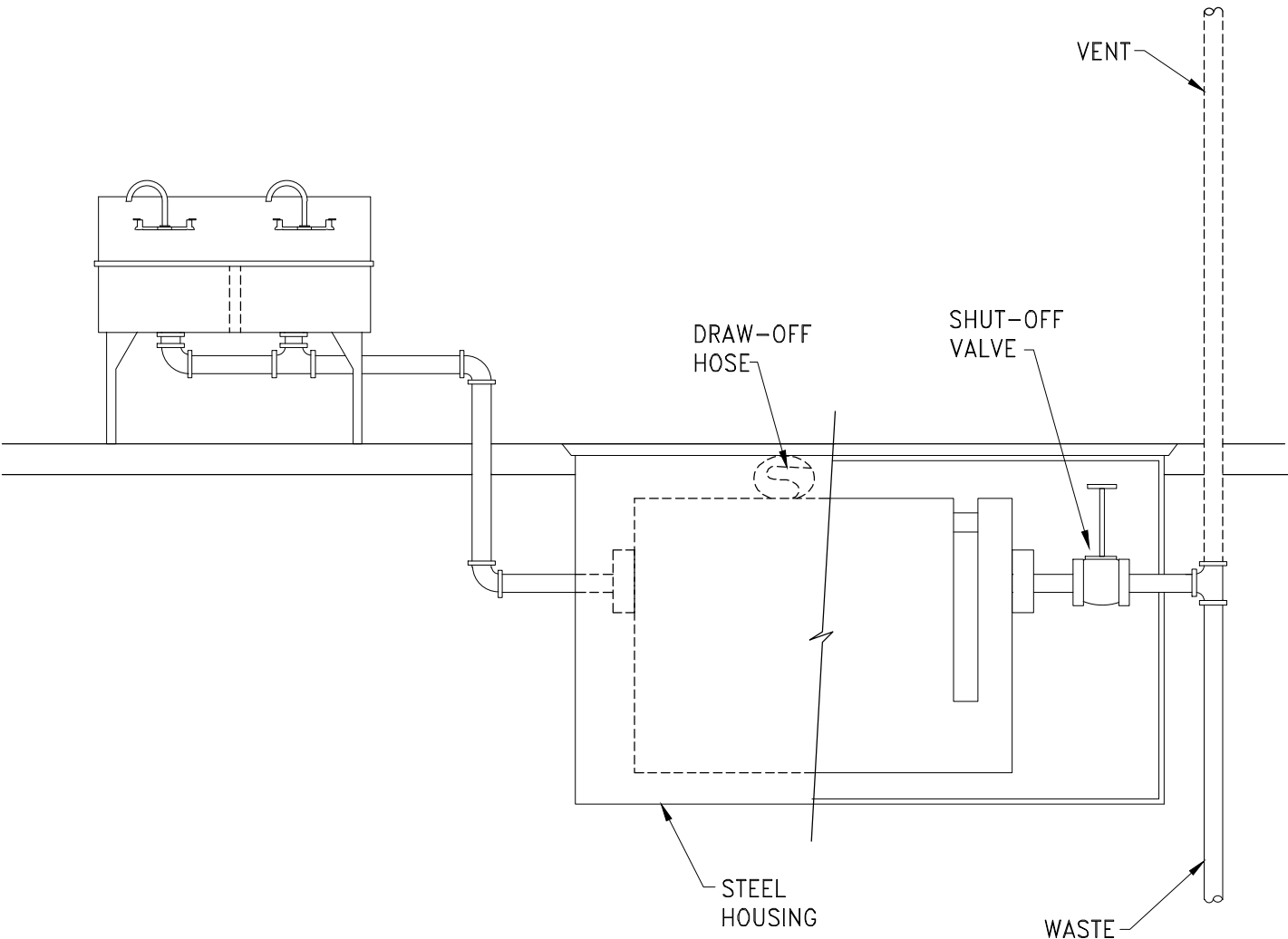
GRAVITY SEWER SERVICE LINE DETAILS	GMU -23
	GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



- NOTES:
- 1. THIS IS AN EXAMPLE LAYOUT & SERVICE LOCATION DETAIL, INTENDED TO SHOW MINIMUM REQUIREMENTS.
 - 2. REFER TO GMU POLICY AND REGULATION MANUAL FOR SERVICE DETAILS AND REQUIREMENTS.
 - 3. EACH UTILITY SERVICE TO A HOUSE OR BUSINESS SHALL BE IN SEPARATE TRENCHES (NO DUAL OR MULTIPLE UTILITIES OCCUPANCY WILL BE PERMITTED). SERVICES MUST BE AT LEAST 10 FT. APART IN THE STREET R.O.W.. TRENCHES MUST NOT COME CLOSER THAN 2 FT. APART IN THE PRIVATE LOT.
 - 4. SERVICE LINES THAT CROSS MUST HAVE MINIMUM VERTICAL CLEARANCES AS PER GMU-11.
 - 5. MINIMUM COVER ON WATER SERVICES SHALL BE 5 FT.. MINIMUM COVER ON SEWER SERVICES SHALL BE 4 FT..
 - 6. FOR SEWER CONNECTIONS REQUIRING GRINDER PUMPS, REFER TO GMU-22.
 - 7. SEWER SERVICE PIPE SHALL BE PVC SDR 26. ALL JOINTS SHALL BE GASKETED OR GLUED EXCEPT FOR TRANSITION BUSHING AT FOUNDATION.

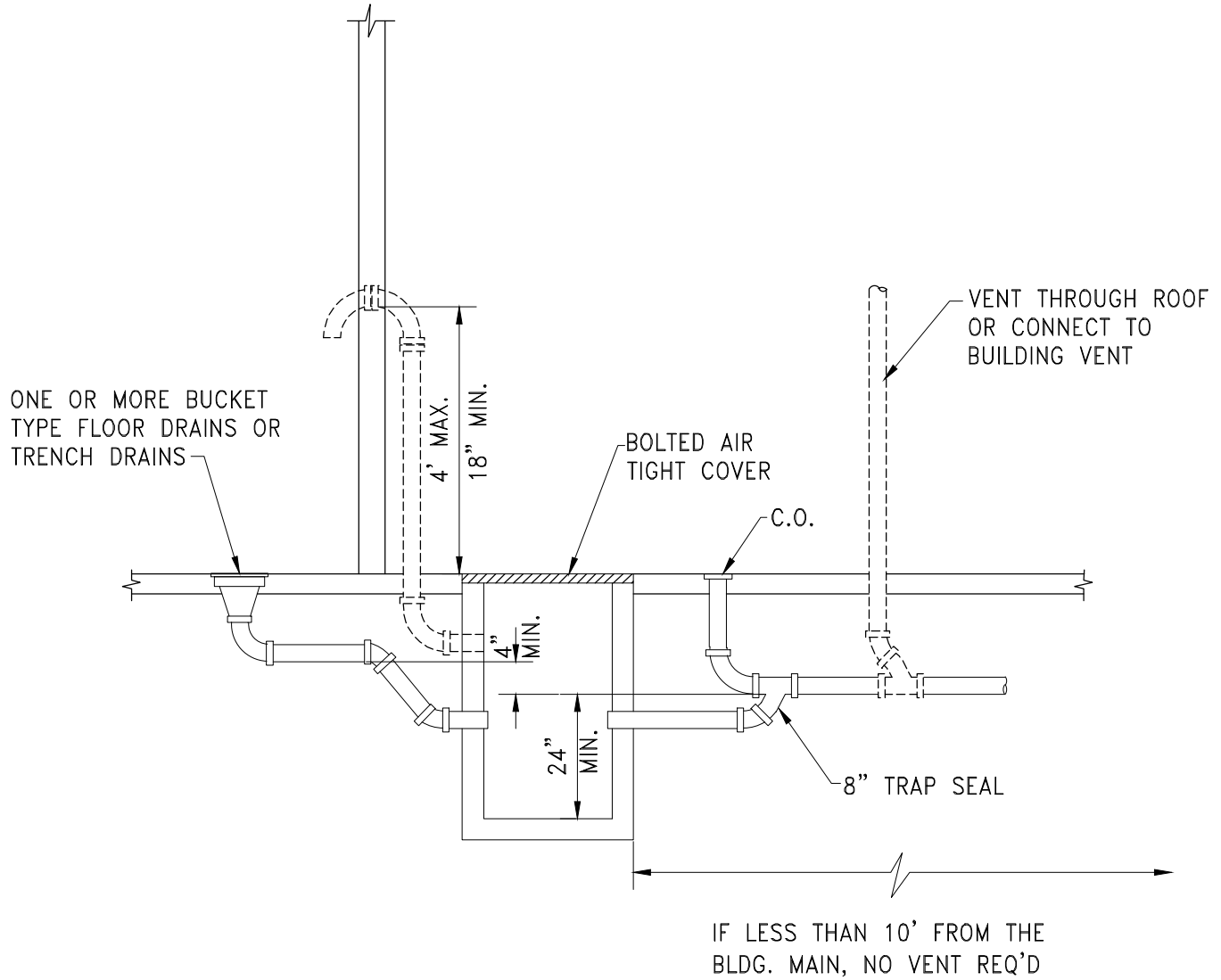
1	04/23/09
REV.	DATE
DATE: FEB 2022	
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UTILITY SERVICE LINE DETAIL		GMU -24
		GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



REV.	DATE
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OLMSTED & PERRY CONSULTING ENGINEERS INC.	

GREASE INTERCEPTOR TYPE A	GMU -25
	GLENWOOD MUNICIPAL UTILITIES GLENWOOD, IOWA



REV.	DATE

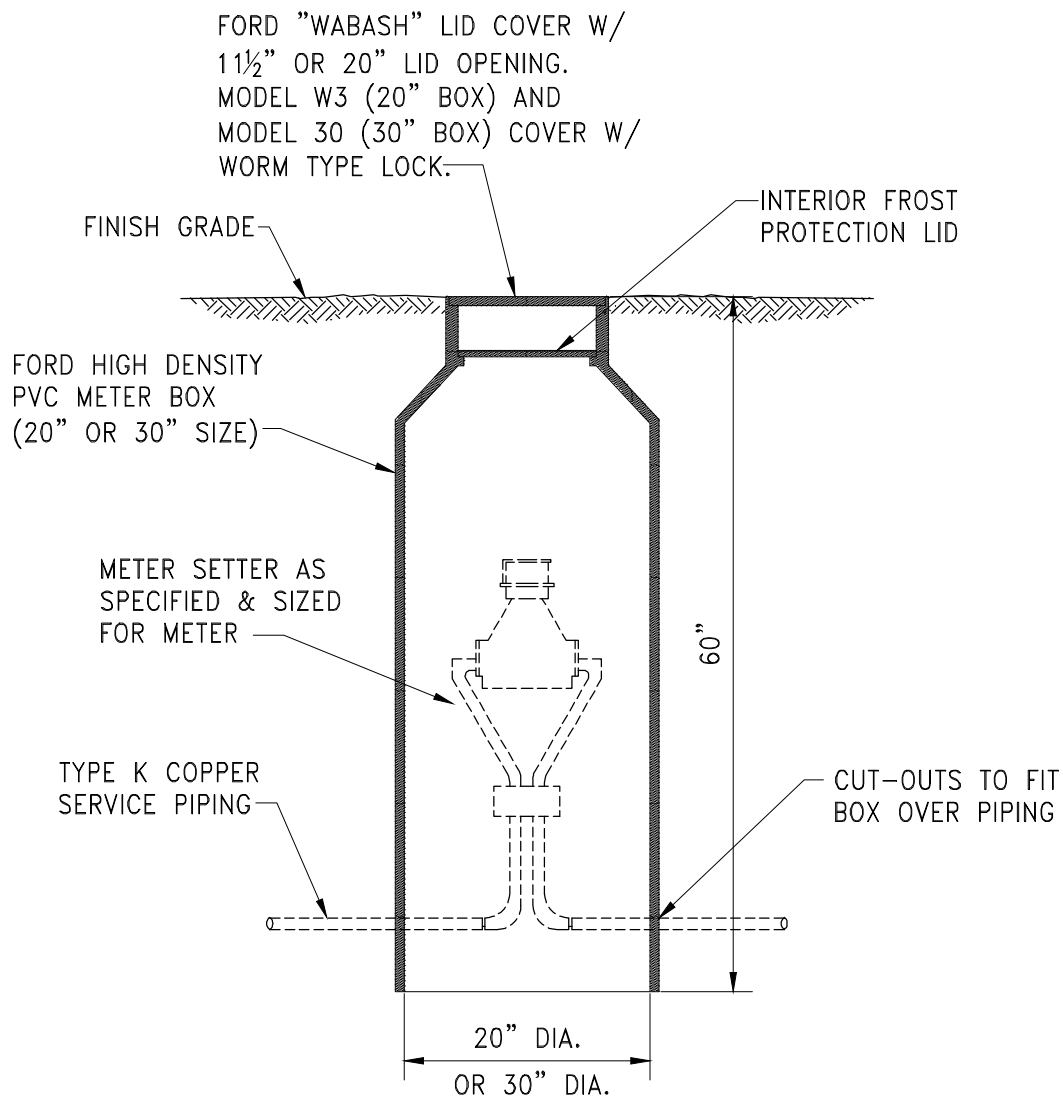
DATE: August 2008

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WASTE INTERCEPTOR TYPE I

GMU -26

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA



REV.	DATE

DATE: August 2008

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CONSULTING ENGINEERS INC.

TYPICAL OUTSIDE METER BOX

GMU -27

GLENWOOD MUNICIPAL UTILITIES
GLENWOOD, IOWA