

## MANHOLE NOTES

1. PIPES LAID THROUGH MANHOLES ARE TO BE CAREFULLY REMOVED TO ALLOW ACCESS TO SEWER MAIN AFTER INVERT IS CONCRETED.
2. INVERT TO BE SHAPED AND FINISHED SMOOTH BY HAND FLOAT AND TROWEL.
3. STANDARD 4 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE 10 IN. AND SMALLER IN DIAMETER AND LESS THAN 10 FT. DEEP.
4. STANDARD 5 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE 12 TO 15 IN. DIAMETER AND LESS THAN 20 FT. DEEP. EXCEPT FOR THE CONE, MANHOLE RISER DIAMETER REDUCTIONS ARE NOT PERMITTED.
5. STANDARD 6 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE GREATER THAN 15 IN. IN DIAMETER. EXCEPT FOR THE CONE, MANHOLE RISER DIAMETER REDUCTIONS ARE NOT PERMITTED.
6. A MAXIMUM OF 2 IN. OF MORTAR MAY BE USED TO BRING RING AND COVER TO GRADE.
7. IN STREET SECTION ONLY, GRADE RINGS AND GROUT MAY BE APPLIED TO A MANHOLE CONE TO ALLOW FOR FUTURE ADJUSTMENT. TOTAL DEPTH OF GRADE RING AND GROUT SHALL BE BETWEEN 4 IN. MINIMUM AND 12 IN. MAXIMUM. GRADE RINGS AND COVER SHALL BE SECURED IN A SET BED OF GROUT.
8. MANHOLE COVERS SHALL HAVE THE WORDS "SANITARY SEWER", "CITY OF WACO", AND THE "FLYING W" LOGO RAISED ON THE OUTWARD FACE.
9. STANDARD DETAIL S-13 SHALL BE USED WHERE MANHOLES ARE INSTALLED IN UNDEVELOPED AREAS, SUCH AS FIELDS.
10. PRECAST CONCRETE MANHOLES, WITH APPROVED COATING, ARE PERMITTED. THE MANHOLES SHALL CONFORM TO CITY OF WACO MANHOLE DETAILS AND TO ASTM C-478. CONTRACTOR SHALL SUBMIT DESIGN INFORMATION ON PRECAST MANHOLES STAMPED BY A PROFESSIONAL ENGINEER FOR CITY ENGINEER'S APPROVAL. IF PRECAST MANHOLES ARE USED, THEY SHALL BE PLACED ON A BEDDING OF 6 IN. MINIMUM OF 3/4 IN. WASHED ROCK SEE NOTE 17.
11. MEASUREMENT DEPTH FOR PAYMENT OF MANHOLES SHALL BE FROM THE FLOWLINE TO THE TOP SURFACE OF THE MANHOLE COVER.
12. VACUUM AIR TEST MANHOLES AFTER GRADE RINGS AND COVER RINGS ARE IN PLACE IN ACCORDANCE TO TESTING PROCEDURES IN ASTM #C1244. (COVER OMITTED FOR TESTING).
13. SURFACE REPLACEMENT SHALL BE INCLUDED IN THE PRICE FOR THE MANHOLE.
14. MANHOLE GRADE RINGS AND THE INTERIOR AND EXTERIOR SURFACES OF THE MANHOLE SHALL BE PRIMED WITH TNEMEC SERIES 218 FOLLOWED BY A COAT OF TNEMEC SERIES 436 AT 60.0 DRY MILS.
15. CAST IN PLACE MANHOLE WILL REQUIRE A SEALED DESIGN SUBMITTED BY A LICENSED PROFESSIONAL ENGINEER, AND APPROVED BY CITY ENGINEER. CAST IN PLACE BASE MUST BE MINIMUM 8 IN. THICK WITH #5 BARS @ 12 IN. OCEW AND SHALL EXTEND 1 FT. BEYOND MANHOLE.
16. MAXIMUM MANHOLE SPACING IS 450 LF.
17. 3/4 IN. WASHED ROCK SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATIONS FOR CONSTRUCTION ITEM A.2.a, CRUSHED STONE EMBEDMENT, OF SECTION 4.2 PART 2, EXCEPT THE GRADATION SHALL BE:

3/4 IN. WASHED ROCK	
SIEVE	PERCENTAGE RETAINED
1 1/2 IN.	0%
3/4 IN.	100%

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF WACO FOR ANY PURPOSE WHATSOEVER. THE CITY OF WACO ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



**ENGINEERING  
DIVISION**



REVISIONS			
NO.	COMMENTS	BY	DATE
1	REVISE NOTE 10; ADD CHART BELOW NOTE 17	MZ	02/25/2022
##	DESCRIPTION	FL	MO/DY/YEAR

DATE  
8/25/2021

**S-5**