

PLOTTED ON: 9/11/2017 T:\1024\JSD\Drawings\Roadway\Prelim P\F's\san sewer\1024\05 S-STD-02.dgn

FILE PATH: Z:\STANDARD DETAILS & WATER METER SPECIFICATIONS\UPDATED STANDARD DETAILS\2014\SEWERWORKING\SAN-SEW-STD-02-14-SIGNED.DWG

SANITARY SEWER STANDARD DETAIL

3. COMPACTION METHODS

COMPACTION METHODS MAY VARY DEPENDING ON THE MATERIAL OR AS APPROVED BY THE ENGINEER.

A. COHESIVE MATERIALS
COMPACTION OF COHESIVE MATERIALS MAY BE OBTAINED BY USE OF IMPACT TYPE EQUIPMENT IN CONFINED AREAS, PNEUMATIC TAMPERS AND ENGINE DRIVEN RAMMERS MAY ALSO BE USED. IN RELATIVELY NARROW TRENCHES, SELF-PROPELLED RAMMERS MAY BE USED. IN WIDE TRENCHES, SHEEPSFOOT ROLLERS MAY BE USED.

B. COHESIONLESS MATERIALS
COHESIONLESS MATERIALS ARE GRANULAR MATERIALS CLASSIFIED AS NON-PLASTIC. IN GENERAL, VIBRATORY EQUIPMENT MAY BE USED FOR PROPER COMPACTION. IN CONFINED AREAS, VIBRATORY PLATES MAY BE USED. FOR WIDER TRENCHES, VIBRATORY ROLLERS MAY BE USED.

C. FLOODING OR JETTING
WHEN APPROVED BY THE ENGINEER, MATERIALS MAY ALSO BE COMPACTED OR SETTLED BY FLOODING WHERE ADEQUATE QUANTITIES OF WATER ARE AVAILABLE FROM THE CITY'S WATER SYSTEM, PRIVATELY OWNED PONDS, CREEKS OR OTHER SOURCES LOCATED WITHIN THREE HUNDRED FEET (300') OF THE TRENCH. WATER SHALL BE USED TO PRODUCE A SEMI-FLUID MASS ALONG AND OUT OF THE TRENCH AT STREAM CROSSINGS OR OTHER PLACES OF ABRUPT CHANGES IN GROUND PROFILE. THE CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS WITH THE CITY FOR THE PURCHASE OF WATER FROM THE CITY WATER MAINS, AND WITH OWNERS OF WATER PROCURED FROM PRIVATELY OWNED WATER SOURCES. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED TO THE CONTRACTOR FOR SETTLING THE BACKFILL BY JETTING. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TRENCH EXCAVATION AND BACKFILL OR OTHER PAY ITEMS THE CONTRACTOR MAY ELECT.

4. COMPACTION REQUIREMENTS

ALL BACKFILL SHALL BE TESTED BY AN APPROVED LABORATORY FOR COMPLIANCE OF THE COMPACTION REQUIREMENTS.

5. SURFACE RESTORATION

UPON COMPLETION OF BACKFILLING PROCEDURES, THE CONTRACTOR SHALL REPLACE ALL SURFACE MATERIALS AND SHALL RESTORE PAVING, CURBING, SIDEWALKS, GUTTERS, SHRUBBERY, FENCES, SOO AND OTHER SURFACES DISTURBED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION BEFORE WORK BEGAN.

BACKFILLING REQUIREMENTS 2 of 2
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-08
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

FLEXIBLE PIPE INSTALLATION DETAIL (DIP, HDPE, PVC & RFP)

RIGID PIPE INSTALLATION DETAIL (RCP & VCP)

48" PIPE (OUTSIDE DIAMETER (O.D.))
RIGID CLASS 'B'
LOAD FACTOR = 1.3

PIPE INSTALLATION DETAILS
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-09
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

REBUILDING MANHOLES STANDARD DETAIL
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-10
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

ABANDONING MANHOLES STANDARD DETAIL
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-11
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

EMBEDMENT PLUG
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-12
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

- MANHOLES SHALL BE CONSTRUCTED AS SPECIFIED IN ASTM C-478.
- THE MINIMUM WALL THICKNESS IS SPECIFIED IN THE FOLLOWING TABLE AND SHALL NOT BE LESS THAN ONE-TWELTH (1/12) OF THE INTERNAL DIAMETER OF THE LARGEST CONE OR RISER OR FIVE-INCHES (5") WHICHEVER IS GREATER.

MANHOLE INTERNAL DIAMETER (FEET)	MINIMUM WALL THICKNESS (INCHES)
4	5
5	5
6	6
7	7
8	8

- MINIMUM DEPTH OF MANHOLE TO BE 6'-0".
- ALL LIFTING HOLES PROVIDED IN EACH SECTION SHALL BE REPAIRED WITH A MIXTURE OF CEMENT & SAND GROUT FIRMLY PACKED INTO ENTIRE ORIFICE.
- ALL INSIDE SURFACES OF PRECAST MANHOLES SHALL BE COATED WITH A DRY FILM THICKNESS OF NOT LESS THAN EIGHT (8) MILS OF TNEMC SERIES 69 HI-BUILD EPOXOLINE II, OR APPROVED EQUAL.
- WHEN DIRECTED BY THE ENGINEER, A SET OF THREE (3) CYLINDERS, THREE-INCHES (3") IN DIAMETER SHALL BE CUT FROM RANDOMLY SELECTED MANHOLES AND TESTED FOR COMPRESSIVE STRENGTH.
- ACCEPTANCE OF THE MANHOLE STRUCTURE SHALL BE BASED ON THE CONFORMANCE AND PERFORMANCE OF MATERIALS REQUIRED IN ASTM C-478 AND THE ENGINEER'S INSPECTION OF THE INSTALLED PRODUCT.

PRECAST REINFORCED CONCRETE MANHOLE TRANSITION SECTION
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-13
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

NOTE:
 1. ALL CONCRETE FOR MANHOLE STRUCTURE AND BASE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
 2. PRECAST MANHOLES SHALL BE CONSTRUCTED AS PER ASTM C-478.
 3. ALL INSIDE SURFACES OF PRECAST MANHOLES SHALL BE COATED WITH A DRY FILM THICKNESS OF NOT LESS THAN EIGHT (8) MILS OF TNEMC SERIES 69 HI-BUILD EPOXOLINE II, OR APPROVED EQUAL.
 4. MINIMUM DEPTH OF MANHOLE TO BE 6'-0".

REINFORCED CONCRETE PRECAST MANHOLE BASE SECTION
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-14
 OKLAHOMA CITY UTILITIES DEPARTMENT

SANITARY SEWER STANDARD DETAIL

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MANHOLE INTERNAL DIAMETER (FEET)	MINIMUM WALL THICKNESS (INCHES)
4	5
5	5
6	6
7	7
8	8

REINFORCED CONCRETE PRECAST 4 FT DIAMETER MANHOLE CONE
 03/13/14 DATE: ERIC J. WENGER, P.E., CITY ENGINEER APPROVED BY: MARGSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR DATE: 3/11/14 S-15
 OKLAHOMA CITY UTILITIES DEPARTMENT

The City of Oklahoma City
 Utilities Department
 Engineering Division

SANITARY SEWER STANDARD DETAILS

NO.	DATE	DESCRIPTION

DATE: 03/14/14
 DRAWN BY: JDS
 CHECKED BY: MWS/EJW
 SCALE: AS SHOWN
 SHEET NUMBER: S-STD-02

OKLAHOMA CITY BOULEVARD OKLAHOMA CO.

MacArthur
 Associated Consultants
 25 N.W. 146th Street - Edmond, OK 73013 - 405.848.2471
 C.O.A. No. 699 Renewal Date: 06-30-19

OKLAHOMA CITY
 S-STD-02

Project No. SC-0997 Sheet No. 69C
 STATE JOB NO. 17428(88)