

**2016 List of Changes to the
2005 City of Wyoming Standard Specifications for Construction**

10.02 Materials - All Materials shall comply with the materials identified in Section 7 of the City of Wyoming Standard Specifications. Material shall meet the minimum compression strength of 3,500 psi in 28 days per Mix Design A in Section 7.04.01 Concrete Division at a minimum.

10.04 Method of Measurement:

~~(a) Concrete sidewalk will be measured in place by area in square feet, and drive approaches will be measured in place by area in square yards, at the specified thickness, unless otherwise provided.~~

~~(b) Concrete walk ramp will be measured in place by area in square feet at the specified thickness, unless otherwise provided. The limits of walk ramp shall be the area measured in square feet from the radius point of tangency on the curb. All walk/ramp work within the radius points of intersection shall be considered walk ramp.~~

(a) Concrete sidewalk will be measured in place by area in square feet at the specified thickness unless otherwise provided.

(b) Concrete sidewalk with integral curb will be measured in place by area in square feet at the specified thickness unless otherwise provided. Varying height of integral curb is included within the unit price of the item.

(c) Concrete drive approaches will be measured in place by area in square yards, at the specified thickness, unless otherwise provided.

(d) Concrete walk ramp will be measured in place by area in square feet at the specified thickness, unless otherwise provided. The limits of walk ramp shall be the area measured in square feet from the back of curb to the top of the flared ramp. All other walk is considered sidewalk and shall be paid as such.

(e) Non-reinforced concrete shall be measured in place by area in square feet at the specified thickness unless otherwise provided.

10.05 Basis of Payment:

~~Concrete sidewalk and drive approaches will be paid for at the contract unit price per square feet and square yard, which price shall be payment in full for furnishing all labor, equipment and materials, placing subbase if required, and performing the work complete including curing and backfilling. Truncated domes plates placed at ADA walk ramps~~

~~shall be paid per pound. Any four inch (4") flat work shall be paid under 4" Non-reinforced concrete. Concrete A.D.A. ramps shall be paid as walk ramps.~~

Concrete sidewalk, concrete sidewalk with integral curb, concrete walk ramps, non-reinforced concrete, and drive approaches will be paid for at the contract unit price per square feet and square yard. Unit prices for said work shall be payment in full for furnishing all labor, equipment and materials, placing subbase if required, all associated grading and performing the work complete including curing and backfilling.

Truncated domes plates placed at ADA walk ramps shall be paid per lineal foot.

Any four inch (4") concrete flat work not covered by other items shall be paid as 4" Non-reinforced concrete.

Concrete A.D.A. ramps shall be paid as concrete walk ramps per square foot.

14.03.01 Laying Sewer Pipe

- (a) General – The construction shall begin at the outlet end and proceed toward the upper end. The pipe shall be carefully laid in the prepared trench to the line and grade as given by the Engineer, with the spigot end downstream. The bottom of the trench shall be so shaped to permit a firm and even bearing along the barrel of the pipe. A sufficient sand cushion shall be provided in clay soil as specified in Section 13.03.01. The pipe shall be fitted close and tight and with smooth inverts.

Unless otherwise shown on the plans, all pipe shall be laid straight ~~between changes in alignment~~ and at a uniform grade between ~~changes in grade~~ manholes. Except where bends are installed adjacent to manholes, all lines shall be laid so that each section between manholes ~~will lay~~ is true to line and grade and can be checked by laser.

- (c) Pipe Cleaning – The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All joint contact surfaces shall be kept clean until the jointing is completed.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. No debris, tools, clothing or other materials shall be placed in the pipe.

Whenever pipe laying is stopped, the end of the pipe shall be closed with ~~an end-a~~ plug, cap or end board closely fitting the end of the pipe.

- (f) Laterals – In sanitary sewers, the wye openings for house connections shall be placed at the locations shown on the plans or as indicated by the Engineer, and the pipe shall be laid from the wye to the property line. These laterals shall be laid at right angles to the street line unless otherwise directed and shall be laid on a uniform line and grade from the sewer opening to the property line. The laterals

shall be laid ~~on a slope not to~~ at a minimum slope of (1.0%) percent and the maximum slope shall not exceed two (2') feet vertical to one foot horizontal. ~~and~~ Each lateral shall be laid so that it is eight and one-half (8-1/2') feet deep from the proposed top of curb elevation ~~to~~ or ground elevation to the invert of the lateral, whichever is lowest, at the property line, unless otherwise ordered by the Engineer. The upper end of the lateral shall be closed with an acceptable stopper sealed in place by the same joint and material as used for the lateral.

- (h) Sewer Tap – When tapping into a larger sewer, the opening in the larger sewer shall be no larger than is necessary to admit the new sewer. When the larger sewer is of reinforced concrete construction, the reinforcing steel shall be carefully cut off to the proper distance to avoid ~~spilling~~ ~~spalling~~ the concrete. All broken or surplus material shall be removed from both sewers. A T-saddle or other approved connection shall be installed where a branch opening in an exiting sewer does not exist. The connection and encasement shall be as shown in the standard details. The cut-in pipe shall not extend into the inner wall of the pipe cut into. The joint shall be sealed with 1:2 mortar, and with a sufficient bead or fillet of such mortar to insure a solid connection. When so directed by the Engineer, the Contractor shall place such a bead of fillet on the inside as well as on the outside of the larger sewer.

14.03.07 Acceptance Tests – Acceptance tests will be conducted by the Engineer to determine the acceptability of the sewers as constructed. The Contractor shall furnish suitable assistants to help the Engineer during the conduction of the tests.

All defects in the sewers shall be repaired to the satisfaction of the Engineer.

- (a) Lamping Line and Grade – Each section of sewer line between manholes is required to be straight and uniformly graded. Each section will be ~~lamped~~ ~~checked by laser, as directed by the Engineer.~~
- (b) Exfiltration – The Contractor shall conduct an exfiltration test on each reach of pipe between manholes if so directed by the Engineer.

Ex-filtration tests shall be conducted by blocking off the other openings in the manhole at each end of the reach to be tested, filling the line and the manholes with water two (2') feet above the top of the pipe at the upper manhole and measuring the water required to keep that level. The total ex-filtration shall not exceed ~~two one~~ hundred (2100) gallons per inch of inside diameter per mile of pipe per day. The ex-filtration test shall be maintained on each reach for at least two (2) hours and as much longer as necessary, in the opinion of the Engineer, to locate all leaks. An allowance of ten percent of gallonage shall be permitted for each additional two (2') feet head over a basic two (2') feet minimum internal head at the lower manhole.

- (c) Air Testing – A low pressure air test may be performed in lieu of the ex-filtration test for completed sections of sewer-, ~~at the discretion of the Engineer.~~ If the

sewer is tested by an air test, manholes shall be tested separately by means of the ex-filtration test.

The low pressure air test shall be performed on each section of pipe between manholes. The section of pipe being tested shall be sealed at each manhole using inflatable plugs or other approved devices. All plugs shall be adequately braced when required. An air supply with the necessary valves or gauges shall be provided for the test. Gauges shall have minimum division of 0.10 psi and shall have an accuracy of plus or minus 0.40 psi.

Where the expected water table level, as determined by the soil borings, is above the sewer elevation, the pressure testing limits for a dry trench condition shall be as follows:

- (1) Where the expected water table level is zero (0') feet to seven (7') feet above the pipe, the test pressure limits will be 3.5 to 2.5 psig.
- (2) Where the expected water table level is over seven (7') feet above the pipe, the test pressure limits will be 4.5 to 3.5 psig.

In a wet trench condition where the water table has risen above the pipe prior to testing, the air testing limits shall be determined by adding to the original 3.5 psig an additional .433 psig for each foot the water table is above the crown of the pipe, or as determined in the dry trench condition, whichever is greater.

The air pressure in the section under test shall be raised to an initial pressure of 0.5 psig above the beginning test pressure and allowed to stabilize for a minimum of five (5) minutes. Air shall be added during this stabilization period as required to maintain the pressure at or above the beginning test pressure.

The rate of air loss shall be determined by measuring the time interval required for the internal pressure to decrease 1.0 psi within the limits previously specified.

Minimum time interval for satisfactory test shall be in accordance with the table following this specification.

In the event the Engineer determines that the results of the air test are inconclusive because of visible infiltration, unsatisfactory or incomplete records, or improper application of testing methods or equipment or other similar reasons, he may require either an exfiltration test or an infiltration test for the section or sections of sewer involved.

Refer to [Table 14A \(new table\)](#) at the end of the section for Minimum Holding Times required.

- (d) Infiltration – In sanitary sewers, weirs will be placed temporarily for testing purposes in such manholes as necessary to measure the amount of infiltration, in which work the Contractor shall give the Engineer all reasonable assistance together with the necessary materials. In the event the allowable limit of infiltration is exceeded in any item of the contract, the Engineer shall order the reconstruction of the defective portion of the sewer.

The allowable amount of infiltration for sanitary sewers and laterals is shown in the following tabulation, based upon ~~two~~ one hundred (2100) gallons per inch of diameter per mile of sewer per day:

ALLOWABLE INFLTRATION/EXFILTRATION

<u>Diameter of Sewer (in)</u>	<u>Infil./Exfil Gal/Day/Foot</u>	<u>Diameter of Sewer (in)</u>	<u>Infil./Exfil Gal/Day/Foot</u>
6"	.228 .113	30"	1.140 .568
8"	.304 .151	36"	1.368 .681
10"	.380 .198	42"	1.596 .795
12"	.456 .227	48"	1.824 .909
15"	.570 .284	54"	2.052 1.022
18"	.684 .341	60"	2.280 1.136
21"	.798 .397	66"	2.508 1.250
24"	.912 .454	72"	2.736 1.363
27"	1.026 .511		

- (f) Deflection Test – All flexible pipe with less than two-hundred (200 psi) pounds per square inch stiffness and all flexible pipe with greater than twelve (12') feet of cover shall be tested for deflection. Deflection testing shall be conducted at least 30 days after compaction of utility trench using a rigid ball or mandrel. Any pipe segment with deflection greater than 5% shall be considered unacceptable and shall be relaid and retested by the Contractor. The cost of deflection testing is considered to be included in the price bid for the sewer.

15.04.03

Interruption of Water Service – The Contractor shall not operate any valve in any watermain in service, excepting that in case of emergency he shall, with the approval and under the direction of the Engineer, operate such valves as directed to relieve the emergency. In case of emergency shutoff, the Contractor shall immediately notify the Fire Department, City Water Department and consumers affected, of the time and probable duration of each shutoff.

In other cases, the Contractor shall request the Engineer to notify the Fire Department, City Water Department, and consumers affected. Said notification shall be at least twenty four (24) hours prior to the shutoff. The Contractor may be asked to help in notification of residents affected. The City Public Works Department will then have valves opened and closed on mains in service where necessary, in conjunction with the

Contractor's work, subject to such limitation as to time and place as requirements of the water system shall impose.

The City of Wyoming shall provide all temporary water services to houses as required. The Contractor shall be responsible for only the hoses that he damages. In no instance shall the Contractor connect or make a temporary water service connection.

The Contractor shall be responsible for all costs for City of Wyoming crews to locate and operate valves, either to shut off or turn on watermain as a part of construction associated with the project. Contractor shall be responsible for all costs associated with City of Wyoming performing temporary shut downs, emergency or planned as part of construction.

All watermain alterations or other work which necessitates the shutting off of watermains shall be performed in accordance with the following schedule:

(a)	<u>Residential Area</u> (no schools affected) Monday - Saturday	<u>Shut-off</u> 8:00 a.m. 1:00 p.m.	<u>Turn-on</u> 11:30 a.m. 4:30 p.m.
(b)	<u>Residential Area</u> (schools affected) Monday - Friday	7:00 p.m.	6:00 a.m.
	Friday night to Saturday morning	7:00 p.m.	7:00 a.m.
	Saturday only	8:00 a.m. 1:00 p.m.	11:30 a.m. 4:30 p.m.
(c)	<u>Commercial or Industrial Area</u> – Saturday only or at off-peak business hours. All businesses are to be contacted as to most convenient time for shutoffs.		

15.04.11 Hydrostatic Testing, Chlorination and Bacteriological Testing – Please refer to the most recent testing procedures located in Appendix A at the end of Section 15. Appendix A is the required procedure that shall be followed for pressure testing and chlorinating new watermains.

All watermains will be pressure tested and chlorinated by the City of Wyoming staff. At no time shall the Contractor attempt to test or chlorinate watermain. Contractor shall be responsible for providing all hoses and manpower necessary for City of Wyoming to test watermain. Contractor will be billed for all costs associated with the City of Wyoming to pressure test and chlorinate watermain per Section 15 Appendix A.

Division 15 Watermains – Appendix A (Procedure for Pressure Testing and Chlorination of New Watermain in the City of Wyoming: All new testing procedures per ANSI/AWWA C651-14 (Disinfecting Watermains Standard).

ENGINEERING DETAIL MODIFICATIONS

- I-26 RESIDENTIAL DRIVE APPROACH – Updated thickness dimensions
- I-27A COMMERCIAL/INDUSTRIAL DRIVE APPROACH – Updated for consistency
- I-27B COMMERCIAL DRIVE APPROACH W/ SIDEWALK ACROSS - Updated for consistency
- I-28A DEPRESSED SIDEWALK/DRIVE APPROACH – Updated per current MDOT ADA standards
- I-28B DEPRESSED SIDEWALK/DRIVE APPROACH – Updated per current MDOT ADA standards
- I-28C SIDEWALK W/ INTEGRAL CURB – New detail
- I-29B GROUTED BROKEN CONCRETE RETAINING WALL – Corrected typos
- I-30A SIDEWALK RAMP TYPE I – Updated per current MDOT ADA standards
- I-30B SIDEWALK RAMP TYPE I – Updated per current MDOT ADA standards
- I-30C SIDEWALK RAMP TYPE II – Updated per current MDOT ADA standards
- I-30D SIDEWALK RAMP TYPE II – Updated per current MDOT ADA standards
- I-30E SIDEWALK RAMP TYPE II – Updated per current MDOT ADA standards
- S-7 PRECAST SANITARY SEWER MANHOLE – New detail to comply w/ MDEQ requirements
- W-25 TESTING & CHLORINATION CONNECTIONS – New detail