

METROPOLITAN DISTRICT GENERAL UTILITY NOTES
For Meridian Service Metropolitan District
Last Modified June 19, 2012
MSMD Board Approved July 11, 2012

1. All sanitary sewers, under drain, potable water, reclaimed water, raw water and storm drain systems shall be constructed in conformance with the current Meridian Service Metropolitan District (MSMD) specifications. MSMD specifications hereinafter shall be consistent with the 2010 Colorado Springs Utilities Specifications (CSUS) unless otherwise noted and approved.
2. All plans on the job site shall be signed and approved by MSMD and MSMD's Engineer. Any revision to the plans shall be approved by MSMD and MSMD's Engineer and so noted on the plans.
3. Sanitary sewer main lengths are MH center to MH center. All sanitary sewer pipes shall be SDR 35 PVC or equal and have a minimum cover depth of 5'-6" installed with a coated 12 gauge U.F. tracer wire. Use pre-manufactured in-line PVC push-on wyes for sanitary sewer lateral connections to the sanitary sewer main. Tapping saddles may only be used for tapping pre-existing sanitary sewer mains. All lots shall receive a 4" sanitary sewer service lateral. The end of each sanitary sewer service lateral shall be "located" with a 2" x 4" piece of wood from the end of the service and extending 4' above ground directly above the end of the sanitary sewer lateral with the 2'x4' painted green. Extend the coated 12 gauge U.F. tracer wire to end of each sanitary sewer lateral up to the surface coiled around the 2" x 4" marker. All tracer wire connections shall be water tight style of approved electrical connectors such as a DBY (Direct Bury Yellow) or equal
4. All sanitary sewer manholes shall be minimum five (5) foot in diameter. All manhole joint exteriors shall be wrapped with minimum 12" wide Con-Seal CS-212 applied over appropriate MSMD approved joint primer. The whole exterior of the manholes shall be coated with concrete water proofing tar and applied per CSUS.
5. The under drain system shall be passive, water tight, no perforated pipe, and the main line size shall be designed by the engineer. All under drain pipes and fittings shall be SDR 35 PVC, or MSMD approved equal, installed per the same installation standards as outlined by CSUS for sanitary sewer systems. The under drain system at each sanitary sewer manhole shall contain 6" clean-outs in each sewer main direction per MSMD standard detail. All lots shall receive a white 3" under drain service lateral adjacent to the sanitary sewer service lateral. Testing of the under drain system will consist of visual inspections for water in the system. The allowable water in the under drain system shall be the same as for sanitary sewer systems as per CSUS. If excess water is observed in the under drain system, the contractor shall locate the source of water infiltration and repair as necessary. Under drain main lines shall drain, where ever possible, into below grade MSMD approved under drain dispersion pits. Under drain dispersion pits shall be designed with overflow lines for future installation of additional dispersion pits as needed. When installing dispersion pits there shall be no underground water in the dispersion pit.
6. All water main pipes shall be AWWA C900 PVC, pressure class 200, installed with a maximum joint deflection of 3 degrees, or MSMD approved equal. All water main fittings shall have mechanical restraints and thrust blocks. All water main pipes shall have a minimum cover depth of 5'-6" installed with a coated 12 gauge U.F. tracer wire. All lots shall receive a minimum ¾" copper water service installed per approved plans and MSMD specifications including a Romac 202 BS or equal tapping saddle, and a curb stop valve inside a curb stop box at the end of the water service. All 100' or longer water services shall be upsized to a 1" copper water service. All 1/3 acre or greater lots shall receive a 1" minimum copper water service. All curb stop valves shall be ¾" unless otherwise noted on the plans. All 1" water services shall receive a 1" inlet by ¾" outlet curb stop valve manufactured by AY McDonald model number 6104 (flare x flare) or equivalent. The curb stop valve and box at the end of each water service shall be "located" with a

8' long 2" x 4" piece of wood, painted blue, buried 4' into the ground and 4' sticking above ground directly behind the curb stop valve and box. All tracer wire connections shall be made with DBY (Direct Bury Yellow) water tight style electrical connectors or equal.

7. All NON-Potable water mains shall be AWWA non-potable standard (purple pipe) C900 PVC, pressure class 200 or greater installed with a maximum joint deflection of 3 degrees, or MSMD approved equal. All water main fittings shall have mechanical restraints and thrust blocks. All water main pipes shall have a minimum cover depth of 5'-6" installed with a coated 12 gauge U.F. tracer wire.
8. All potable water valves shall be open clockwise with the valve operating nut installed low near the main line and painted red. All potable and raw water valves not within paved streets shall be marked with carsonite markers. All raw water valves shall be open counterclockwise with the valve operating nut installed high within 1' from the surface and painted black.
9. All NON- Potable water valves shall be open counter Clockwise with a valve extension, extending to within 1' of the surface and painted PURPLE with an open direction arrow.
10. All Potable Water, Raw Water and Non-Potable water valves 12" or greater shall be butterfly valves with a side operating nut. The operational depth of the Potable water valves shall not exceed 6' in overall depth nor shall it be closer to the surface than 4'
11. All materials and workmanship shall be subject to inspection by MSMD. MSMD reserves the right to accept or reject any such materials and workmanship that does not conform to MSMD standards and specifications.
12. Fire hydrant location shall be reviewed and approved by the applicable Fire Department Authority.
13. Fire hydrants shall be AVK model 2780 nostalgic open right with a 1 1/2" pentagon operating nut and service caps, standard 4" pumper nozzle along with two 1 1/2" side nozzles.
14. All water and sanitary sewer service lateral locations shall be clearly marked by stamping an "S" for sewer and a "W" for water on the curb face at each service lateral location.
15. All ductile iron pipes, fittings, valves and fire hydrants shall be wrapped with polyethylene tubing, double bonded at each joint and electrically isolated. Bonding and anode connections shall be thoroughly coated with bituminous coatings.
16. All ductile iron pipe and fittings less than 12 inches in diameter shall have cathodic protection using two no. 6 wires with 17 lb. Magnesium anodes every 400 feet and 9 lb. Magnesium anodes at each fitting. All ductile iron pipe and fittings 12 inches and greater shall have cathodic protection using two no. 6 wires with 17 lb. Magnesium anodes every 300 feet and 9 lb. Magnesium anodes at each fitting. Cathodic protection and anodes shall be installed per MSMD specifications.
17. All sanitary sewer mains, sanitary sewer laterals and water main lines (PVC & ductile iron) shall be installed with coated 12 gauge U.F. tracer wire per MSMD specifications. Sanitary sewer tracer wire shall be extended into the manholes and wrapped around the top step of the manhole and extended to each sanitary sewer lateral 2" x 4" marker as noted above. Extend tracer wire to the top of water valve boxes a minimum of every 500 feet.
18. All pipe material, backfill and installation shall conform to the applicable specifications of the El Paso County Department of Transportation, Colorado Springs Utilities, MSMD, District Engineer and the Soils Engineer.

19. All utility trench backfill shall be placed per the approved Soils Report recommendations and under the direction of the Soils Engineer. Trench backfill shall be moisture conditioned to within 2 percent of optimum and compacted to at least 92 percent of maximum modified proctor dry density (ASTM D 1557) or higher standard as required by the El Paso County Department of Transportation. This shall include all main line, valves, fire hydrant runs, water & sewer service lines, clean outs, inlet boxes, manholes, etc. A qualified soils Engineer shall observe and test the backfill and compaction of all trenches and all reports shall be submitted to MSMD for review and approval.
20. Contractor shall verify the location of all existing facilities (aboveground and underground) within the project site sufficiently ahead of construction to permit the revisions of the construction drawings if it is found that the actual locations are in conflict with the proposed work.
21. Bends, deflection & cut pipe lengths shall be used to hold horizontal alignment of sewer and water lines to no more than 0.5' from the designed alignment.
22. At all locations where cap and stub is noted on drawings, provide a plug at the end of the pipe joint nearest the specified station. Provide a reverse anchor at all water line plugs and blow offs.
23. All existing water utility material removed as part of the work on these drawings shall be returned to MSMD as requested.
24. All existing utility mains shall be supported and protected in place and function continuously during all construction operations. Should a MSMD utility fail or be damaged as a result of the construction operation, it shall be repaired immediately by Contractor per all MSMD specifications. In the event the Contractor cannot immediately make the repairs to the failed or damaged MSMD utility to the satisfaction of MSMD, MSMD may repair or cause the repair and back charge all such costs to the Contractor.
25. Any water shut downs that need to occur on the CRITICAL lines as defined by the MSMD SOP (Standard Operation Procedure) manual will be coordinated with District staff for night time shut downs.
26. Contractor shall make all necessary connections to existing water mains without a shutdown of the water system. In the event that a shutdown of a water system is necessary, Contractor shall acquire a permit from MSMD.
27. Pumping or bypass operations shall be reviewed and approved by MSMD and the Engineer of record prior to execution.
28. Contractor shall replace or repair any and all damage caused by Contractor during construction activities to all above or below ground improvements, including but not limited to fences, landscaping, curb, gutter, sidewalk, asphalt, electric systems, gas systems, telephone/television systems, etc.
29. A preconstruction conference meeting shall be held at the project site a minimum of 7 days before construction begins and shall be attended by all representatives responsible for construction, inspection, supervision, testing and all other aspects of the work. The contractor shall notify MSMD and all affected utility companies adjacent to the proposed utility construction a minimum of 48 hours and a maximum of 96 hours prior to the start of construction for scheduling. Contractor shall schedule bi-weekly construction meetings at the project site or more frequently as deemed necessary by MSMD.
30. Testing of facilities:

- a) Contractor shall notify MSMD a minimum of 48 hours and a maximum of 96 hours prior to the start of any testing to allow MSMD staff to be present at all times during testing. All testing shall be per MSMD specifications or CSUS, whichever is greater.
 - b) All sections of water lines must first pass a chlorine test with a minimum of 50 parts per million of residual after 24 hours. The whole section of line being tested must be re-chlorinated and re-tested if it does not pass. Once the section of line being tested passes the chlorine test the line must be flushed and Bac-T tested per CSUS. Once the Bac-T test passes the section of line may be pressure tested. Water flushed from the water system must be properly de-chlorinated during the flushing process
 - c) All sections of water lines must pass a 200 PSI pressure test for two hours. If the pressure test fails, the sections of line that failed must again pass the chlorine test, be flushed and pass the Bac-T test prior to conducting a new pressure test.
 - d) All sanitary sewer facilities shall meet the following testing requirements:
 - All sanitary sewer main shall be pressure tested per CSUS.
 - All sewer main shall be properly balled/mandrill.
 - All sanitary sewer manholes shall be vacuum tested per CSUS.
 - All sanitary sewer mains shall be CCTV inspected with two videos on DVDs submitted to MSMD for review and approval. All sanitary sewer mains shall be jet cleaned and flushed directly prior to CCTV inspection with running water in the sanitary sewer main during the CCTV inspection. Sanitary sewer mains that do not meet MSMD standards shall be replaced and or repaired as necessary and re-tested.
31. Commencement of use of water lines and/or systems. No water facility shall be placed in service until:
- a) MSMD has approved all tests and compaction testing reports and as-built drawings are submitted to and approved by MSMD.
 - b) All water lines are completed and the first lift of asphalt is completed over the line. In the case where no asphalt is to be placed over the line, surface improvements shall be completed prior to use of the facility.
 - c) All easements (platted or deeded) are dedicated, executed to MSMD, and recorded.
32. Commencement of use of any sanitary sewer lines and/or systems. No sanitary sewer facility shall be placed in service until:
- a) MSMD has approved all tests and compaction testing reports, as-built drawings and reviews are submitted to and approved by MSMD.
 - b) All sanitary sewer lines are completed and the first lift of asphalt is completed over the line. In the case where no asphalt is to be placed over the line, any required surface improvements shall be completed prior to use of the facility.
 - c) All necessary easements (platted or deeded) are dedicated, executed to MSMD, and recorded.
 - d) Down stream plug can be removed once first lift of asphalt is down and the above requirements are met.
33. Preliminary acceptance shall be defined as the point in time, that MSMD accepts the facility for use and all surface improvements and restoration are completed.
34. Final acceptance by MSMD of any utility line or system shall not occur until completion of final asphalt layers and/or final completion and/or restoration of all surface improvements. The warranty period for all facilities shall be 12 months commencing with FINAL acceptance. MSMD may require retesting of the utility system prior to final acceptance.
35. Inspection Fees: Call MSMD for fee schedule.

36. All commercial/business developments shall have a minimum eight inch diameter water main looped through the proposed property with gate valves located where the main enters and exists the property and a minimum eight inch sanitary sewer main with a manhole in the street where the main enters the property. The mains and end of the mains shall be marked with the appropriate colored carsonite markers and tracer wire.
37. Irrigation services shall have a stop and waste curb stop valve installed along with a tracer wire extending back to the main line.
38. After review and approval of plans for the extension of lines, facilities and/or services, construction must be completed within 18 months for residential subdivisions and 12 months for any commercial installations. If work is not completed within this time frame and no extension has been given, then all plans must be re-submitted to MSMD for review (with new fees paid) and approval.
39. Any facilities outside of paved roads must be marked appropriately with carsonite markers at each valve, manhole, test station and any other facilities MSMD deems necessary
40. MSMD Contact numbers:

Meridian Service Metropolitan District On site Office 719- 495-6567.

MSMD Management Company 303-381-4965.

The above guidelines are subject to change at any time.