

**NORTH TABLE MOUNTAIN WATER AND SANITATION DISTRICT
(NTM or District)
DEVELOPER SPECIFICATIONS AND GENERAL NOTES**

GENERAL NOTES: Revision Date - April 2024:

1. All items on the Design Construction Drawing Checklist must be reflected on the Construction Drawings.
2. Contractor is responsible for confirming that they have the latest version of notes at the time of construction. The notes are posted on the NTM website, www.ntmwater.org.
3. Suppliers are required to be pre-approved. Pre-approved suppliers are Core and Main, Ten Point Sales, Ferguson Water Works and Water Technology Group. Other suppliers must have District written approval.
4. Fees:
 - Plan Review Fee = \$500.00 per submittal.
 - Utility Permit Fee = \$250.00
 - Development Fees – required for approval of final construction drawings:
 - \$250 Stub-In Fee per Service Line
 - \$2.60/LF Water
 - \$1.75/LF Sewer
 - GIS data collection = \$25 per data point
5. The District will collect GIS data coordinates of the installed infrastructure; the developer is responsible for the cost of the data collection.
6. Water and sewer mains that are not in public right-of-way (streets and roads) must be in an easement. The easement shall be in a separate tract of land that has a drive-able surface (road base, crushed asphalt, gravel, or other approved material) and fenced.
7. Soil amendment is required for all new development. Each 1,000 square feet of soil must be amended with 4 cubic yards of approved compost, see approved compost list. Amendment must be roto-tilled into the soil to a depth of 4 to 6 inches. This applies to all permeable areas of the development including each individual lot and all common areas.
8. A submittal package of detail sheets to include all pipe and appurtenances, to be used during construction, must be submitted and approved prior to construction. Only submit on items pertinent to water and sewer, do not include items related to other utilities (storm water, etc.) Allow up to three weeks for review.
9. Contractor must obtain a Utility Permit from NTM before any water or sanitary sewer utility construction is started. Failure to obtain a permit before start of construction will result in a \$600.00 penalty.
10. Prior to installing water main in dedicated paved streets or easements, grading shall have progressed to at least the subgrade stage. The finish grade for water main installed in unpaved areas must be brought up to an elevation such that the trench depth above the top of the pipe is at least 4 feet when being installed.
11. Trenches shall not be backfilled until the pipe is inspected. The Contractor is responsible for notifying the NTM Inspector 24 hours prior to inspection at 303-279-2854.
12. Water and sanitary sewer service locations shall be permanently marked on the face of the curb with a “W” or “S” stamped in wet concrete.
13. A minimum of ten (10) horizontal feet of separation shall be maintained between the water and sewer facilities.
14. Any changes of material or deviations from the approved plans or these specifications must be done with written permission of the NTM District Engineer.

15. The Contractor shall have in their possession at all times, a copy of the plans that have the signed NTM approval block on the cover sheet.
16. The Contactor shall maintain, on the job site, a separate set of Construction Plans red-lined to fully indicate field installed conditions and deviations from the original drawings. Include all fittings, deflections, services and valves for waterlines. Include all manholes, inverts and services for sanitary sewer lines.
 - a. NTM shall receive copy of red-lined field set.
17. The red-lined Construction Plans (see note, above) shall be transferred to electronic "As-Built" drawings.
 - The As-Built Drawings must be approved by the District.
 - The As-Built drawings shall be submitted to NTM in electronic PDF and AUTOCAD formats.
18. A water meter will not be set and no water and sewer service will be provided until the project is inspected and approved, the As-Built drawings have been submitted and approved and all fees have been paid.
19. The Contractor shall warranty the construction for two years. A Letter of Completion will be issued once the project has been inspected and approved, the As-Built drawings have been submitted and approved, all fees have been paid and a new two-year \$10,000 bond has been issued to NTM. The two-year warranty period shall commence at this time.
20. Prior to the expiration of the two-year warranty NTM will re-inspect the water and sewer infrastructure and a punch-list will be generated. NTM will not accept facilities until the final punch-list is approved. A Letter of Acceptance will be issued and the bond can be released.
21. Road cut permits and all bonding for work in Jefferson County or governing jurisdiction shall be secured and paid for by the Contractor. Backfill and road surface replacement shall meet Jefferson County or governing jurisdiction standards.
22. Landscape and Irrigation Plans must be submitted to and approved by the governing jurisdiction.
23. Refer to the most recent AWWA and ASTM standards that are called out in these specifications and notes.
24. Material Quantities:
 - a. Water main (LF): _____
 - b. Sewer main (LF): _____
 - c. Manholes: _____
 - d. Valve boxes: _____
 - e. Fire hydrants: _____
 - f. Meter pits: _____
 - g. Bends _____
25. NTM Approval Stamp must be on the cover sheet of the construction plans.

<p>North Table Mountain Water and Sanitation District's review of these plans relates only to the District's requirements. The Professional Engineer, Contractors and Owners designing and constructing this proposed water distribution and/or sewage collection system shall be solely responsible for the adequacy of the design, installation and materials utilized. This includes all connections to existing District facilities. Any modification of these plans must be resubmitted to the District for approval prior to construction.</p>	
<p>APPROVED FOR CONSTRUCTION</p>	
<p>_____</p> <p>District Manager</p>	
<p>_____</p> <p>Distribution and Collection</p>	
<p>_____</p> <p>Project Engineer</p>	
<p>_____</p> <p>Date</p>	
<p>APPROVAL VALID FOR 6 MONTHS</p>	

WATER LINE NOTES: Revision Date - February 2024

1. All water mains, fire lines and fire hydrant leads 12" diameter and less shall be C909 PVC, Pressure Class 235, push-on single gasket type manufactured in accordance with AWWA Standards C909 unless otherwise approved by the District Engineer.
2. All fittings shall be made from ductile iron meeting the latest AWWA Standards C104 and C111 and be furnished with mechanical joint ends or approved equal. All fittings shall have a pressure rating of 350 psi and shall be wrapped with an 8-mil minimum thickness polyethylene material per AWWA Standard C105. All T-head bolts, restraint rods and nuts shall be Cor-Blue, flange bolts shall be stainless steel.
3. All fittings shall be restrained using PVC Stargrip Series 4000 made for C909 PVC pipe or approved equal and must provide approved joint restraint according to the distances set forth in the table on Water Standard Detail W10. In addition, all fittings must be protected from thrust by using concrete thrust blocks sized according to the table shown on the Standard Water Detail W3.
4. All valves are to be open right (clockwise). Approved manufacturer - AVK or District approved equal.
5. All new water main connections to the existing system shall be wet tapped. Wet taps shall be made using full wrap, stainless steel full gasket with 360 degrees of pipe coverage (Muller Co., Ford, Smith-Blair, Romac or approved equal). Tapping valves shall be ductile iron body, 200 psi minimum working pressure, resilient seat tapping valves with non-rising stem, flanged inlet and mechanical joint outlet, two inch operating nut, open right (clockwise) which meet or exceed AWWA Standard C509. Acceptable manufacturer AVK or District approved equal.
6. The Contractor shall furnish and install blue 12 AWG stranded detector wire along the length of all new water pipe, per Standard Detail W11.
7. Contractor shall install detectable tape 1 foot above squeegee.
8. All service and fire lines will be inspected from the main to the building.
9. Existing service lines that will not be utilized must be abandoned. Abandon water service line at the main; shut corporation stop valve off at the tap and sever service line.
10. There shall be a minimum cover of 4.5 and maximum of 6.0 feet of cover for all water mains.
11. If a grade change causes the existing water main to have less than 4' or more than 6' of cover the water main will need to be relocated with new pipe to an acceptable depth and design drawing submitted for approval.
12. All water mains shall be chlorinated in accordance with AWWA Standard C651, "Disinfecting Water Mains". The preferred method is to use chlorine tablets filling and flushing of the line shall only be performed in the presence of the NTM Inspector.
13. Schedule for testing of pipe:

Bacteriological sampling will take a minimum of 4 days, no exceptions! Samples shall be taken at every 1200 feet of new water main, the end of the main and from each branch.

 - i. Fill main and allow pipe to chlorinate for 24 hours.
 - ii. After the first 24 hours the chlorine residual in the main shall be at least 25 mg/L, prior to flushing.
 - Contractor shall schedule NTM to take a residual chlorine sample, flush the main and collect the first sample(s) for bacteriological testing.
 - iii. A second bacteriological sample(s) will be collected for testing 24 hours after the main has been flushed and the first sample has been taken.

- iv. Results from the bacteriological sample(s) will be determined in 48 hours, no less.
- v. Once all of the bacteriological tests have passed and the service lines have been installed, the main shall be pressure tested by the Contractor as specified below.

14. The main must have service lines installed and passed the bacteriological test prior to a hydro-static pressure test. All pipe shall be field hydro-static pressure tested to a minimum of 150 psi for at least one (1) hour duration. All testing shall be completed in the presence of the NTM Inspector. Test pressure shall not drop more than 5 psi for the duration of the test.
15. Backflow protection shall be provided in accordance with the Colorado Safe Drinking Water Regulations as well as District Rules and Regulations (available on the District website). All backflow preventers must be USC approved and listed for the orientation of installation. Details for fire suppression systems and all backflow prevention assemblies must be included in submittal package. Fire line backflow preventers shall be inspected and approved by the District prior to approval. All devices shall be tested upon installation and the results provided to the District. Contact NTM's Cross Connection Control Administrator with any questions.

SEWER LINE NOTES: Revision Date - February 2024

1. All sanitary sewer mains and service lines shall be constructed of green, gasketed SDR 35 PVC pipe manufactured to ASTM specifications, unless otherwise approved by the District. Bells on all pipe and fittings shall consist of integral wall section stiffened with two (2) PVC retainer rings which securely lock the solid cross-section rubber in position and shall be installed according to ASTM D- 2321.
2. The Contractor shall furnish and install green 12 AWG stranded detector wire along the length of all new sewer main and it must be assessable in manholes .
3. Green 12 AWG stranded copper tracer wire must be installed on sanitary service lines per detail drawing S1.
4. Existing sanitary sewer service lines that will not be utilized must be abandoned. Abandoned sewer service lines must be capped at the main.
5. All sanitary sewer pipe installations shall be air tested prior to acceptance. Air pressure tests shall be performed in the presence of the NTM Inspector. Pressure must be stabilized at 3.5 psi at start of test. If the time required for a one (1) pound pressure drop (from 3.5 to 2.5 psi) is greater than ten (10) minutes then the section shall pass.
6. New manholes shall be vacuum tested. A vacuum of 10 inches of mercury (Hg) shall be drawn. The manhole shall pass the test if the vacuum reading does not drop more than 1 inch Hg (from 10" Hg to 9" Hg) during the following vacuum test times:

MH Depth	4' Diameter MH	5' Diameter MH	6' Diameter MH
15 feet or less	60 seconds	75 seconds	95 seconds
Over 15 feet	90 seconds	105 seconds	120 seconds

7. Contractor is responsible for television inspection of all new sewer mains. Inspection shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by closed circuit color television. Television inspection shall include the following:
 - (a) Prior to the television inspection, all new sewer mains shall be jetted by trained personnel to remove foreign material from the newly installed sewer main. All material flushed from new mains shall be removed and not allowed to enter existing sewer mains.
 - (b) The video must be recorded directly after the main has been flushed, the video shall be recorded with water flowing in pipe. Video of dry main will not be accepted. NTM will perform flushing, coordinate with field staff.
 - (c) Video to be submitted to the district prior to acceptance. The video shall remain the property of the District.
 - (d) All videos shall contain voice data and stationing information.
 - (e) Should any portion of the inspection video be of inadequate quality or coverage, as determined by the District Engineer, or his representative, the Contractor will have the portion re-inspected and videoed at no additional cost to the District.

8. All sewers shall be designed to transport average flows at mean velocities of two feet per second. The slope between manholes shall be uniform and in no case be less than the following for sewer services and mains:

<u>Line Size</u>	<u>Grade</u>
4 inch	2.0% or 1/4 inch per foot
6 inch	1.0% or 1/8 inch per foot
8 inch thru 15 inch	0.5 %
18 inch	0.35%

The maximum allowable slope on any sized sewer line, (main or service), shall be 8% (percent).

The above notes are in addition to those on the Standard Water and Sewer Detail drawings.