

CITY OF MT. ANGEL
Public Works Design Standards

Standard Construction Notes

Appendix B

GENERAL NOTES:

1. Contractor shall procure and conform to all construction permits required by the City of Mt. Angel and Marion County.
2. Contractor shall procure a right-of-entry permit from ODOT State Highway Division for all work within the State right-of-way and conform to all conditions of the permit.
3. Contractor shall procure a right-of-entry permit from affected railroads for all work within the railroad right-of-way and conform to all conditions of the permit.
4. Contractor shall provide all bonds and insurance required by public and/or private agencies having jurisdiction.
5. All materials and workmanship for facilities in street right-of-way or easements shall conform to approving agencies' construction specifications wherein each has jurisdiction, including but not limited to the City, County, Oregon Health Division (OHD) and the Oregon Department of Environmental Quality (DEQ).
6. Unless otherwise approved by the Public Works Director, construction of all public facilities shall be done between 7:00 a.m. and 6:00 p.m., Monday through Saturday.
7. The Contractor shall perform all work necessary to complete the project in accordance with the approved construction drawings including such incidentals as may be necessary to meet applicable agency requirements and provide a completed project.
8. Contractor to notify City, County, ODOT and all utility companies a minimum of 48 business hours (2 business days) prior to start of construction, and comply with all other requirements of ORS 757.541 to 757.571.
9. Any inspection by the City, County or other agencies shall not, in any way, relieve the Contractor from any obligation to perform the work in strict compliance with the applicable codes and agency requirements.
10. Contractor shall erect and maintain barricades, warning signs, traffic cones per City, County and ODOT requirements in accordance with the MUTCD (including Oregon amendments). Access to driveways and buildings shall be maintained at all times for residential, fire and emergency vehicles. All traffic control measures shall be approved and in place prior to any construction activity. Temporary address signs shall be in place and visible from the street prior to the beginning of construction on any structures.
11. **Record Drawings.** The Contractor shall maintain one complete set of approved drawings on the construction site at all times whereon he will record any approved deviations in construction from the approved drawings, as well as the station locations and depths of all existing utilities encountered. These field record drawings shall be kept up to date at all times and shall be available for inspection by the City upon request.

12. Upon completion of construction of public facilities, Contractor shall submit a clean set of field record drawings containing all as-built information to the Design Engineer for use in the preparation of As-Built drawings for submittal to the City.
13. The Contractor shall submit a suitable maintenance bond prior to final payment where required by public and/or private agencies having jurisdiction.
14. Contractor shall procure and conform to DEQ stormwater permit No. 1200C for construction activities where 5 acres or more are disturbed.
15. Elevations shown on the drawings are based from _____ (City, OSHD, etc) Bench Mark _____, Elevation _____ (adjusted 19__), consisting of a _____ (brass cap, monument, etc.) Located at _____.

EXISTING UTILITIES & FACILITIES:

16. The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The engineer or utility companies do not guarantee the accuracy or the completeness of such records. Contractor shall field verify sizes and locations of all existing utilities prior to construction.
17. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center. (Note: the telephone number for the Oregon Utility Notification Center is (503) 232-1987).
18. The Contractor shall locate and mark all existing property and street monuments prior to construction. Any monuments disturbed during construction of the project shall be replaced by a Registered Land Surveyor at the Contractor's expense. The monuments shall be replaced within a maximum of 90 days, and the County Surveyor shall be notified in writing as required by ORS 209.150.
19. Contractor shall field verify location and depth of all existing utilities where new facilities cross. Contractor shall be responsible for exposing potential utility conflicts far enough ahead of construction to make necessary grade modifications without delaying the work. If grade modification is necessary, Contractor shall notify the Design Engineer, and the Design Engineer shall obtain approval from the City Engineer prior to construction. All utility crossings shall be potholed as necessary prior to excavating or boring to allow the Contractor to prevent grade or alignment conflicts.
20. All existing facilities shall be maintained in-place by the Contractor unless otherwise shown or directed. Contractor shall take all precautions necessary to support, maintain, or otherwise protect existing utilities and other facilities at all times during construction. Contractor to leave existing facilities in an equal or better-than-original condition and to the satisfaction of the City Engineer.

21. Utilities, or interfering portions of utilities, that are abandoned in place shall be removed by the Contractor to the extent necessary to accomplish the work. The Contractor shall plug the remaining exposed ends of abandoned utilities.
22. Contractor shall remove all existing signs, mailboxes, fences, landscaping, etc., As required to avoid damage during construction and replace them to existing or better condition.
23. Any septic tanks encountered during construction shall be pumped out. Contractor shall break bottom of tank out and backfill with pea gravel unless otherwise required by public agencies having jurisdiction. Septic tank removal to be in accordance with County Sanitarian requirements.
24. Any wells encountered shall be abandoned per state of Oregon water resources department requirements.
25. Any fuel tanks encountered shall be removed and disposed of per State of Oregon DEQ requirements. Backfill with compacted granular material.

GRADING, PAVING & DRAINAGE:

26. Contractor to review soils report prepared by _____, and conform to all recommendations listed in the report.
27. The Contractor shall be responsible for managing construction activities to insure that public streets and right-of-ways are kept clean of mud, dust or debris. Dust abatement shall be maintained by adequate watering of the site by the Contractor.
28. Unless otherwise noted, all grading, rocking and paving to conform to OSHD Standard Specifications, 1991 edition.
29. Clear and grub within work limits all surface vegetation, trees, stumps, brush, roots, etc. Do not damage or remove trees except as approved by the engineer or as shown on the drawings. Protect all roots two inches in diameter or larger.
30. Strip work limits, removing all organic matter which cannot be compacted into a stable mass. All trees, brush and debris associated with clearing, stripping or grading shall be removed and disposed of off-site.
31. Immediately following fine grading operations, compact subgrade to 95% of the maximum dry density per AASHTO T-180 test method (Modified Proctor). Subgrade must be inspected and approved by the City prior to placing embankments or base rock.
32. All fills within public right-of-ways and easements shall be engineered. Additionally, any fills outside of public right-of-ways which are over 2 feet in depth shall be engineered. Engineered

fills shall be constructed in 6" lifts. Each lift shall be compacted to 95% of the maximum dry density per AASHTO T-180 test method (Modified Proctor).

33. Unless otherwise shown on the drawings, straight grades shall be run between all finish grade elevations and/or finish contour lines shown. Finish pavement grades at transition to existing pavement shall match existing pavement grades or be feathered past joints with existing pavement as required to provide a smooth, free draining surface.
34. Crushed rock shall conform to the requirements of section 02630 (base aggregate) OSHD Standard Specifications. Compact to 95% of the maximum dry density per AASHTO T-180 test method (Modified Proctor). Written compaction test results must be received by the City prior to placing AC pavement.
35. A.C. Pavement shall conform to section 00745 (Asphalt Concrete Pavement) OSHD Standard Specifications for standard duty mix. A.C. Pavement shall be compacted to a minimum of 91% of maximum density as determined by the Rice standard method.
36. All existing or constructed manholes, cleanouts, monuments, gas valves, water valves and similar structures shall be adjusted to match finish grade of the pavement, sidewalk, landscaped area or median strip wherein they lie.
37. Unless otherwise shown on the drawings, no cut or fill slopes shall be constructed steeper than 2H:1V.
38. All planter areas shall be backfilled with approved top soil minimum 8" thick. Stripping materials shall not be used for planter backfill.
39. Contractor shall hydroseed all exposed slopes and disturbed areas which are not scheduled to be landscaped.
40. Grading shown on the drawings is critical to functioning of detention system and shall be strictly followed.
41. Contractor shall coordinate and ensure that detention pond volumes are inspected and approved by public agencies having jurisdiction prior to paving and landscaping.

Curbs & Sidewalks

42. Unless otherwise shown or indicated on the drawings, 6-inches nominal curb exposure used for design of all parking lot and street grades.
43. Contractor shall provide a minimum 2 weep holes per lot in curb to provide for lot drainage. Weep holes shall also be provided as required for additional drain pipes shown on the drawings. Contractor shall install drain pipe from each weep hole to the back of sidewalk location prior to acceptance of the curbing by the City. Weep holes installed in existing curbs shall be core drilled

44. Curbs shall be stamped with an 'S' or a 'W' at the point where each sanitary sewer lateral or water service lateral crosses the curb, respectively. Letters shall be a minimum of 2-inches high.
45. Contractor shall construct handicap access ramps at all intersections in accordance with current ADA requirements.
46. Sidewalks and driveways shall be constructed to the full thickness shown.
47. Where trench excavation requires removal of PCC curbs and/or sidewalks, the curbs and/or sidewalks shall be sawcut and removed at a tooled joint unless otherwise authorized in writing by the City. The sawcut lines shown on the drawings are schematic and not intended to show the exact alignment of such cuts.

PIPED UTILITIES:

48. Contractor shall coordinate and pay all costs associated with connecting to existing water, sanitary sewer and storm sewer facilities.
49. Unless otherwise noted, materials and workmanship for water, sanitary sewer and storm sewer shall conform to Oregon APWA Standard Specifications.
50. **Bedding and Backfill.** All pipes shall be bedded with minimum 6-inches of 3/4" minus crushed rock bedding and backfilled with compacted 3/4" minus crushed rock in the pipe zone (crushed rock shall extend a minimum of 12-inches over the top of the pipe in all cases). Crushed rock trench backfill shall be used under all improved areas, including sidewalks.
51. Contractor shall arrange for and pay all costs to abandon existing sewer and water services not scheduled to remain in service.
52. All piped utilities abandoned in place shall have all openings closed with concrete plugs with a minimum length equal to 2 times the diameter of the abandoned pipe.
53. The end of all utility stubs shall be marked with a 2-x-4 painted white and wired to pipe stub.
54. Contractor shall provide all materials, equipment and facilities required for testing all utility piping in accordance with City construction specifications.
55. **Tracer Wire.** All non-metallic water, sanitary and storm sewer piping located outside of the public right-of-way or not laid in straight lines between structures shall have an electrically conductive insulated 12 gauge copper tracer wire the full length of the installed pipe using blue wire for water and green for storm and sanitary piping. Tracer wire shall be extended up into all valve boxes, and manholes and catch basins. Tracer wire penetrations into manholes shall be within 18 inches of the rim elevation and adjacent to manhole steps. The tracer wire shall

be tied to the top manhole step or otherwise supported to allow retrieval from the outside of the manhole.

56. **Warning Tape.** Detectable or non-detectable acid and alkali resistant safety warning tape shall be provided along the full length of all sanitary sewer and storm drain service laterals and along all water, sanitary sewer and storm drain mainline segments not located under sidewalks or paved portions of public streets. Underground warning tape shall be continuous the entire length of service laterals installed from the mainline to the back of the PUE.
57. No trenches in roads or driveways shall be left in an open condition overnight. All such trenches shall be closed before the end of each work day and normal traffic flows restored.

Water

58. City forces to operate all valves, including fire hydrants, on existing public mains.
59. All water mains shall be C-900 PVC (DR 18) or Class 52 ductile iron. All fittings 4-inches through 24-inches in diameter shall be ductile iron fittings in conformance with AWWA C-153 or AWWA C-110. The minimum working pressure for all MJ cast iron or ductile iron fittings 4-inches through 24-inch in diameter shall be 350 psi for MJ fittings and 250 psi for flanged fittings.
60. All water mains to be installed with a minimum 36 inch cover to finish grade unless otherwise noted or directed. Service lines to be installed with a minimum 24 inch cover. Deeper depths may be required as shown on the drawings or to avoid obstructions.
61. Unless otherwise approved by the City Engineer, all valves shall be flange connected to adjacent tees or crosses.
62. Water service pipe on the public side of the meter shall be Type K soft copper tubing conforming to ASTM B-88.
63. Unless otherwise noted, water service pipe on the private side of the meter shall be Schedule 40 PVC.
64. Domestic and fire backflow prevention devices and vaults shall conform to requirements of public and/or private agencies having jurisdiction.
65. Chains on all fire hydrant caps shall be cut and removed from all hydrants following installation.
66. Contractor shall install temporary plug and blowoff as required at the end of waterline for flushing, testing and chlorination.
67. The work shall be performed in a manner designated to maintain water service to buildings supplied from the existing waterlines. In no case shall service to any main line or building be

interrupted form more than four (4) hours in any one day. Contractor shall notify the City and all affected residents and businesses a minimum of 24 business hours (1 business day) prior to any interruption of service.

68. **Sanitary Sewer & Waterline Crossings.** Where sanitary sewer lines cross above or within 18-inches vertical separation below a waterline, sewer mains and/or laterals shall be replaced with C-900 PVC pipe (DR 18) at the crossing in conformance with OAR 333. Center one full length of AWWA C-900 PVC pipe at point of crossing. Connect to existing sewer lines with approved rubber couplings. *Note: For an 8-inch waterline with 36-inches cover, lateral inverts within 5.67-feet (68-inches) of finish grade must be C-900 PVC.*

Sanitary Sewer

69. Unless otherwise shown, sanitary sewer pipe shall be PVC in conformance with ASTM D3034, SDR 35. All other appurtenances and installation to conform to the City specifications.
70. All precast manholes shall be provide with integral rubber boots. Where manholes with integral rubber boots are not used, a shear joint shall be provided on all mainlines within 1.5 feet of the outside face of the manhole. Lockdown lids required on all manholes outside of public right-of-way.
71. Openings for connections to existing manholes shall be made by sawcutting or core-drilling existing manhole structure. Use of pneumatic jackhammers shall be prohibited. Connections to be watertight and shall provide a smooth flow into and through the manhole. Small chipping hammers or similar light tools which will not damage or crack the manhole base may be used to shape channels or enlarge existing openings if authorized by the City Engineer.
72. **Leakage Testing.** Sanitary sewer pipe and appurtances shall be tested for leakage. Leakage tests shall include an air test of all sewer mains and laterals and vacuum testing of the manholes.
73. **Cleaning.** Prior to mandrel testing and/or TV inspection, flush and clean all sewers, and remove all foreign material from the mainlines and manholes.
74. **Mandrel Testing.** Contractor shall conduct deflection test of flexible sanitary sewer pipes by pulling an approved mandrel through the completed pipe line following trench compaction. The diameter of the mandrel shall be 95% of the initial pipe diameter. Test shall be conducted not more than 30 days after the trench backfilling and compaction has been completed.
75. **TV Inspection.** Upon completion of all sewer construction, testing and repair, the Contractor shall conduct a color TV acceptance inspection of all mainlines in accordance with APWA 303.3.11. The TV inspection shall be conducted by an approved technical service which is equipped to make audio-visual recordings of the TV inspections on VHS video tape. *Unless otherwise required by agency with jurisdiction, a standard 1-inch diameter ball shall be suspended in front of the camera during the inspection.* Sufficient water to reveal low areas or

reverse grades shall be discharged into the pipe immediately prior to initiation of the TV inspection. The VHS tape and written report shall be delivered to the City.

Storm Drain

76. Storm drain pipe materials to conform to the construction drawings and City requirements. Contractor shall use uniform pipe material on each pipe run between structures unless otherwise directed or approved. Jointed HDPE pipe shall not be used for slopes exceeding ten percent (10%).
77. Catch basins and junction boxes shall be set square with buildings or with the edge of the parking lot or street wherein they lie. Storm drain inlet structures and paving shall be adjusted so water flows into the structure without ponding water.
78. Unless otherwise approved by the City Engineer, all storm drain connections shall be by manufactured tees or saddles.
79. Sweep (deflect) storm drain pipe into catch basins and manholes as required. Maximum joint deflection shall not exceed 5 degrees or manufacturers recommendations, whichever is less.
80. Unless otherwise specified or directed, install storm drain pipe in accordance with manufacturer's installation guidelines.
81. **Cleaning.** Prior to mandrel testing or final acceptance, flush and clean all sewers, and remove all foreign material from the mainlines, manholes and catch basins.
82. **Mandrel Testing.** Contractor shall conduct deflection test of flexible storm sewer pipes by pulling an approved mandrel through the completed pipe line following trench compaction. The diameter of the mandrel shall be 95% of the initial pipe diameter. Test shall be conducted not more than 30 days after the trench backfilling and compaction has been completed.

STREET LIGHTS

83. Street lights shall be installed after all other earthwork and public utility installations are completed and after rough grading of the property is accomplished to prevent damage to the poles.
84. Street lights poles shall be set to a depth as specified by the manufacturer, but not less than 5 feet.
85. Street light poles shall be installed within one degree ($\pm 1^\circ$) of plumb.

PRIVATE UTILITIES

86. Unless otherwise shown on the drawings or approved by jurisdiction having authority, all new private utilities (power, cable TV, telephone & gas) shall be installed underground. Installation

of private utilities in a common trench with or within 3 feet horizontally of paralleling water, sanitary sewer or storm drains is prohibited.

87. Contractor shall coordinate with power, telephone, and cable TV company for location of vaults, pedestals, etc. All above-grade facilities shall be placed in a location outside the proposed sidewalk location.
88. Power, telephone and TV trenching and conduits shall be installed per utility company requirements with pull wire. Contractor shall verify with utility company for size and type of conduit prior to construction. All changes in direction of utility conduit runs shall have long radius steel bends.
89. Contractor shall notify and coordinate with private utilities for relocation of power poles, vaults, etc.