EAST LARIMER COUNTY WATER DISTRICT

GENERAL NOTES FOR CONSTRUCTION

Version 05/20/2025

The following information is condensed from the current "Standard Construction Specifications for Water Mains" (Specification) as adopted by the East Larimer County Water District (ELCO' or 'District') and is to be considered as such. In the event of any conflict, the full District Specification document shall take precedence over these General Notes.

1.01. STANDARDS AND SPECIFICATIONS: Construction shall be per the District Standard Construction Specifications for Water Mains in effect at the start of construction. Material or equipment shall be manufactured per the most recent version of applicable industry standards.

1.02. LOCATES: The Contractor shall coordinate field locates of all existing utilities prior to commencement of any construction and as required notify all affected utility companies prior to starting construction. The cost of repairs to any utility damaged during District water line installations shall be the responsibility of the Contractor.

1.03. DAMAGE TO PROPERY: The Contractor shall continuously maintain adequate protection from damage of all public and private property through which the work is done and shall be fully responsible for all costs associated with damage to any and all public and private property.

1.04. SAFETY: The Contractor shall comply with any and all requirements and regulations as set forth by any local, City, County, State, or Federal agency having applicable authority.

1.05. LANDSCAPING ADJACENT TO DISTRICT WATER LINES: No landscaping (bushes, shrubs, trees, or other plantings) that has a mature height of over 3 feet shall be placed within 10 feet of any District water line or appurtenance (distribution main, service line, fire hydrant, meter, etc.). Bushes or shrubs with a mature height of less than 3 feet shall be placed a minimum 5 feet from any District water line, service line, or appurtenance. The District shall have the right to remove any landscaping that violates this standard at any time such landscaping is discovered and shall not be required to replace the removed landscaping.

1.06. DESIGN APPROVAL AND CONSTRUCTION START: No construction shall begin without prior design acceptance from ELCO. The District shall be notified 48 hours in advance of starting construction, testing, or tapping operation to allow for scheduling.

1.07. PERMITS: The Contractor is responsible for obtaining all permits which may be required. For any permitting where the District must apply for a permit, the Contractor shall coordinate, cover the cost, and schedule the permit acquisition with the District.

1.08. CHANGES DURING CONSTRUCTION: No verbal authorization for field revision shall be given. All requests for such field revision shall be made in writing with the proposed change indicated on a copy of the signed design drawings. Any field revision approved and installed shall also be accurately documented on the As-Built Drawings.

1.09. MATERIALS OF CONSTRUCTION

A. Pipe: All water line piping shall be Polyvinyl Chloride (PVC), DR 18 (pressure class 235 psi), and manufactured in accordance with the most recent version of AWWA Standard C900-16, "Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fitting, 4-inch through 60-inch."

B. Tracer Wire: All water piping shall be installed with a 12-gauge solid copper wire, plastic coated, 600 volts, taped to top of pipe and surfaced at each hydrant into a tracer wire box.

C. Pipe Joints: Pipe joints shall be made using an integral bell with an elastomeric gasket push-on type joint or using machined couplings of a sleeve type with rubber ring gaskets and machined pipe ends to form a push-on type joint.

D. Materials and Installation: All materials installed shall be new and free of manufacturer defects or damage.

E. Pipe Fittings: All fittings shall be ductile iron mechanical joint and manufactured in accordance with AWWA Standard C153. The pressure rating for buried service push-on, retrained push-on, or mechanical joints, 4 inch through 24, inches shall be 350 psi; for exposed service flanged joints, 4 inch through 64 inches, the pressure rating shall be 205 psi. Fittings shall be furnished with fusion bonded epoxy exterior coating and interior lining. All fitting connections to valves, fire hydrants. or other mechanical joint type connections shall use foster adaptor type connectors.

F. Gate Valves: Gate valves shall conform to AWWA Standard C509 with mechanical joint, 2-inch open left operating nut, and resilient seat.

G. Butterfly Valves: Butterfly valves shall be used for all valves 12 inches and larger and conform to AWWA Standard C504 with mechanical joint, 2-inch open left operating nut, and resilient seat.

H. Fire Hydrants: All hydrants shall conform to AWWA Standard C502, have a 1-inch square operating nut with open-right operating direction, and have an epoxy coated shoe.

I. Pipe, Valve, and Fitting Wrap: All ductile iron fittings, valves, fire hydrant shoes, and plugs shall be poly-wrapped with 8-mil thick polyethylene plastic wrap, double layered, and ends securely taped prior to backfill. All fitting bolts shall be fluoropolymer coated ('blue bolt' type) with zinc caps installed.

1.10. BEDDING: All pipe 4 inches in diameter and larger shall be bedded in (a) "Squeegee" per CDOT Section 703 Specifications for Coarse Aggregates No. 8; or (b) "Structural Backfill" per CDOT Section 703 Specifications for Class 1 structural backfill. Trenches shall be excavated to a depth below established grade equal to 1/4 of the pipe diameter or 6-inches minimum. Stabilization material, if needed, shall be crusher run rock conforming to ASTM D448, CDOT Section 703 Specifications for Coarse Aggregates No. 357 or approved equal. Bedding material shall be placed and compacted under and around sides of the pipe per the pipe manufacturer's installation recommendations. (See Specification 31 23 35.)

1.11. BACKFILL: Backfill of acceptable material shall be placed in 'lifts' of uniform horizontal layers not to exceed 6 inches of compacted depth per lift. A minimum of 18 inches of compacted backfill above the pipe must be in place before rolling mechanical equipment type compaction is to be used. Backfill shall be compacted to 95 percent of maximum relative density in roadway areas or per road authority's requirements, and 90 percent in fields or non-road locations. Backfill compaction testing frequency shall be at least one test per 100 lineal feet of pipeline length and at varying depths and locations in accordance with the requirements of the applicable road authority or beginning 1.5 feet above top of pipe and at 1-foot increments to grade.

1.12. JOINT RESTRAINT: All fittings, tees, plugs and fire hydrants shall be provided with foster adaptor type and/or other mechanical joint restraint in accordance with District Specifications or as required per engineer's design. Thrust blocks shall be used only on fire hydrants or as required per field conditions and as approved or directed by the District field inspector.

1.13. CONCRETE: All concrete construction, including thrust blocks, shall be Portland Cement conforming to ASTM C150 Type 1/II. (See Specification 03 30 00.)

1.14. ASPHALT REPLACEMENT: For asphalt pavement that is cut and has been in place less than two years (according to City or County Engineer's record), the cut shall be a minimum of 20 feet in width and will be replaced to the specified depth by a paving machine.

1.15. PIPE COVER: Pipe cover of 4.5 to 5.5 feet over top of pipe shall be maintained throughout the water line and service line installation, particularly in areas of new grading and drainage swales. The maximum allowable cover shall be 6 feet unless otherwise approved by the District.

1.16. CONNECTION TO EXISTING SYSTEM: All connections to existing water lines shall be completed at the Developer's expense.

1.17. INSPECTION: The District shall have the authority to assign an inspector who shall inspect, check, and verify that any and all work, including all materials to be incorporated in the work, excavation, bedding, backfill, testing, and all construction methods and practices of the installed facilities, is equal to or better than minimum construction requirements as set forth in the District's Specifications.

1.18. TESTING: All water lines shall be pressure tested, chlorinated, and flushed by the Contractor in accordance with District Specifications and under the District's supervision. Upon passing chlorination testing, bacteriological testing will be completed by a State certified water quality control laboratory. Copies of all passing test results, including soils compaction in the area of water main construction, shall be provided to the District.

1.19. PRELIMINARY ACCEPTANCE: Preliminary Acceptance shall be issued to the Owner when all project work is complete, tested, and operational such that the infrastructure is ready to be accepted by the District. Documentation required prior to issuance of Preliminary Acceptance includes but is not limited to bacteriological test report, flushing report, hydrotest report, compaction testing reports with map of test locations, statement of water line installation costs, and As-Built Drawings and Record Drawings. Following receipt, review, and acceptance by the District of these and other documents as may be required per project specifics, the District will issue Preliminary Acceptance.

1.20. PROJECT AS-BUILTS AND RECORD DRAWING REQUIREMENTS

A. As-Built Drawings: These drawings shall be compiled and maintained during construction by the Contractor and identify, in red ink, all on-site changes to the original design. As-Built Drawings shall be delivered to the District (electronically in PDF format or otherwise as requested by the District) for acceptance and to the project's Design Engineer for the creation of Record Drawings.

B. Record Drawings: These drawings shall be prepared by the project's Design Engineer and shall accurately reflect any change made in the field which varies from the accepted construction plans, as noted in the As-Built Drawings, including at a minimum, field dimensions and elevations, horizontal and vertical locations of underground utilities, and appurtenances. The Contractor's shall survey in all fittings, valves, water service curb stops, and other appurtenances so as to accurately document and create a final set of Record Drawings with water line, fitting, and appurtenance locations that accurately represent the final installed infrastructure. The Record Drawings shall be reviewed and accepted by the District prior to Preliminary Acceptance of the project. Record Drawings are to be delivered to the District in electronic formats including PDF and AutoCAD (release version to be confirmed with District at time of submittal).

1.21. WARRANTY: The Owner/Developer shall warrant all work associated with the water line installation including, but not limited to the materials, installation, workmanship, and surface restoration for a period of 2 years from date of Preliminary Acceptance. During the warranty period, the Owner/Developer shall repair any defects in the work and maintain the work area. At the close of the two-year warranty period and upon satisfactory correction of any deficiencies noted, the District shall accept the constructed lines and appurtenances as the sole property and responsibility of the District.