

APPENDIX A
EASTON UTILITIES
DESIGN MANUAL
QUICK REFERENCE
February 9, 2012

General

1. This reference is a supplement to the Standard Details for Public Works and Utility Construction in the Town of Easton. If there are contradictions between this document and the Standard Details, the later shall govern. This document is not intended to cover all aspects of construction. It only documents the most commonly used specifications and requirements of the Town of Easton/Easton Utilities. The Town Engineer or his/her representative may make interpretations or modifications as required.
2. All PVC pipe, mains and laterals, shall have a minimum cover of 42".
3. All approvals of utility systems shall be granted by the Town Engineer or his/her representative.
4. The Contractor shall provide a complete set of redlined as-built drawings to Easton Utilities certified by a licensed professional engineer or surveyor. Any changes from the approved drawings regarding the water system, sanitary sewer, storm sewer, and roadways shall be documented with a red ink pen on a clean set of drawings. All service lateral locations, water, sewer, and gas, if applicable, shall be marked on drawings according to Standard Detail SS-9.00 and W-8.00. Approval of all systems shall not be granted until as-builts have been received by Easton Utilities.
5. There shall not be any pipe or duct to be backfilled until approved by The Easton Utilities and/or the Town Engineer or by his/her representative.
6. All electric, CATV and/or telephone conduit shall have 36" minimum cover.
7. Additional testing of any utility or infrastructure improvement may be ordered when deemed necessary by Easton Utilities or Town Engineer.
8. All compaction in right of way to be 95% modified proctor.
9. Provide lift hooks in unexposed surfaces to accommodate field placement of vaults and manholes.
10. The Town of Easton and/or Easton Utilities shall pre-approve the contractor and all sub-contractors to perform work or infrastructure within the Town of Easton.
11. Inspections to be performed by a representative of Easton Utilities, Town of Easton or by a contractor that has been pre-approved by the Town Engineer.
12. No permanent improvements are permitted in any utility easement.
13. The Contractor shall provide two (2) 2" conduits under all proposed driveways. The conduits should be 12" behind the edge of the sidewalk or the equivalent distance behind the back of the curb.

Water Systems

1. All 4" and larger water main shall be Ductile Iron Class 50, ANSI/AWWA C151/A21.51, double cement-lined, or AWWA C-900 PVC DR18. All fittings shall be ductile iron, class 350, mechanical joint, in accordance with ANSI/AWWA C110/A21.10-87.
2. All 1" or 2" services shall be Type "K" copper or PE-3408, SDR-9 constructed according to Standard Details W-7.01 or W-7.02.

3. All water main pipes, PVC or Ductile Iron, shall have a minimum of 4" No. 57 or washed stone bedding when high ground water is encountered. Stone is not required at other times unless deemed necessary by the Town Engineer or his/her representative. All PVC and PE pipe shall have a continuous 10-gauge reinforced tracer wire located beneath the pipe. The wire shall be stubbed into all meter pits and valve boxes and connected across private property with service line to structure.
4. All lateral connections to the PVC main shall be made by stainless steel saddles, equivalent to Ford FS303.
5. Fire Hydrants shall be either Kennedy Guardian 81D or American Darling B 62 B. The maximum distance between hydrants, as measured along an approved roadway, shall be 750' for residential and 375' for commercial and multi-family.
6. The separation between the water and sanitary sewer systems shall be a minimum of 10' laterally and 1' vertically. Concrete encasement per Standard Detail G-5.00 shall be required if this separation is not met.
7. All valves shall be resilient-seated gate valves (ANSI/AWWA C509), open right.
8. Main line valves shall be spaced no greater than 1000'.
9. Gate valves shall be installed on each leg of tees and/or crosses.
10. All mains shall be filled with potable water only, and only by an Easton Utilities representative. At no time shall the Contractor operate any valves or fire hydrants without an Easton Utilities representative being present.
11. The proposed water main shall not be physically connected to the existing water system until all tests; hydrostatic, chlorine residual, bacteria and others deemed appropriate, have been approved by Easton Utilities.

Sanitary Sewer

1. All gravity sewer mains shall be PVC SDR-35, sizes 6" and greater. All 4" gravity sewer laterals shall be Schedule 40 solid core PVC, ASTM 1785 and 2665. If cover is less than 42", all pipe, mains and laterals, shall be Class 50 Ductile Iron.
2. Force main shall be either Ductile Iron Class 50 or C900 PVC. If cover is less than 42", all force mains shall be Class 50 Ductile Iron.
3. All laterals shall be laid at a minimum of 2% slope unless otherwise approved.
4. Manhole spacing shall be no greater than 400'.
5. Approval of main shall not be granted until, a) the main has passed the Uni-bell low-pressure air test, b) a 7-1/4% mandrel has successfully been pulled through all mains, c) vacuum test has been successfully completed on all manholes and d) gravity system is otherwise completed.
6. Sewer clean outs are required at property line and within 5' of foundation. If lateral is greater than 75' or there is a change in direction, additional clean outs are required.
7. Sewer force mains shall not be accepted until a hydrostatic test has been performed by the contractor and approved by Easton Utilities.

Storm Drain

1. Inlets shall be either precast concrete or brick. The maximum distance between inlets shall be 400 feet or a distance where the spread is a maximum of 1/2 of a lane width.
2. Pipe shall be either RCP or smooth-lined Polyethylene. Construction of Polyethylene pipe shall be in accordance with Standard Detail SD-6.00 and approved manufacture installation procedures, whichever is more stringent, as judged by the Town Engineer. Polyethylene pipe shall not be used below the structural infrastructure improvements

including curb and gutter, street section, etc. Use of polyethylene pipe less than 24" in diameter requires specific approval for use and installation by the Town Engineer.

Streets

1. All streets, including vertical curves, curbs and gutters, shall have a minimum slope of 0.50%. For curved streets this standard shall be applied to the long radius of any curb and gutter. For curved streets the minimum slope shall be computed as follows:

$$G = (2R+W)/4R$$

Where G = minimum grade (PGL)

R = center line radius

W = width between curbs

2. All pavement cross-sections shall be according to Standard Details PW-1.01 to PW-1.03.
3. All depressed curb and gutter shall be in accordance with Standard Detail PW-2.01; in particular the thickness shall be 8" with three No. 4 reinforcement bars.
4. In areas where mountable (rolled) curb is used, all measurements referenced to the face of curb shall be taken from the flow line.
5. PGL for all closed section profiles shall represent top of curb elevations.
6. Top of curb elevations shall be shown at the PC and PT of all curb returns.