


TR Number	2022-51
Primary Reference	§192.361
Secondary Reference	§192.321
Purpose	<p>Consider adding guidance to address installation of service lines through pipe in §192.361 Service lines: Installation to mitigate gas migration through the casing/conduit used for service line insertions. Related guidance is found in under §192.321 Installation of Plastic Pipe, see guidance in 3 - Plastic Pipe Inserted Into A Casing Or Into An Abandoned Pipeline.</p> <p>192.321 GM 3.2(e) talks about plugging the annular space, but doesn't suggest venting</p>
Origin/Rationale	<p>Review of the NTSB investigation into a natural gas-fueled explosion occurred at a single-family residence at 206 Springdale Lane, Millersville, Pennsylvania. The explosion killed one person and injured three others, destroyed the residence, and significantly damaged six neighboring homes, one of which was subsequently condemned. The service line to the residence was inserted inside a 1-inch polyethylene pipe that served as a protective jacket. The NTSB determines that the probable cause of the natural gas explosion was an improperly installed mechanical tapping tee that leaked and allowed gas to migrate into the house where it ignited.</p> <p>https://www.nts.gov/investigations/Pages/DCA17FP006.aspx</p>  <p>Accident Brief PAB-1901 - UGI Utilities Natural Gas-Fueled Explosion.pdf</p>
Assigned to	Design TG

Section 192.361

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3 PLASTIC SERVICE LINES

3.1 *Main connection.*

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3.2 *Building wall or meter set assembly.*

(a) The transition from plastic pipe to more rigid piping should be protected from shear and bending as at the main connection. The considerations in 3.1 above should be applied to joints in PE piping in the transition area to the meter riser and the through-the-wall fitting at the building wall or meter set assembly. If there is neither a basement excavation nor a footing excavation, the trench bottom should be compacted and smoothed.

(b) If there is either a basement excavation or a footing excavation, compaction may not be feasible because of possible damage to the building wall. Where compaction is not feasible, some other method of continuous support for the service line should be provided over the disturbed soil.

(c) Protective sleeves for service lines entering a building Service lines inserted through a conduit to enter a building should follow the same guidance for installation as provided in 7 of the guide material below. See Figure 192.361E for installation suggestions.

3.3 *Boring.*

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7 INSTALLATION OF SERVICE LINES UNDER **OR INTO** BUILDINGS

Operators should explore design alternatives to installing an underground service line under **or into** a building (e.g., routing the service line piping around the outside of the building). Where unavoidable, the operator should consider the following.

- (a) The conduit (casing) material should be metallic or plastic. Using former service line piping that is already under a building as a conduit should be avoided unless a test confirms that the piping does not have any leakage.
- (b) Installation of a plastic service line in a plastic conduit is an option that could be used to minimize the possibility of corrosion.
- (c) If a metallic service line is to be installed in a metallic conduit, features should be incorporated to prevent contact between the two concentric pipes. An appropriate protective coating should be selected and applied to the metallic service line piping. Electrical isolation should be confirmed.
- (d) Conduit should be at least two nominal pipe sizes larger than the service line pipe to ease insertion of the service line pipe and to aid in future pipe replacement.
- (e) An appropriate material and method should be selected to seal the ends of the conduit (casing) between the conduit and service line. Options include the following.
 - (1) High-expansion foam.
 - (2) Linked-rubber expandable seals.
 - (3) Solid-rubber bushing plugs.
 - (4) Compression couplings or service-head adapters.
- (f) For sealed conduits, the vent line to an outdoor location should extend to where leaking gas can escape freely to the atmosphere and away from ignition sources and openings into the building.
- (g) Although the conduit is not a pressurized, gas-carrying component, applying a protective coating and cathodic protection to a metallic conduit could be beneficial.
- (h) See Figures 192.361C **and** 192.361D, ~~and 192.361E~~ below for installation suggestions.

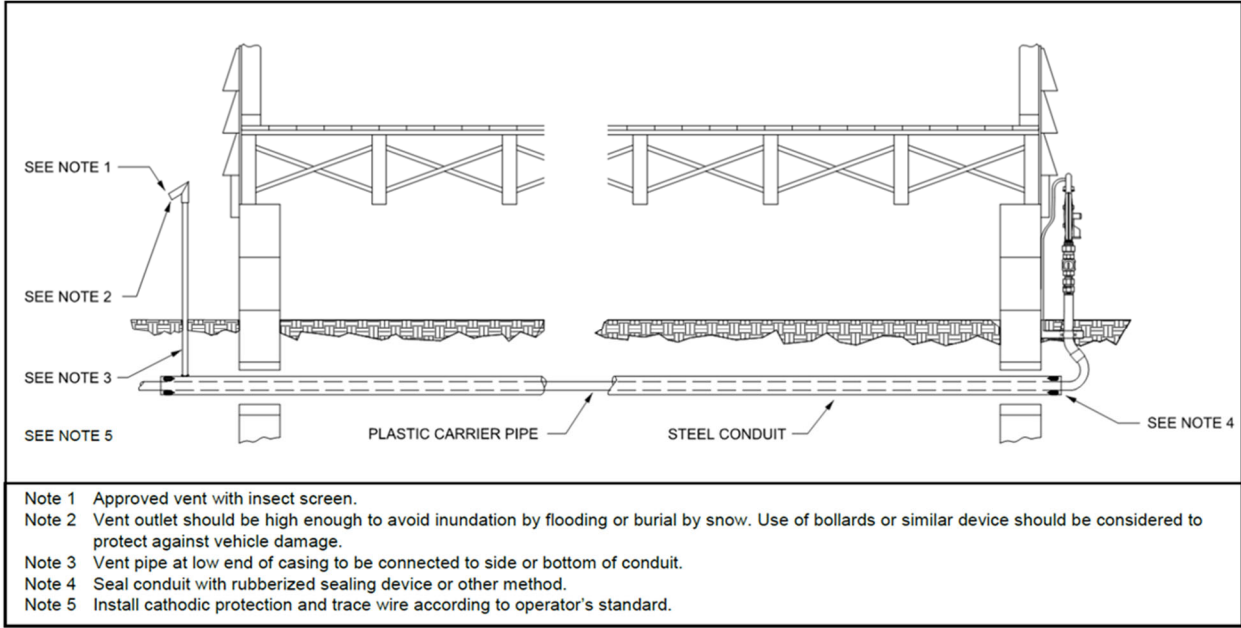


FIGURE 192.361C

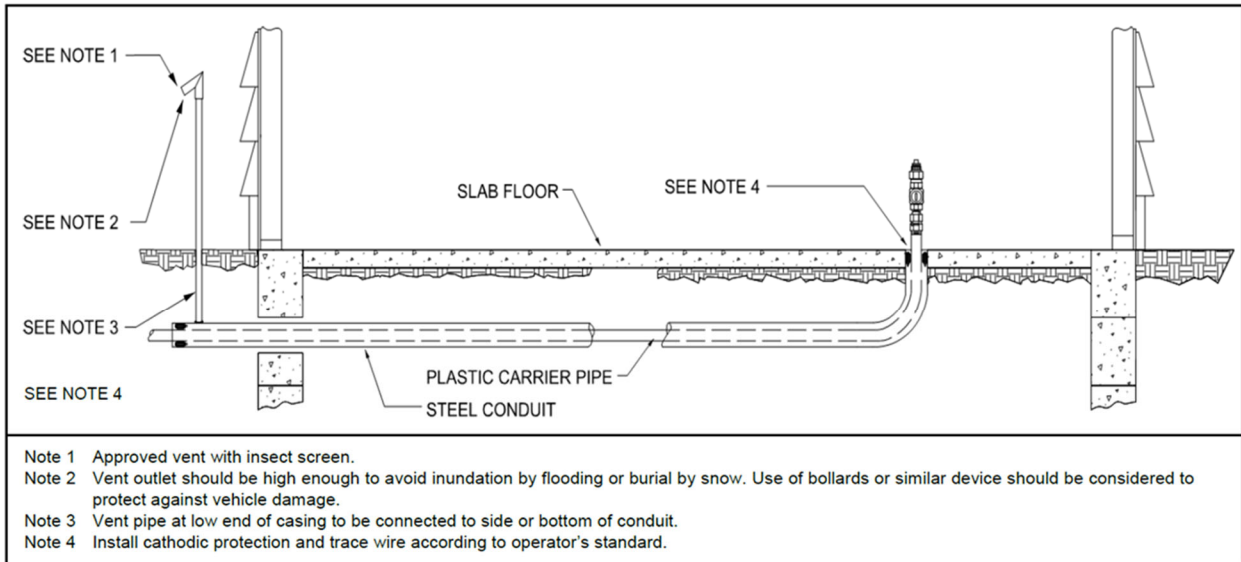


FIGURE 192.361D

[Editorial Note: Figure 192.361E below is all new will not be added, so it has been deleted below.]

{Drawing was here in LB3-2023}

Figure 192.361E

8 OTHER CONSIDERATIONS

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