

761—115.12(306A) Underground utility facilities.**115.12(1) Depth requirements.**

a. Minimum cover—roadway. The minimum required cover under a roadway is 48 inches below the bottom of the pavement.

b. Minimum cover—waterways. A minimum of 10 feet of cover below the flowline is required under waterways at the time of placement unless otherwise authorized by the district representative.

c. Minimum cover—other portions of rights-of-way. The minimum required cover under other portions of the rights-of-way is measured from design elevation at the time of placement and is to be a minimum of:

(1) 48 inches for electrical cable.

(2) 30 inches for communication cable, except that 36 inches is required for longitudinal occupancy under freeway rights-of-way.

(3) 36 inches for all other underground utility facilities.

d. Rocky terrain. The department may allow an exception to the minimum depth requirement where rocky terrain makes it difficult to obtain the required depth. The department will determine the minimum depth in these situations; however, no installation will be authorized with less than 24 inches of cover.

e. Other protective measures. In critical situations where the necessary cover cannot be obtained, the department may approve other protective measures.

f. Highly erodible areas. Highly erodible areas may require trenchless installation and additional depth requirements as determined by the district representative.

115.12(2) Measurement of cover. The cover is measured from one of the following:

a. On rural-type roadways, the lowest pavement surface edge.

b. On urban-type roadways, the gutter flow line, excluding local depressions at inlets.

c. Where longitudinal installations will be behind the curb, the top of the curb.

d. The surface of the surrounding ground or the low point of the ditch.

115.12(3) Casing. A casing is to:

a. Protect the road from damage.

b. Protect the carrier pipe from external loads or shock, either during or after construction of the road.

c. Convey leaking liquids or gases away from the area directly beneath the traveled way.

d. Provide for repair, removal and replacement of the utility facility without interference to the road.

e. Leave no excessive voids around the pipe (more information on procedures for backfilling contained in subrule 115.12(7)).

f. Be of sufficient strength to withstand the external loads created by the vehicular traffic on the roadway being traversed.

g. Be properly installed with fill compacted to department specifications.

h. Be made of material that complies with all applicable federal, state, local and franchise requirements and meets generally accepted industry standards.

115.12(4) Seals. Casing pipe shall be sealed at both ends with a suitable material to prevent water or debris from entering the annular space between the casing and the carrier.

115.12(5) Encasement and related requirements.

a. Trenchless construction. Underground crossings of existing paved roadways, gravel entrances and residential or business frontage roads shall be accomplished by trenchless construction. Other installation methods may be authorized by the district representative and noted in the permit. The utility owner is responsible for contacting the property owner prior to any open cuts in entrances and residential or business frontage roads.

b. Transverse crossings. Underground transverse crossings of freeways and primary roads are to be encased from right-of-way line to right-of-way line and clearly marked by the utility owner at the outer limits of the rights-of-way. Encasement exceptions for transverse crossings may be authorized by the district representative on a case-by-case basis.

c. Longitudinal installations. Utility lines installed longitudinally to the primary road rights-of-way are to be encased at entrances and crossings of hard-surfaced roads and streets. Encasement exceptions for longitudinal installations may be authorized by the district representative on a case-by-case basis.

d. Electrical service. Underground electrical service is to be placed in a conduit from right-of-way line to right-of-way line and clearly marked by the utility owner at the outer limits of the rights-of-way.

e. Pipelines, except water.

(1) Exceptions to pipeline encasement may be made for a pipeline carrying natural gas at an operating pressure of 60 pounds per square inch or less that is made of copper, steel or plastic and is protected and installed in accordance with generally accepted industry standards; and the utility owner certifies as a part of the permit that these standards are met.

(2) Exceptions to pipeline encasement may be made for a pipeline carrying liquid petroleum products, ammonia, chlorine or other hazardous or corrosive products if the pipeline meets all of the following requirements and the utility owner certifies as a part of the permit that these requirements are met:

1. The pipeline is welded steel pipeline.
2. The pipeline is cathodically protected.
3. The pipeline is coated in accordance with generally accepted industry standards.
4. The pipeline complies with federal, state and local requirements and meets generally accepted industry standards regarding wall thickness and operating stress levels.

(3) Pipeline encasements are to be vented and marked at the outer rights-of-way limits. The markers are to meet generally accepted industry standards and include the following information:

1. Name and address of the utility owner.
2. Telephone number to contact in case of an emergency.
3. Type of product carried.

f. Communication cable. The department may require encasement of communication cable.

g. Sanitary sewer lines. Exceptions to sanitary sewer line encasement may be made for gravity flow lines installed subsequent to road construction if all of the following requirements are met:

(1) The opening is cut to the size of the carrier pipe so that there are no excessive voids around the pipe.

(2) The pipe is of sufficient strength to withstand the external loads created by the vehicular traffic on the roadway being traversed.

(3) Lines beyond the toe of foreslope are properly installed and compacted to department specifications.

h. Waterlines. Exceptions to waterline encasement may be made for the following:

(1) Encasement is not required where it is impractical due to existing conditions as determined by the district representative.

(2) Waterlines with an inside diameter of 2 inches or less need be encased only from toe of foreslope to toe of foreslope. Venting and sealing of the encasement are not required.

(3) Waterlines installed in advance of road construction need not be encased if the pipe is properly embedded and made of extra strength cast iron or ductile iron pipe with mechanical joints and seals, or equivalent.

i. Installations vulnerable to damage. When it is acceptable to both the utility owner and the department, an underground utility facility that, by reason of shallow depth or location, is vulnerable to damage from road construction or maintenance operations may be allowed to remain in place and shall be protected with a casing, suitable bridging, concrete slabs or other appropriate measures and noted in the permit.

j. Other installations. When it is acceptable to both the utility owner and the department, an underground utility facility not otherwise addressed in this subrule may be installed without protective casing if the installation involves trenched construction.

115.12(6) Multiduct systems. The department may require installation of a multiduct system to be shared with others. Details of the installation are subject to department approval.

a. For other multiduct systems, the department may designate a “lead company” for the multiduct system. The lead company will generally be the first utility owner requesting occupancy. The lead company is to:

- (1) Design and install the multiduct system.
- (2) Maintain the multiduct system.

(3) Provide all capital required to construct the multiduct system.

b. Once a multiduct system has been established, the department may require future occupancies to be located within one of the unoccupied inner ducts of the system. If all inner ducts are occupied, the department may require the establishment of an additional multiduct system. Subsequent occupants of a multiduct system should share equally in the entire capital cost of the utility facility. As each new occupant is added to an existing system, the department may require the new occupant to pay its proportionate share based on the number of inner ducts it occupies.

c. More information is contained in subrule 115.15(8) regarding occupancy fees for longitudinal installations on freeways.

115.12(7) *Procedures for backfilling trenched construction and jacking or boring pits.*

a. When a carrier, pipe, conduit, or cable is placed by trenched construction, jacking or boring, the backfill shall be placed and compacted in accordance with department specifications so that there is no settlement or erosion. Should settling or erosion of a trench be observed, the utility owner will be responsible to correct the problem.

b. Backfill under roadways or entrances is to be of a suitable material to minimize settlement at the site. Examples of suitable material include granular backfill or flowable mortar.

115.12(8) *Procedures for trenchless construction.*

a. When trenchless construction techniques are used, the bore is to be as small as practical and in accordance with department specifications.

b. Grout backfill is to be used for all unused holes and abandoned pipes. Grout or sand backfill is to be used for any borehole more than 2 inches larger than the installed casing or other utility facility. All bored utility facilities are to be constructed in such a manner that surface water is not transported to or otherwise allowed access to groundwater.

115.12(9) *Procedures for pavement removal.*

a. When the existing pavement is cut to accommodate a utility installation, the cut shall be made with a concrete saw.

b. The dimensions of the pavement removal shall be 6 feet in length and full lane width unless otherwise authorized by the district representative. If the distance from the specified cut to any adjacent longitudinal or transverse joint or crack is less than 4 feet, the pavement removal shall be extended to the joint or crack.

c. The district representative will make the final determination on the required depth and width of cut.

115.12(10) *Procedures for pavement replacement.*

a. Restoration of pavement shall be accomplished in accordance with department specifications.

b. The district representative may authorize temporary repair with bituminous material.

c. A permanent patch shall be placed as soon as conditions permit.

115.12(11) *Clear zone for pits.* Jacking or boring pits are to be located beyond the clear zone or road foreslope, whichever locates the pit a greater distance from the edge of the traveled way.

a. On freeways, jacking or boring pits are not allowed within the median.

b. On rural-type, nonfreeway primary roads, jacking or boring pits may be allowed within the median or foreslope upon request and at the discretion of the district representative.

c. On urban-type, nonfreeway primary roads, jacking or boring pits should be located at least 2 feet from the curb.

d. Jacking or boring pits authorized within the clear zone are to be protected at all times. All protection measures are to be included in the permit request. Examples of protection measures include backfilling of the pit, temporary barrier rail, or reflective fence.

115.12(12) *Construction methods.* Casing and pipeline installations are to be accomplished by dry boring, tunneling, jacking, trenching, or directional drilling.

a. The use of water under pressure, jetting or puddling to facilitate boring, pushing or jacking operations is not allowed.

b. Water may be used to lubricate a cutter and pipe during a dry boring operation.