

Categorical Permission Alteration Description – 11. Fiber Optic and Dry Utility Pipes

The categorical permission covers the installation, modification, and replacement of dry utility pipes, such as fiber optic cables, subject to certain terms and conditions. The total area of disturbance must not exceed 5 acres. Utility pipes should be designed to prevent (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new fiber optic, electrical and other dry utility pipes installed by open trench methods must go up and over the levee design water surface elevation (DWSE).

Pipes installed through the levee should be as close to right angles to the levee centerline as practicable.

All pipes and related structures that cross the levee foundation at a depth less than or equal to two times the height of the levee should be analyzed for uplift; pipes crossing the levee surface must be designed to counteract buoyant forces at the DWSE.

Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews or maintenance (e.g., electrical pipes).

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pipes located within or beneath a levee must have watertight joints that can accommodate movement.

If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 11. Fiber Optic and Dry Utility Pipes

Please note, the following checklist is intended for planning purposes only and reflects information that USACE reviewers will look for when considering a Section 408 request for fiber optic and dry utility pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

Installation Modification Replacement

Maximum total area of disturbance is 5 acres:

New dry utility pipes go up and over the DWSE: Yes NA

Pipes crossing the levee surface are designed to counteract buoyant forces at the DWSE:
Yes NA

Plans show that pipe location and orientation will be clearly marked in the field:

Plastic pipes within the levee embankment or its foundation are embedded in concrete:
Yes NA

Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes NA

If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes NA

Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content:

All fill will be free of organics or other inappropriate materials:

Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pipes located within or beneath a levee will have watertight joints that can accommodate movement: Yes NA

If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes NA

All work above DWSE? Yes No

Any work >3 feet into the levee embankment? Yes No

Any work below DWSE? Yes No

Any work within levee embankment? Yes No

Any work ≤ 50 feet below the channel invert? Yes No