

DEPARTMENT OF THE ARMY  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, California 90053-2325

CESPL-CO-O

OFFICE MEMORANDUM  
No.

1 October 1995

Operations and Maintenance  
POLICY ON CROSSING AND COVERING  
FEDERALLY IMPROVED FLOOD CONTROL CHANNELS

1. PURPOSE. This memorandum establishes policy for adding any type of cover over open flood control channels. Covering the channels for the purpose of this OM means structurally bridging completely across or cantilevering part way across the channel for the purpose of using the air space located within the right-of-way of the channel.

2. APPLICABILITY. This OM is applicable to the Corps of Engineers and all State, County, or Local Agencies who have ownership rights, flowage easements, or other real estate instruments over property in use as flood control channels or levees constructed wholly or in part through Federal funding, or constructed by State, County or other Local Agencies for which Federal funds have been subsequently been used in floodfighting under Public Laws 99 or 288.

3. REFERENCES.

- a. Title 33, Code of Federal Regulations.
- b. LADM No. 1130-2-13.

4. SCOPE. The policy in this OM pertains to all open flood control channels constructed by the Corps of Engineers over which the Corps has review authority for modifications or for which Federal funds were used in floodfighting under Public Law 99 or Public Law 288.

5. POLICY.

a. It is the policy of this District to discourage the use of air space over open flood control channels. However, practicality dictates that requests to cover open flood control structures for various reasons will increase in future years. It is the intent of this District to protect flood control structures from modifications that will affect their integrity and the ability to operate and maintain the structures. Our CESPL-CO-O

responsibility is to guarantee a project's ability to function as designed throughout the project's life.

6. POTENTIAL MODIFICATIONS. The following types of structural modifications for the use of air space are recognized:

- a. Parking Lots
- b. Landscaped Plazas
- c. Cantilevered Buildings
- d. Structures, Habitable & Non-Habitable
- e. Bridges for:
  - (1) Rail transit
  - (2) Automobile
  - (3) Pedetrian
  - (4) Utility
  - (5) Electrical
  - (6) Natural Gas
  - (7) Petroleum
  - (8) Water
  - (9) Sewage
  - (10) Communications

7. REQUIRED ANALYSES. All structural modifications will address the following concerns:

- a. Hydraulic effects of flood flows
- b. Structural design
- c. Operations and maintenance requirements
- d. Real estate
- e. Legal

8. HYDRAULICS. Determination of ultimate channel capacity will be required to properly size a proposed structure. The following issues wii be addressed:

- a. Analysis of the upstream contributory watershed for degree of future watershed development and accompanying increase in discharges to the channel.
- b. Identification of existing structures covering the channel upstream of the proposed overbuild and their distance from the site. This information should include, but not be limited to, the type of overbuild and sectional views of the overbuild. The intent is to determine existing constraints that could prevent practical, future channel enlargement.
- c. Consideration of the potential for floating debris in the channel and its impacts.
- d. Residual overflow patterns if discharges exceed the improved channel's capacity.

e. Uncovered channels have been designed for open channel flow. Covering such a channel could possibly cause pressurization within the covered section. Pressurization will be addressed by:

- (1) Analysis of flow under design discharge
- (2) Identification of discharge under which pressurization will occur.
- (3) Provision for adequate venting to prevent condition of pressurization

9. STRUCTURAL. All proposed structures must avoid placing any additional loadings on channel walls. Structural calculations will be submitted for verification. If a structure is to be replaced at grade, an open channel will be replaced with a box culvert structure. (See paragraph 11.).

10. OPERATIONS AND MAINTENANCE. Sufficient space must be maintained for access to channel walls and invert for maintenance purposes. This includes, but is not limited to, access roads along levee walls or at the top of slopes.

a. Removable Panels. Removable panels should be provided wherever practical for ease of access to the channel invert. The most practical application is when the cover will be used as an integral part of a parking lot.

b. Structures. A 12-foot high clear zone above the channel covering must be maintained. In addition, a 10-foot setback on each side of the channel must be maintained. For a box structure replacement. (See paragraph 11.).

11. BOX CULVERT STRUCTURES. An open channel may be covered by a structure at grade, if the open channel is replaced with a structurally designed box culvert. The following additional criteria is placed on this type of channel modification.

a. Hydraulics.

(1) Splitter Walls. No splitter walls will be permitted to begin at any location within the box section. Any splitter wall will commence at the upstream entrance to the box.

(2) Pier Noses. A pier nose will be constructed at the entrance to a double box channel. The purpose of this location is for easy identification of debris hangup and removal of the debris from the splitter wall.

(3) Culvert Entrance/Exit. The design configuration of the box culvert may result in transitions to and from the cross  
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section of the existing channel. A hydraulic analysis of these transitions will be required.

b. Structural.

(1) Design will be in accordance with the following Engineering Manuals:

- (a) EM 1110-2-2102, entitled "Waterstops and other Joint Materials"
- (b) EM 1110-2-2104, entitled "Strength Design for Reinforced-Concrete Hydraulic Structures"
- (c) EM 1110-2-2902, entitled "Conduits, Culverts and Pipes"

(2) Structures will place no additional loadings on the flood control structure. Structural calculations will be required for verification.

c. Operations and Maintenance. Box culvert structures will be sized to allow equipment access throughout their length. The minimum size will be 10-feet wide by 12-feet high.

12. REAL ESTATE.

a. Right of Ingress/Egress. All agencies responsible for construction and/or maintenance retain the right for access to any portion of a project feature at all times.

b. Financial Cost. Any costs encountered in gaining such access will be borne by the entity receiving the permit to construct.

c. Ownership. Sufficient right-of-way, either by fee title or flowage easement acquisition, will be secured to properly operate and maintain all flood control structures. Verification of the necessary right-of-way will be made by this District.

d. Excess Right-of-Way. Conversion of an existing open channel structure to a covered structure may result in the identification of land excess to project needs. These excess lands may be disposed of in a manner and at a time satisfactory to the Corps of Engineers.

13. LIABILITY. The Corps of Engineers will not be held liable for any safety issue resulting from the actions discussed in this OM.

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14. CONCEPTUAL APPROVAL. Conceptual approval may be granted for the activities discussed in this OM. However, all applicable conditions contained in this OM must be satisfactorily addressed prior to final approval from the Corps of Engineers.

FOR THE COMMANDER:

MICHAL R. ROBINSON  
COL, EN  
District Commander

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