

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

*Making Conservation
a California Way of Life.*

To: JENNIFER LOWDEN
Division Chief

Date: April 9, 2018

Attention: John Kluge

File:

From: DOLORES VALLS 
State Bridge Maintenance Engineer
Structure Maintenance and Investigations

Subject: **SM&I'S GUIDELINES ON AIR SPACE FACILITIES**

Following a bridge collapse in Atlanta, Georgia on I-85 in March 2017, caused by a fire of stored high-density polyethylene (HDPE) conduit, Caltrans recognized that although a low probability, an event similar to the Georgia I-85 failure, could occur here. Caltrans took the opportunity to review its under-bridge material storage policies and developed an updated policy. During the discussion of the policy review, it became apparent that the Right of Way Manual Chapter 15 Exhibit 15-EX-12, "OSM&I's Guidelines on Air Space Facilities," needed to be updated. This document serves as that update.

The safety of the travelling public will be safeguarded by using the following guidelines for permanent and semi-permanent air space facilities:

1. Facilities and stored materials must maintain a minimum setback of 20 feet from the face of any column.
2. Facilities and stored materials must maintain a minimum setback of 30 feet centered under bridge expansion hinges to allow installation of temporary supporting falsework or to perform other future work on a hinge. The setback must extend from edge to edge of deck.
3. Maintain vertical clearance of at least 6 feet, measured from the lowest bridge member (across the width of the bridge) to the top of any storage material/facility.
4. Caltrans reserves the right of access to all areas of the structure in the event of a seismic occurrence, structure retrofit activities, routine maintenance and or inspection.
 - a. Typical areas for inspection access include the bridge abutments, spans, hinges, columns and bent caps.
 - b. Space to maneuver man lift vehicles shall be provided under all bridge spans, hinges and bent caps. Generally, access must be 12 feet wide and extend from a public street to the bridge member.

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- c. Adequate clearance for inspection with Under Bridge Inspection Trucks shall be maintained.
5. Routine access shall be provided within 72 hours. Emergency access must be available within one hour of notification.
6. Earthwork or superimposed loads from the airspace use must not jeopardize bridge foundations or alter the dynamic response of the bridge.
7. Drainage systems must not be obstructed. Maintain a minimum clearance of 3 feet from all drain outlets.

If you have any questions or comments please contact Summer Silveira, at 916-227-8050 or Kevin Keady at 916-227-2446.

GENERAL REQUIREMENTS
FOR
USE OF AIRSPACE WITH CALTRANS STRUCTURES

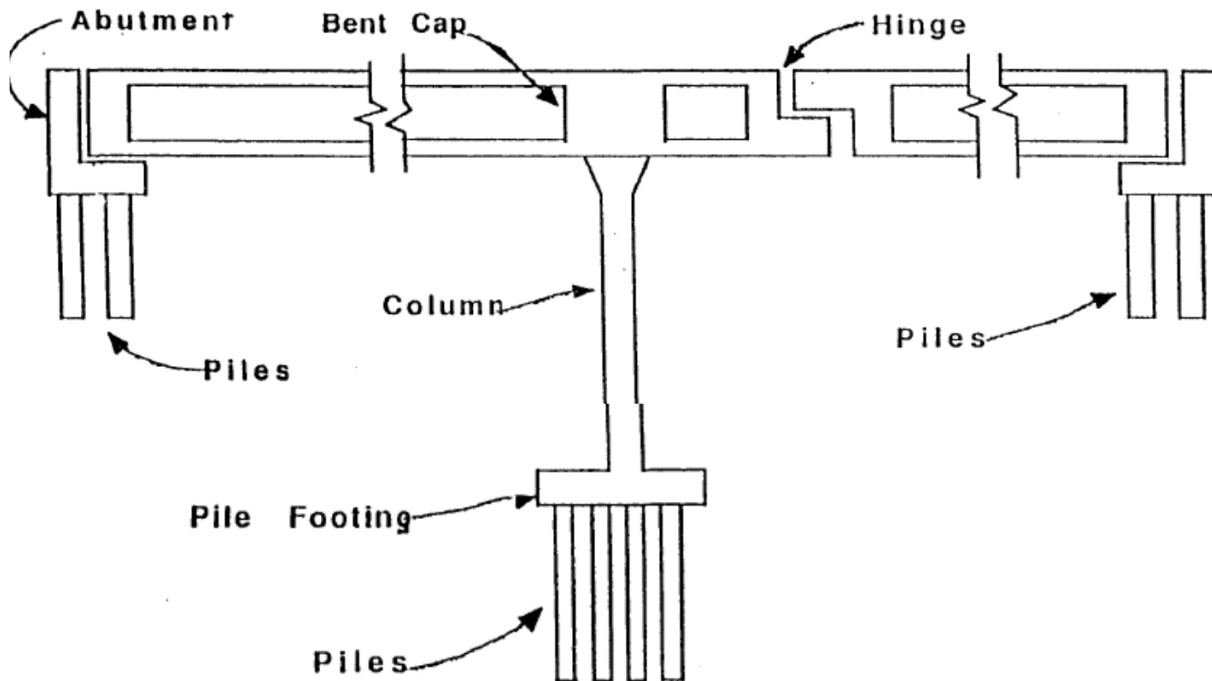
Any deviation from the following conditions must be approved in advance by the Office of Structures Maintenance Airspace Coordinator - Reviewer.

- 1) The use of parcels under and adjacent to Caltrans structures is subject to approval by the Division of Structures Airspace Coordinator/Engineer prior to any agreements that may be binding on the use of the parcel.
- 2) Long-term Building Development Leases should not be granted in an area where the foreseeable future expansion or maintenance of the transportation facility can be expected.
- 3) Caltrans reserves the right of immediate access to all areas of the structure in the event of a seismic occurrence and/or structure retrofit activities. This right of access includes but is not limited to all activities associated with any inspection needs, and any activities associated with the maintenance, rehabilitation or retrofit of the structure.
- 4) Airspace facilities shall not be used for the manufacture or storage of flammable, explosive, or hazardous materials such as fuel tanks, pumps and vents.
- 5) Access for bridge inspection must be maintained. For secured areas, the Lessee shall provide the following information to the Office of Structure Maintenance and Investigations:
 - a) Responsible party to contact.
 - b) Alternate contact in case of emergency.
 - c) Routine access must be available within 72 hours. Emergency access must be available within one hour.

The above information shall also be clearly posted at the entrance(s) to the secured area and will be kept current at all times.

- 6) Certain minimum vertical and lateral clearances will be required. The specific minimums will be determined upon review of the preliminary plans. As a guideline, buildings will have the following clearances:
 - a) Buildings, having an independent roof, constructed under any bridge shall have a minimum of six (6) feet vertical clearance for inspection. The building roof shall be constructed to support painters and their equipment. If the building is to be built under a hinge in the bridge, see (b) below.
 - b) Improvements under a highway structure (with hinges) will provide one of the following
 - i) Facilities and stored materials must maintain a minimum setback of 30 feet centered under bridge expansion hinges to allow installation of temporary supporting falsework or to perform other future work on a hinge. The setback must extend from edge of deck to edge of deck.
 - ii) A structural support wall shall be built as a part of the airspace use to directly carry the dead and live load occurring at the hinge from the highway structure.
 - c) The use of airspace above the existing bridge deck plane is prohibited within an area 15 feet horizontally from the edge of bridge and a horizontal plane at least 16'- 4" (or a minimum vertical and horizontal clearance established by the state) above the bridge deck.
 - d) Buildings located within 20' from the edge of the concrete bridge shall be of one-hour fire

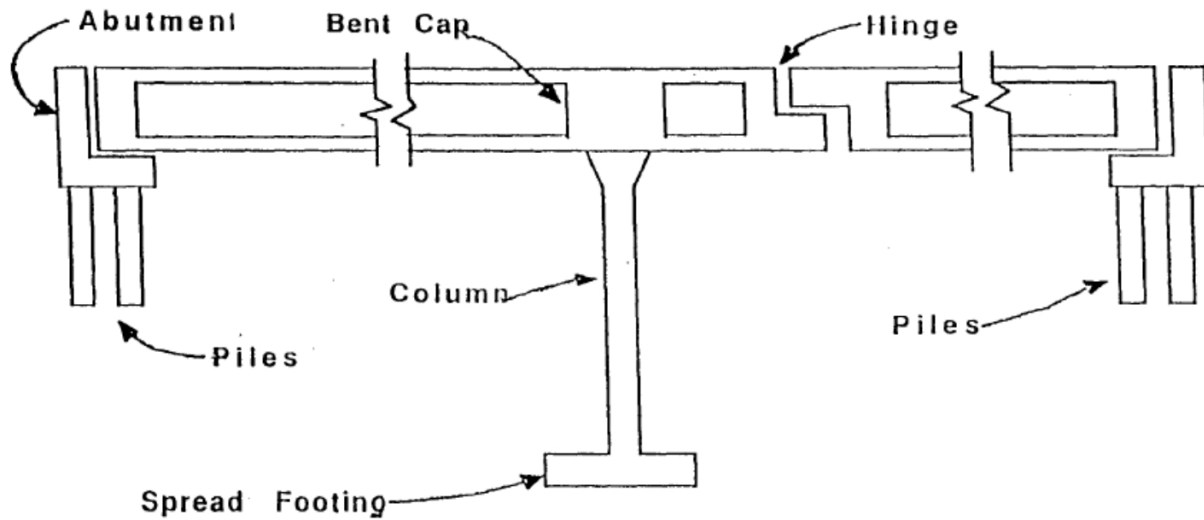
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- resistive construction and fully sprinklered
- e) Buildings located within 20' from the edge of the steel bridge shall be of noncombustible construction.
 - f) Buildings lower than the bridge deck but higher than the bottom (soffit) of the bridge shall not be located closer than 5 feet from the edge of the bridge.
- 7) Earthwork or superimposed loads from the airspace use, must not jeopardize bridge foundations. If earthwork (including excavations) or additional loadings are a part of the work, a preliminary plan (with appropriate geology or foundation report) is required for review prior to proceeding with the final design.
- 8) Nothing shall be fastened to the bridge proper without prior approval.
- 9) The bridge drainage system must not be obstructed. Airspace facilities shall have a minimum clearance of 3' from all drain outlets near the base of the columns and provisions for backflushing column drains must be provided.
- 10) The Lessee will be responsible for the repair of any damage to the bridge caused by the construction, operation and maintenance of the airspace facility, and vehicle parking.
- 11) All construction must meet the fire codes of local building and fire departments and the State Fire Marshall.
- 12) Minimum Fire Code Guidelines (additional requirements may apply)
- a) Buildings constructed under concrete bridges:
 - i) Single and multi-level buildings having an independent roof shall be one-hour fire resistive construction.
 - ii) Single level buildings using the soffit of the bridge as a roof shall be of noncombustible construction.
 - iii) Multi-level buildings using the soffit of the bridge as a roof shall be of noncombustible construction. Rooms on the lower levels including the floor of the upper level may be of one-hour resistive construction. A one-hour separation shall be required between noncombustible construction and one-hour fire resistive construction.
 - b) Buildings constructed under steel girder bridges:
 - i) All buildings shall have an independent roof and shall be of noncombustible construction.
 - c) All buildings shall be equipped with sprinklers.
- 13) The State shall not be held responsible for any leakage from bridge joints, soffit vents, access openings or cracks. Should the Lessee elect to intercept, collect and dispose of said leakage, he may do so at his expense subject to the approval of the State.
- 14) All Engineering plans, specifications, calculations or other Engineering documents shall be provided with the submittal and shall be stamped and signed by the California Registered Engineer(s) in responsible charge of the documents. A submittal shall consist of three sets of the forgoing documents.

AIRSPACE SETBACK GUIDELINES

Note: There may be instances where larger setbacks will be required, however, adequate access and working room for the vast majority of our structures will be provided by using the following guidelines for permanent and semi-permanent air space leases:

1. With 24 hour notification access to each column footing, pile cap or column shaft must be provided to allow mobilization of equipment and vehicles for repair. The access must be a minimum of 12 feet wide and must extend from a public street to the columns.
- 2) The facility must maintain a minimum setback of 10 feet from the perimeter of a column footing or pile cap and maintain a minimum setback of 20 feet from the face of column shaft.
- 3) Access to hinges must be provided to allow moving vehicles and equipment to the hinge. The access must be a minimum of 12 feet wide and extend from a public street to the hinge.
- 4) At hinges the facility must maintain a minimum setback of 30 feet centered under the hinge to allow installation of temporary supporting falsework or perform other future work on the hinge. The setback must extend from edge of deck to edge of deck. In lieu of providing the 30 foot hinge access, jacking points may be constructed in the air space facility capable of supporting the hinge and a working platform to perform future work on the hinge.

AIRSPACE SETBACK GUIDELINES



Note: Abutment is the term for the supports at the ends of the bridge. Bent is the term for a support between the abutments. The parts of a support are: the cap, column or wall and spread footing (without piles) or pile footing (with piles).

The pile footing is sometimes referred to as a pile cap.