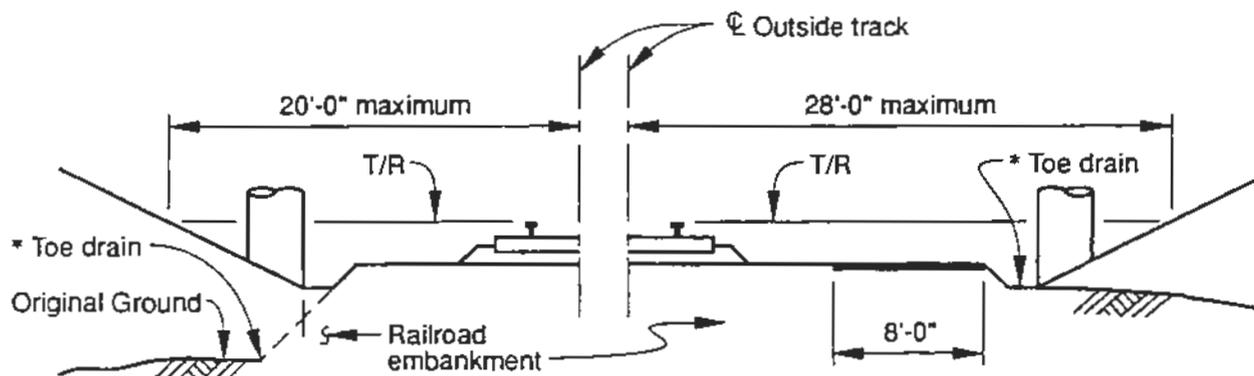


Clearances

The California Public Utilities Commission requires a minimum vertical clearance of 22'-6" above tracks on which freight cars not exceeding a height of 15'-6" are transported. A minimum of 23'-0" should be used in design to allow for reballasting and normal maintenance of track. The FHWA will participate up to a vertical clearance of 23'-0" without additional justification.

Horizontal clearance requirements for various types of superstructures are shown in Section 12 of *Bridge Design Details*.



Cut or Embankment Section

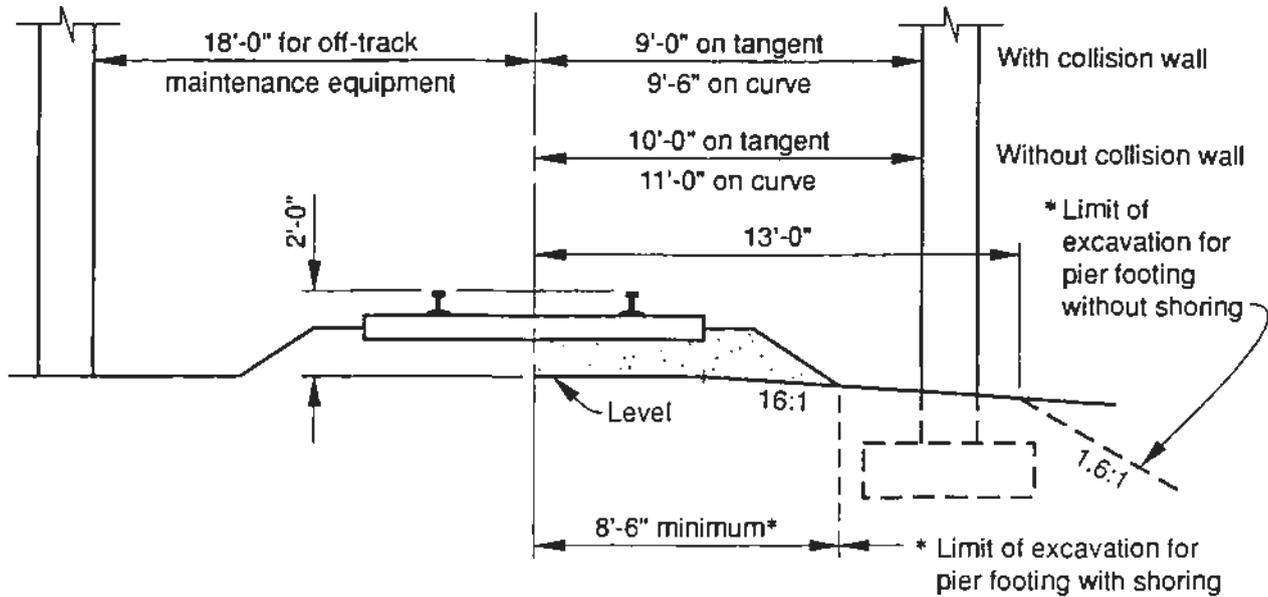
Horizontal RR Clearances

Note: The FHWA will participate in paying for structures with the above maximum clearances. Less clearance can be used if approved by the RR.

Clearances may be increased on a case by case basis, if it can be justified by hydraulic analysis for drainage or to accommodate special conditions such as heavy or drifting snow. It is recommended that piers typically be placed beyond the drainage ditches.

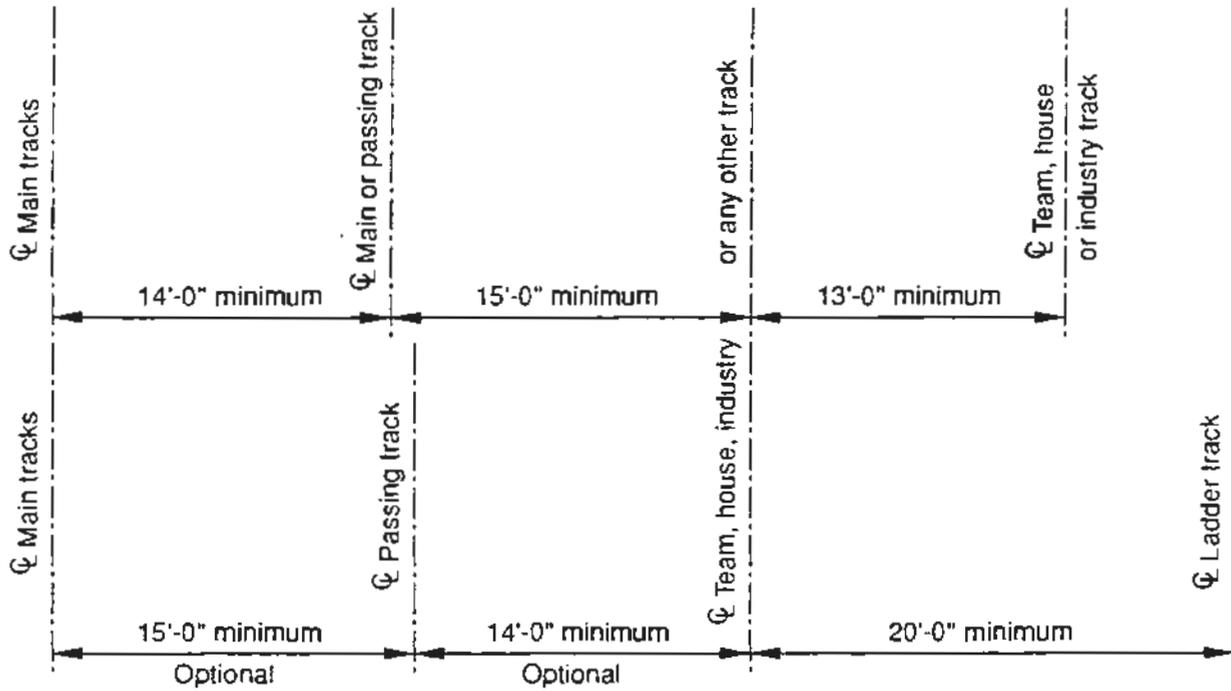
* Provide for continued railroad drainage.

Supersedes Memo to Designers 17-105 dated June 1989



* Excavations for pier footings without shoring of track roadbed shall not be made closer than the limit line shown with slope of 1.6 to 1 starting at subgrade 13'-0" from center line of track. Excavations closer than this sloped limit shall not be undertaken without prior approval by railroad of plans for shoring of track roadbed, and in any instance shall not be approved closer than 8'-6" horizontally from center line of track to near edge of excavation.

RR Clearances



Clearance Between Parallel Tracks



Floyd L. Mellon



for Jerry A. McKee

JGS:jgf