INTEROFFICE MEMORANDUM

Date: March 4, 1996

TO: Bridge Division Engineers

FROM: Mike Coogan

SUBJECT: Plate girder splice elimination by fabricators

We occasionally get requests from fabricators to eliminate bolted field splices from steel sections by extending larger plates from adjacent negative moment regions. Such requests may have been routinely approved in the past, but most likely create undesirable conditions.

AFCO chose to eliminate the field splice in the end span of a 545' unit and extend the plates shown over the adjacent intermediate bent to the end bent. This was done without changing the number of shear connectors. The larger plates caused the theoretical ultimate load failure mode to switch from tension in the structural steel to shear at the slab-girder interface, a highly undesirable type of failure. Additional shear connectors were specified as a revision on the shop drawings to assure a tension failure.

It should be noted that the larger steel plates added nothing to the ultimate strength of the span. The number of shear connectors provided by the design was close to the number required for ultimate strength; therefore, no additional load could be carried by the span without shearing the slab from the top flange. This situation may be fairly typical of our designs and may also occur with rolled beam spans when the sections vary.

The length of girder sections that can be shipped seems to be growing. We have received shop drawings with girder segment lengths up to 111' from AFCO.