

pretensioned drop-in beam supported by cantilever beams resting on the main piers. The end beams of the side spans and the drop-in span were designed to be entirely pretensioned with ½-inch diameter straight and deflected strands. The variable depth portion that cantilevers over each pier was designed to be post-tensioned using 15 tendons. The tendons draped over the top at the pier and anchor at the ends of the variable depth cantilever portion. Two of these tendons were to be post-tensioned after casting for shipping and erection, and the rest were post-tensioned in phases as the construction of the deck proceeded. During construction, the contractor made use of special provisions that permitted changing the prestressing of the variable depth members from post-tensioned to pretensioned.¹¹⁴

According to the *New Direction for Florida Post-Tensioned Bridges* published for the FDOT in 2002, the Sebastian Inlet Bridge represents a significant early post-tensioned bridge design in Florida although it was eventually built as a pre-tensioned bridge. Therefore, the Sebastian Inlet Bridge is newly recommended NRHP-eligible under Criterion C in the area of Engineering for its high-integrity embodiment of a prestressed concrete bridge in Florida.

**CR-316 over Proposed Cross
Florida Canal**

Marion County

FDOT #364040, 8MR3585

This 1969 continuous steel girder bridge carries CR-316 over the proposed Cross Florida Canal near Fort McCoy in Marion County. It was designed and built by the U.S. Army Corps of Engineers. The bridge incorporates 52 concrete approach spans and three main spans with a cast-in-place concrete deck; it measures 4,449 feet in length. The bridge features a vertical clearance of nearly 150 feet, which allows the structure to have a low environmental impact on the natural resource below and around it, the Ocala National Forest.



**Photo 5-43. CR-316 over Proposed Cross Florida Canal,
Marion County (No. 364040)**

This structure is a remarkable example of an ordinary bridge elevated to a higher status for the design of its “common” components within its natural setting. Most bridges of this type span large bodies of water like the St. Johns or Hillsborough Rivers whereas this one spans a forest. Nestled in the southwest corner of the Ocala National Forest, experiencing the approach with its apparent vanishing point and suspended feeling above the forest canopy at its crest is memorable. The selection of this bridge design not only respects its natural surroundings but was also done in anticipation of the proposed Cross Florida Barge Canal. Although never completed, the Cross Florida Barge Canal was intended to cross northern Florida, connecting the Gulf Intracoastal Waterway with the Atlantic Intracoastal Waterway. Authorized by

¹¹⁴ Corven Engineering, Inc., *New Directions for Florida Post-Tensioned Bridges – Volume 1 of 10: Post-Tensioning in Florida Bridges*. Tallahassee, FL: Corven Engineering, Inc., 2002. pp.7-8.

Congress in 1942, construction of the canal did not begin until 1964. The project was halted by President Nixon in 1971 after several lawsuits based on environmental concerns were filed seeking an injunction to the project. About 25 miles of the 110-mile project were built: the cross-country section from the St. Johns River to the Ocklawaha River, part of the route along the Ocklawaha River, and a small section at the Gulf of Mexico ending at the dammed Lake Rousseau. The completed infrastructure included three of the five planned locks, all three planned dams, and four of the 11 planned bridges. High bridges like this one were built over the canal, as well as several over the Ocklawaha River where it was not widened to the canal.¹¹⁵

This bridge exists as a living relic to the planned endeavors of Congress to connect the Gulf and Atlantic Intracoastal waterways through the Cross Florida Barge Canal. It remains one of the four constructed bridges for the project. The bridge is newly recommended NRHP-eligible under Criterion A in the areas of Community Planning and Development and Transportation for its association with the proposed Cross Florida Barge Canal. It is also eligible under Criterion C in the area of Engineering as a high integrity example of a continuous steel girder bridge.



Photo 5-44. SW 117th Avenue Bridge, Miami-Dade County (No. 874307)

SW 117th Avenue Bridge over North Canal

Miami-Dade County
FDOT #874307, 8DA11918

This 1937 through girder bridge carries SW 117th Avenue over the North Canal (C-104) near Homestead. The single 51-foot span carries a cast-in-place concrete deck between two simple steel girders, which also serve as the bridge railings. The bridge rests on rubble and poured concrete retaining walls. The non-navigable North Canal predates the 1948 U.S. Army Corps of Engineers' Central and Southern Florida flood control project, but was later incorporated

into this system. This may be Florida's only remaining steel through girder bridge that is used to carry automobile traffic. The SW 117th Avenue Bridge appears to retain its historic physical integrity. Therefore, this bridge is newly recommended NRHP-eligible under Criterion C in the area of Engineering as a rare example of its type.

¹¹⁵ Department of the Army, *Cross Florida Barge Canal Restudy Report Summary* (Jacksonville, FL: Jacksonville District Corps of Engineers, 1976), 1, 7.