ceEntek

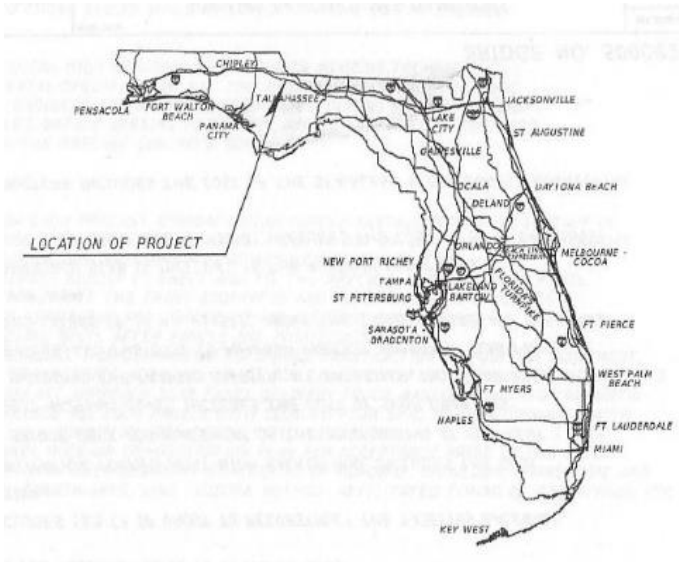
PROJECT NAME: I-10 WB Bridge over Flat Cr, FL

Photo: I-10 West Bound Bridge over Flat Creek, Gadsden County, Florida (Google)

Location: I-10 (Exit 166 WB), Gadsden Co, FL
Owner: Florida Department of Transportation
Product: ceEntek ce200SF-G™

Product Volume: 3.4 m^3 (4.4 cy)
Connection Size: 1'-2" x 9" x 28 ft
Completion Date: August 2020

PROJECT SITE



Map: State of Florida showing Bridge Site Location

The I-10 West Bound Bridge over Flat Creek, Florida is a 1976 cast-in-place deck on prestressed concrete girders. The bridge is a 6-span, 2-lane structure carrying an ADT of 12,000 (32% trucks). The bridge is a critical part of the mainline Interstate I-10 connecting Jacksonville, FL with Los Angeles, CA.

The 2018 National Bridge Inventory (NBI) Condition Rating for this bridge was good, with some minor problems. The bypass/detour length for this bridge in the event of a total closure is 24 miles (38 km), making complete temporary closure a significant inconvenience to the motoring public.

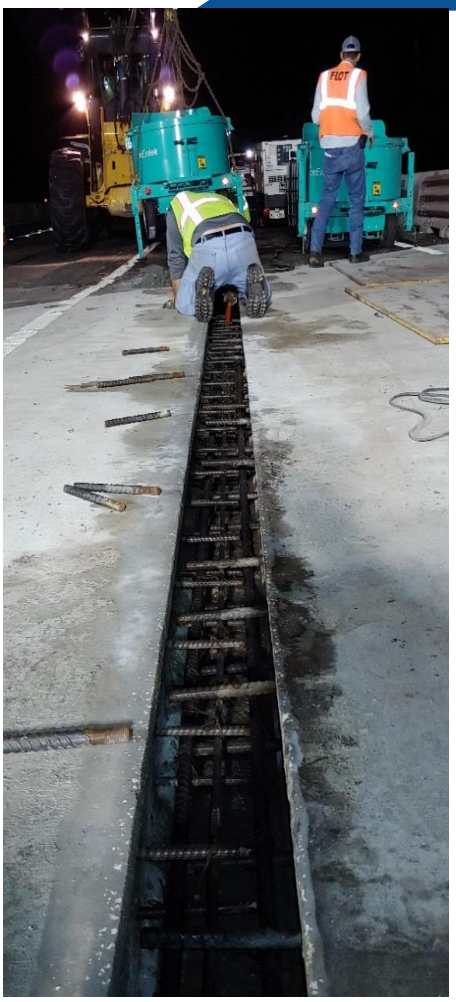
PROJECT PROFILE

POJECT DESCRIPTION

Interstate I-10 is the major east-west transportation corridor across the panhandle of the state of Florida. The Florida Department of Transportation (FDOT) puts a great importance on maintaining a high-quality transportation route for this link and makes every reasonable effort to minimize any restrictions on traffic volumes during construction, rehabilitation, repair or maintenance.

While I-10 bridge over Flat Creek has an overall NBI rating as "good", the approach slabs were deteriorating due to the heavy and constant impact from the daily truck traffic.

When FDOT evaluated the options to provide a rapid replacement, they chose precast approach slabs with UHPC connections for the durability and speed of construction.



PROJECT EXECUTION

The ce200SF-G™ was batched on site with two ceEntek variable speed IMER750 Mixers to provide a continuous supply of UHPC into the slab connection shown in pictures above. UHPC was supplied on pallets in 20 kg (44 lb) bags, with 0.008" x 0.5" (0.2 mm x 13 mm) steel fibres and ceEntek's CNF enhanced paste. The mixing process took less than 6 mins per batch. The material used developed strength of 10,000 psi (70 MPa) in 10 hours to meet the project requirements which only allowed for a maximum of 12 hour driving lane closure.

Photos: Competed approach slab connections using ce200SF-G™ (L); Close-up of the interface bond between the precast approach slab and the ce200SF-G™ cast connection (R).