Extended-Joint Heavy-Duty Floor Slab

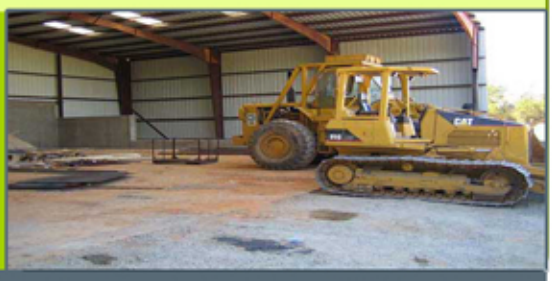
Attaway Waste Services, Greensboro, GA
August 2007

Project Description:

Floor slabs for waste transfer stations have historically been a problem for Attaway Waste Services of Greensboro, GA. Previous slab projects using conventional design and steel reinforcement had not solved the curling and joint issues under the heavy loading, impact, and abrasive environment of their business. Joint failure due to heavy loads and loader-bucket impact has also allowed liquid contaminants to leak into the sub-grade, causing a softening of the sub-base and further deterioration of the slab. Not wanting to repeat previous design failures, general contractor Chett Purcell of Purcell Construction, McIntire, GA contacted Fowler Flemister Concrete of Eatonton for concrete options and alternatives.

Aware of relatively new HVSF (High Volume Synthetic Fiber) reinforcing technology, Fowler Flemister's Alan Deariso worked closely with FORTA® representative Tom Baggett and the FORTA® Engineering Department to offer a joint-free alternative for a new Attaway heavy-duty slab. Conventional design for these transfer-station floors typically calls for 4,000 psi concrete reinforced with #4 rebar on 12" centers in the 10" thick slabs. The FORTA® alternative was the elimination of the normal steel by using 7.5 lbs./cu. yd. of the 2-1/4" long FORTA-FERRO® macro-synthetic fiber, and also the elimination of the normal sawcut-joints over the 80 ft. x 75 ft. expanse. Fowler Flemister supplied 185 cubic yards of FORTA-FERRO®-reinforced concrete for the new project, and was able to tailgate the delivery without a pumping operation that would have been necessary with steel-mat reinforcement. The concrete was placed directly on a rock sub-base, and a closed-cell foam was used as bond-breaker around the perimeter of the slab to allow for overall dimensional slab movement if warranted. One end of the slab was anchored on top of a concrete wall, where a 2 ft. x 18 in. curb was added to prevent loader mishaps off the slab. The entire concrete curb and slab system was water-cured for 14 days.

The slab has performed extremely well under use, which was the primary goal of owner Attaway Waste Services, however they were also rewarded with additional significant cost savings as a result of the fiber alternative. Areas of savings included fiber vs. steel material costs, steel placement labor costs, elimination of a concrete pump cost, and elimination of joint placement and joint filler. Most importantly to the project owner, this joint-free slab will be much more durable than their previous steel-reinforced slabs, and both initial cost and life-cycle cost will be greatly reduced as a result of the FORTA-FERRO® HVSF technology.



Details:

Owner: Attaway Waste Services, Greensboro, GA
Engineer: Deariso Engineering, Milledgeville, GA
Ready-Mix Supplier: Fowler Flemister Concrete, Eatonville, GA
General Contractor: Purcell Construction Co., McIntire, GA
FORTA® Representative: Tom Baggett, Macon, GA

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