



Expanded Shale, Clay and Slate Institute
Rotary Kiln Structural Lightweight Aggregate

UDOT I-15 Core Project & Sam White Bridge (American Fork, Utah)



When faced with the problem of having more freeway to construct than money to spend, the Utah Department of Transportation decided to see if a *Design-Build* bid process may help to solve this dilemma. As this project went out to bid, UDOT Engineers knew they had a fixed dollar amount of \$1.725 billion, and estimated they could rebuild 17 miles of freeway in a 54-month time frame.

The winning design-build team, Provo River Constructors, innovatively bid 24 miles of freeway reconstruction in a 36-month period. Provo River Constructors (PRC) is a consortium of over 30 member companies led by Fluor Corporation, Ames Construction Company, Wadsworth Brothers Construction Company and Ralph L. Wadsworth Construction Company.

Part of this rebuild project included the Sam White Bridge. It was constructed using the ABC method of bridge construction. The Sam White Bridge was moved into place with the use of SPMT's and, at 354 feet, is the longest two-span bridge to ever be moved with this method in the Western Hemisphere. The width is 80 feet bringing the total square footage of the bridge to 27,500 feet. The deck utilized 1134 cubic yards of lightweight structural concrete. The plastic density was specified at 120 pcf and called for laboratory concrete strengths of 5200 psi, specified as 4500 psi at 28 days in field cured conditions.

OWNER	UDOT
DESIGN BUILD TEAM	Provo River Constructors
CONCRETE CONTRACTOR	Wadsworth Construction
CONCRETE SUPPLIER	Staker/Parson Companies
LW AGGREGATES	Utelite Corporation
PROJECT LOCATION	Utah County – Interstate 15
PROJECT COST	\$1.725 Billion
CONSTRUCTION TIMEFRAME	36 Months
NUMBER OF MILES COMPLETED	24 Miles
63 Total Bridges, 52 Bridges w/ LWC 10 Freeway Interchange Re-Builds 1st Diverging Diamond Interchange in Utah	
The Sam White Bridge ABC bridge movement brought UDOT's total movements to 23, which is more than double the bridge movements for all other states combined.	
No federal monies were used for this project. The entire rebuild project was paid for with Utah Taxpayer dollars.	
COMPLETION DATE	November 2012



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PROJECT REQUIREMENTS

- ✘ 29,000 Cubic Yards of Utelite Structural Coarse Expanded Shale Lightweight Aggregate for structural lightweight ready mixed concrete.
- ✘ 6000 Cubic Yards of Utelite Structural Coarse Expanded Shale Lightweight Aggregate for precast parapet panels, and other precast items used in ABC bridge construction.
- ✘ Density Weights: 48 pcf at oven dry, 56 pcf (avg) at SSD.
- ✘ 4000 PSI Structural Lightweight Concrete – approach slabs.
- ✘ Structural Lightweight Concrete: 5200 psi in laboratory trial batch, specified as 4500 psi at 28 days in field cured conditions. Concrete plastic weight, 120 pcf with air-entrainment range of 4.5% to 6.5%. All of the structural lightweight concrete for bridge construction was pumped. 5 W/C Ratio, 20% Fly Ash Replacement.

Video: <http://www.youtube.com/watch?v=zHLfbG1v4c&feature=endscreen&NR=1>

Photo Gallery

