The historic English Turn community is located on a bend of the Mississippi River. Naturally, the instability common to land built by sediment is a hazard there, but strategic use of lightweight aggregate can help stabilize existing structures—and the landscape surrounding them.

ARCOSA LIGHTWEIGHT AGGREGATE STABILIZES SOFT LOUISIANA SOILS

Thanks to lightweight aggregate, a New Orleans home is back on stable ground after falling victim to coastal Louisiana's age-old issue of land settlement. That has a distressed homeowner feeling much better after the landscape surrounding his property in the historic English Turn community began sinking a few years ago.

Structurally, the house was in good shape because it was built on pilings. But over a four-year period, an extensive concrete paver driveway and several paver walkways sunk into the muddy, flexible soil. So did space under the house. Andre C. Monnot, P.E of Principal Engineering specified lightweight aggregate sand be pumped under the home to correct the substantial settlement.

To repair the driveway and sidewalks, pavers and a couple of feet of base and subbase material, were removed. Lightweight aggregate sand was added to a depth of approximately two feet. Friction pilings and a concrete base were also added where concrete pavers were to be re-installed.

In both cases, lightweight sand was used in place of traditional fill because it's lighter and won't consolidate like normal materials. The expanded clay lightweight aggregate is made from selective materials that is mined and fired in a rotary kiln to 2,000 degrees Fahrenheit. The end result is a high-quality lightweight aggregate that is inert, durable, stable and free-draining.

Jeff Speck, P.E FACI of Arcosa Lightweight says lightweight aggregate is perfect for the unstable Louisiana soil structure. "It is less than half the density of normal weight material. When you remove, in this case, approximately two feet of normal weight material and replace it with lightweight aggregate, you greatly reduce the vertical load. The goal, in this type situation, whether it is a driveway, walkway, home or larger project, is to achieve zero net weight impact on the underlying soil. Our product allows you to do this."

Ray Burlette, of Burlette Services, is a first time user of lightweight aggregate and could not have been happier with the product. “We pumped the lightweight sand mixed with water under the house. I couldn’t believe how seamlessly the product flowed,” says Burlette. Because of its lower weight, the product traveled faster, smoother, and more efficiently than normal sand. More importantly for the homeowner, it will offer a more permanent solution. We’re looking forward to using the product on future projects.”

English Turn, a 2,000-acre community, is located eight miles from the heart of New Orleans. The neighborhood is situated in the bend of the Mississippi River where the French outwitted the English in a battle for the settlement in the spring of 1699.

The English Turn home, like many homes in Louisiana, fell victim to the soft, settling soils. Elevation changes are common to the area. Lightweight aggregate will help to preserve the integrity of this home and, if Ray Burlette’s enthusiasm is an indicator, the product will become a common solution on other projects of this type in the region.

Replacing existing fill with lightweight aggregate helps reduce vertical load and avoids changes in impact on lower layers of soil and rock. The lighter weight also makes the process of pumping the aggregate under existing easier and smoother.