



Rapid Set® Mortar Mix precast concrete pipe (Houston, TX)

# PRODUCING DOT-APPROVED CONCRETE PIPE IN HOUSTON

Hanson Pipe & Precast LLC is one of the largest manufacturers of concrete products in North America, from storm drainage/retention structures and gravity pipe to precast bridges. The company's automated precast facility in Houston produces concrete pipe for storm water drainage systems, sewers and water treatment.

Because the facility is fully automated, it can produce 500 tons of varying-diameter pipe per production shift—or one pipe per minute. It also is one of the first concrete pipe facilities in the U.S. to use a fully automated curing system that controls heat and humidity independently and is designed for any length production shift, or continuous production shifts.

As part of the production process, Hanson employees inspect all pipe and use either Rapid Set® Mortar Mix, Cement All® or DOT Repair Mix to repair any flaws, in accordance with Texas Department of Transportation (TxDOT) specifications (DMS - 4655 Concrete Repair Materials). Under the specification, the repairs are considered "Type D" repairs, but also fall under "Type B" when fast-setting materials like Rapid Set products are used.

Mortar Mix provides rapid strength gain, high durability and low shrinkage in vertical and overhead applications. Cement All is a fast-setting, high-strength, non-shrink grout for applications including general concrete repair, industrial grouting, formed work and highway repair. Both are high-performance blends of Rapid Set® hydraulic cement and washed plaster sand or fine silica sand, respectively, that are non-metallic with no chlorides added. They are durable in wet environments, set in 15 minutes and are ready for traffic in one hour.

DOT Repair Mix is a rich blend of specialty sand, Rapid Set Cement and additives that is especially durable in harsh environments. It is ready for traffic and most loads within two hours.

## CONCRETE PIPE REPAIR

When the pipes and culvert sections are placed in the yard for curing, Hanson pipe finishers and repair crews inspect them and make repairs as needed. The most common patches are made around the joints, where the pipes seat together, as these areas must be flat and smooth to achieve a proper seal.

Repair crews use hand mixers to mix small, quarter-bag batches of product with water in a bucket. They add two packs of Rapid Set® Dark per bag to match the repair material to the concrete pipe. The additive darkens the color of cement, concrete, mortar, plaster and grout mixes.

The repair products are applied by hand and finished with a steel trowel to produce a smooth surface. Depending on the depth and size of repairs, the pipe either cures wet or with the aid of a curing compound.

These repairs are then inspected by TxDOT before the products can be approved for use.

To ensure that the facility is delivering the highest-quality concrete pipe to customers, Pat Liston, technical resource manager with Hanson, provides training and quality control for all pipe inspections. He also asks his CTS Cement field technician representative to evaluate the plant's repair procedures annually to confirm that the Rapid Set repair materials are being used correctly.

## PHOTOS:

Hanson employees and Texas Department of Transportation engineers are trained in the proper application of Rapid Set Mortar Mix and DOT Repair Mix.

