**Are there any cautions in the process?**

Plan the work and layout the site before the work starts. Make sure all equipment operators understand the importance of controlling the operation. Control the distribution of fly ash so the vane feeder does not get too far ahead of the blending operation. Be sure to have an adequate supply of ash on site and in delivery. Control the transfer of ash to the distributor truck.

During ash material transfer operations and other activities, it is crucial to keep trucks and equipment from running through the newly placed ash. The material will not be influenced too much by wind unless it is disturbed. Preserving environmental integrity is critical.

Since fly ash undergoes a change through hydration [much like cement does in concrete] it is very important to begin grading operations as soon as the fly ash is distributed and blended. Initial compaction should follow blending immediately. Open time during warm weather is 2-3 hours, after which achieving good surface results becomes more difficult. Keep in mind, enhanced materials will get hard and gain strength.

The contractor should carefully watch the yield of the fly ash during distribution. Pace or measure the remaining work and estimate volume requirements. Compare the data with fly ash supply. Avoid over or under treating any of the work areas.

The reclaimer operator must assure that all areas where ash is distributed are properly mixed or blended. Some overlap is better than leaving strips or other areas unmixed. Care needs to be taken to keep fly ash out of roadside ditches and off adjacent private property.

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**For additional information please contact our offices at:**

**Bingham Farms, MI 248-594-1991**

**Lee's Summit, MO 816-251-2100**

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CEMENT

Printed on recycled paper. PBFAFDRCE 2/08

# Full Depth Reclamation of asphalt pavements with self-cementing class C fly ash

## A FIELD GUIDE FOR OWNERS, ENGINEERS AND CONTRACTORS

### Questions and Answers

LAFARGE

# Full Depth Reclamation [FDR] with Self-Cementing Class C Fly Ash


### What is Fly Ash Stabilization?

Enhancing the strength of recycled asphalt pavement is achieved by applying controlled amounts of class C fly ash to the pulverized HMA [Hot Mix Asphalt] surface, thoroughly blending the ash with the recycled material and water, usually with a reclaimer or pulverizer, grading the material blend and compacting it. The stabilized material is now ready for paving.

### Why is FDR [Full Depth Reclamation] used?

Stabilizing FDR materials with fly ash makes them dry, stronger, very stable and easy to grade. The self-cementing fly ash makes the recycled HMA firm and strong, and allows construction operations to be completed under traffic. Subsequent construction operations can proceed.

### What types of equipment are required?

Essential pieces of equipment include a distributor truck, a reclaimer [pulverizer] for blending, a grader, a vibratory pad-foot roller, a drum roller and a water truck. A bucket loader is also helpful.

### Who controls the work activities?

Ideally, the recycling contractor is in charge of operations and controls the work flow. Others involved are the fly ash supplier, engineers and contractors who are in charge of related work such as storm sewer or other utility work. The recycling contractor in any case is in charge of the operation and controls work flow.

### Is the process difficult?

Stabilizing FDR materials with self-cementing class C fly ash is easy, but there are several very critical elements in the operation.

### Is the sequence of work activities important?

The success of any stabilizing project depends on having the component activities planned and closely controlled throughout the process. The preferred sequence of activities follows:

- Prepare the site by pulverizing the existing HMA pavement and base course. Be sure to pulverize and blend all the HMA and as much of the base course as possible. Avoid sub-grade materials.

**Self-cementing fly ash makes the recycled asphalt hard and strong, and allows for interim traffic operations.**

- Spread the fly ash in predetermined concentrations on the prepared surface. The preferred distributor is a vane feeder truck.
- Blend the fly ash and prepared materials with the reclaimer and add a pre-determined amount of water to the mixture. A reclaimer equipped with an injection manifold is ideal for the addition of water.
- Compact the blended material with a pad-foot roller in vibratory mode if the site will tolerate it and grade the surface to comply with design requirements.
- Complete final grading and roll with the smooth drum roller. The surface is now ready for paving.