What is fly ash stabilization?

Stabilizing soft soils is simply the process of applying controlled amounts of Class C fly ash to the soil surface, thoroughly blending the ash with the soil and water, usually with a reclaimer or pulverizer, grading the material blend and compacting it. The stabilized material is now ready for subsequent construction.

What is the purpose of fly ash stabilization?

Soft, wet, clay-type soils cannot be graded or otherwise manipulated during construction without great difficulty. Stabilizing these soils with fly ash makes them dry, strong and easy to grade. The self-cementing Class C fly ash makes the soils hard and strong, creating a platform on which subsequent construction operations can proceed more effectively.

Company Profile

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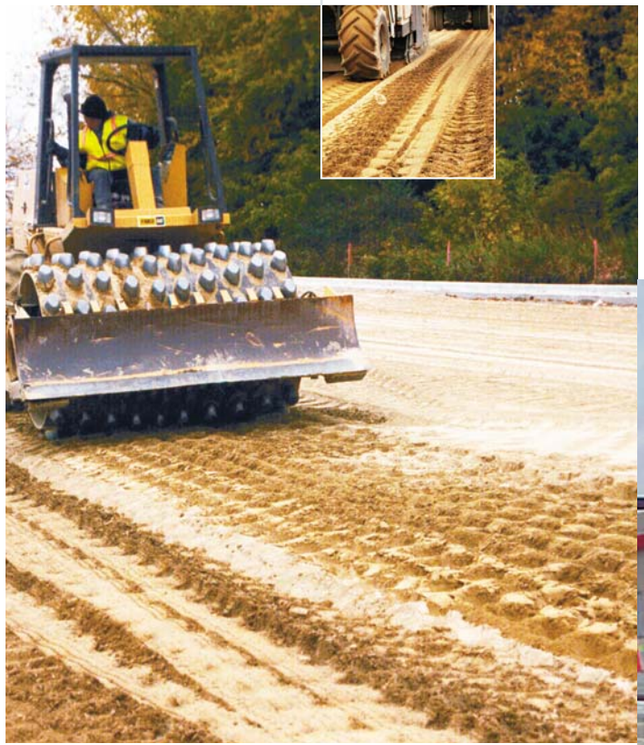
Stabilizing Soils with Self-Cementing Class C Fly Ash

A Field Guide for Owners, Engineers and Contractors



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Stabilizing Soils with Self-Cementing Class C Fly Ash

What types of equipment are required? Essential pieces of equipment include a distributor truck, a reclaimer for blending, a grader, a pad-foot roller, a drum roller and a water truck. The availability of a bucket loader can be beneficial when there arises the need to move small amounts of material on the jobsite.

Who controls the work activities? Ideally, the contractor is in charge of blending and grading operations and controls the work flow. Others involved are the fly ash supplier, engineers, and contractors who are in charge of storm sewer and other utility work. The stabilization contractor is in charge of the stabilization operation and controls this work flow.

Is the process difficult? Stabilizing 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 is as follows:

- Prepare the site by establishing final grade on the existing base course or the sub-base.
- Spread the fly ash in predetermined concentrations on the prepared surface. The preferred distributor is a vane feeder truck.
- Mix [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 drum roller. The surface is now ready for paving.

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 and other activities, it is crucial to keep trucks and equipment from running through the newly placed ash. The material will not be significantly influenced 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. Open time during warm weather is 2-3 hours. Beyond this period, achieving good surface results becomes more difficult. 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 area 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 ensure that all areas where fly ash is distributed are properly mixed or blended. Some overlap is better than leaving strips or other areas unmixed. Care must be taken to keep fly ash out of roadside ditches and off private property.

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