

SUMMARY

The addition of a selected self-cementing, Class C fly ash to blow sand soils improves their compacted strength greatly as opposed to the minimal strength improvement when fly ash is mixed with loess soil. By varying the percentage of fly ash added, the resulting blow sand-fly ash mixture can function as a low strength stabilized material or as a higher strength sub-base. Low strength stabilized material can also be obtained by mixing loess soils with a selected Class C fly ash.

The development of the higher strength values required for subbase materials is very dependent upon compaction delay time and moisture condition of the material. Results at this time indicate that, when compaction delays are involved, excess moisture in the material has the greatest positive effect in achieving minimum strengths. Other added retarding agents, such as borax and gypsum, have less effect.

PURPOSE AND SCOPE

This study was initiated to investigate the effects of adding self-cementing fly ash to base and soil materials.

Two fly ashes and several soil types, representing the range of soils giving problems when utilized as construction materials, were chosen.

The original goal was to determine if high strength mixtures of soil-fly ash could be produced. If so, then the resulting pavement design could take into account the contribution of the soil-fly ash mixture to the overall structural capabilities of the pavement system. As the study continued, a need was expressed by some for a low-strength mixture. That is, in situations where the nature of the soil made construction activities and traffic difficult, some means of stabilizing the soil was desired. This stabilization should produce a mixture that was strong enough to drive on, yet weak enough to be trimmed to final grade by standard equipment.

Preliminary strength results indicating a dependence upon the time delay before compaction were responsible for incorporating a study of retarders into the program.